

R·S·G·B **BULLETIN**

JOURNAL OF THE RADIO SOCIETY OF GREAT BRITAIN

February 1948

The original front cover for this edition was not available.

The original front cover for this edition was not available.

R.S.G.B. BULLETIN

OFFICIAL JOURNAL OF THE INCORPORATED
RADIO SOCIETY OF GREAT BRITAIN

Published on or about 15th of each month. Issued free to members.

Editor:
JOHN CLARRICOATS

Editorial Office:
NEW RUSKIN HOUSE,
LITTLE RUSSELL ST.,
LONDON, W.C.1

Telephone: Holborn 7373



Advertisement Manager:
HORACE FREEMAN

Advertising Office:
PARRS ADVERTISING
LTD., 121 KINGSWAY,
LONDON, W.C.2

Telephone: Holborn 2494

Honorary Editor: ARTHUR O. MILNE.

CONTENTS for FEBRUARY, 1948

VOL. XXIII	Page	No. 8	Page
Probe Valve-Voltmeter and D.C. Volt-Ammeter ...	150	The Radiovision Ham-bander ...	158
Low Power ... Driver	154	The Month on the Air ...	160
Transmitter ...	156	The Month on Five and Six ...	161
Presidential Address ...	156	News from Headquarters ...	163
Amateur Single-side-band Telephony Tests ...	157	Hic et Ubique ...	165

DX ON SIX

BY the time this issue appears we should know whether to expect a return of the conditions which prevailed last November when the first 6 metre transatlantic contacts took place between amateurs in Great Britain and the New World. Assuming that the predictions prove to be correct, the next two months may well find us absorbed in one of the most exciting periods in the long history of Amateur Radio for, surely, if the Atlantic can be bridged, even greater distances may be covered.

In the announcement which appeared last month regarding an extension of the 6 metre facilities it was stated that the G.P.O. required applicants to give an undertaking that the facility would be used for the purpose of conducting "technical investigations."

At the moment the 50-54 Mc/s. band is not an amateur allocation, but because the G.P.O. is aware of the importance which scientific bodies attach to organised experiments on these frequencies they have agreed to authorise British amateurs to use them during the next few weeks provided they can show that they are carrying out useful work.

It should be obvious to everyone that the Society was successful in its application for an extension of the facilities because it was able to show conclusively that good work had already been done by those who were licenced last November to use the 6 metre band.

It would be unwise to forecast, but it seems fairly certain that if we are to succeed at some future date in obtaining a further extension of the present facility—or for that matter any other special facility—then those now working on 6 metres should justify themselves by submitting to the Society as soon as possible after April 30th, 1948, a summary

of the results of their investigations. The information so collected will be carefully analysed and forwarded to those scientific bodies who at present are following the activities of our V.H.F. enthusiasts with very considerable interest.

MICROWAVE TECHNIQUE

During the course of his Presidential Address Mr. V. M. Desmond announced his intention of awarding trophies to the first two home members who succeed in establishing contact with one another over a distance of 25 miles or more on 420 Mc/s.

We have not yet received any definite information as to the date when this band will become available, but the "grape vine" tells us that many members are already turning their attention to this—for us—unexplored part of the spectrum. We use the word "unexplored" advisably because we believe that a certain amount of commercial activity has taken place within the United Kingdom on these frequencies although little has been made known regarding the equipment used or results achieved. The band has, of course, been open to U.S. amateurs for some time and some surprisingly good results have been achieved—the present record of 170 miles was set up on September 28, 1946, between two W6 stations operating portable.

In preparation for the time when the 420 Mc/s. band becomes a U.K. amateur allocation we invite contributions from those who are at present constructing suitable equipment.

It is interesting to speculate whether it will ever be possible to cover really great distances on microwaves by adopting some entirely new technique. At present, long distance communication takes place through the medium of ionospheric reflection and then only up to frequencies of the order of 30 or 40 Mc/s. Under freak conditions, such as those which prevailed last November, the MUF can rise to about 50 Mc/s., but this figure is unlikely to be reached more than once or twice in a lifetime.

Line-of-sight communication is possible at frequencies of a very high order whilst ducting has been demonstrated to be a method whereby such frequencies can be received beyond the line-of-sight distance.

It is conceivable, when more is known about the behaviour of microwaves, that new propagation techniques will be developed and world-wide communication be made possible.

Consider also the equipment which is needed to generate and receive frequencies around 420 Mc/s. At the moment we believe self-excited transmitters and super-regenerating receivers hold sway. Is it not possible that when the problem is tackled by many hundreds of amateurs that frequency stabilised transmitters and super heterodyne receivers will oust the present rather primitive equipment?

The interest being shown in this part of the spectrum is emphasised by the wide popularity of *Microwave Technique*, the first of the new R.S.G.B. technical booklets. It will be the aim of the Society to set a lead in the development of Microwave Technique even as it set a lead twenty or more years ago in the development of the 28 and 56 Mc/s. bands.

J.C.

TELEVISION INTERFERENCE

The March issue will be devoted almost exclusively to the problem of suppressing interference to television caused by amateur transmitters. Hints and tips from those who have solved the problem will be welcomed by the Technical Committee.

PROBE VALVE-VOLTMETER AND D.C. VOLT-AMMETER

By A. G. L. FOSTER G3API*

General Design

It was felt that a probe valve-voltmeter and D.C. volt-ammeter combined in one instrument would be very useful on the test bench. Such an instrument was accordingly designed and constructed, and a description is presented here in the hope that it may be of assistance to others contemplating the building of similar apparatus. No claim for originality in the design can be made, since the circuits for instruments of this nature are more or less standardised. The type of valve-voltmeter shown, however, has an advantage over other types, such as the slide-back, in that readings are direct—this point will be appreciated if a long series of similar measurements have to be made. The range can be extended upwards to several hundred volts if required; the input resistance is fairly high and can easily be made higher if high sensitivity is not required; and the accuracy is quite adequate for all normal purposes. It must be emphasised, however, that component values will be subject to slight variations in individual cases and for this reason those quoted in Fig. 1 should only be used as a guide.

* 14, Leigh Road, Highbury, London, N.5.

The basis of the design is an 0-1 milliammeter. This is used as a voltmeter, with a resistance of 1,000 ohms per volt on four voltage ranges, viz., 0-1, 0-10, 0-100 and 0-1,000 volts, for full scale deflection. Four current ranges, viz., 0-1, 0-10, 0-100 milliamps and 0-1 amp. are also provided. A D.P.C.O. switch is used to bring the meter into the valve-voltmeter circuit. This circuit consists of a small diode, VR78 (D1), and associated components mounted in a probe head which can be brought right up to the circuit under investigation. The diode produces a steady voltage across its resistive load having a value equal to the peak of the input voltage. This is applied as bias to the grid of a VR65A (SP41), triode-strapped, used as a D.C. amplifier, the anode voltage of which is stabilised by a VS110 (S130). The meter is connected between the cathode of the VR65A and a point of similar potential on the bleeder chain across the H.T. supply. With no input, the zero-set control VR4 is adjusted until no reading is observed on the meter. Any increase of bias will, therefore, cause the anode current of the valve to drop, and reduce the voltage across the 200 ohm bias resistor R12, thus causing the meter to read from left to right in the usual way. The pre-set resistor VR3 forms a sensitivity control, and the range of the

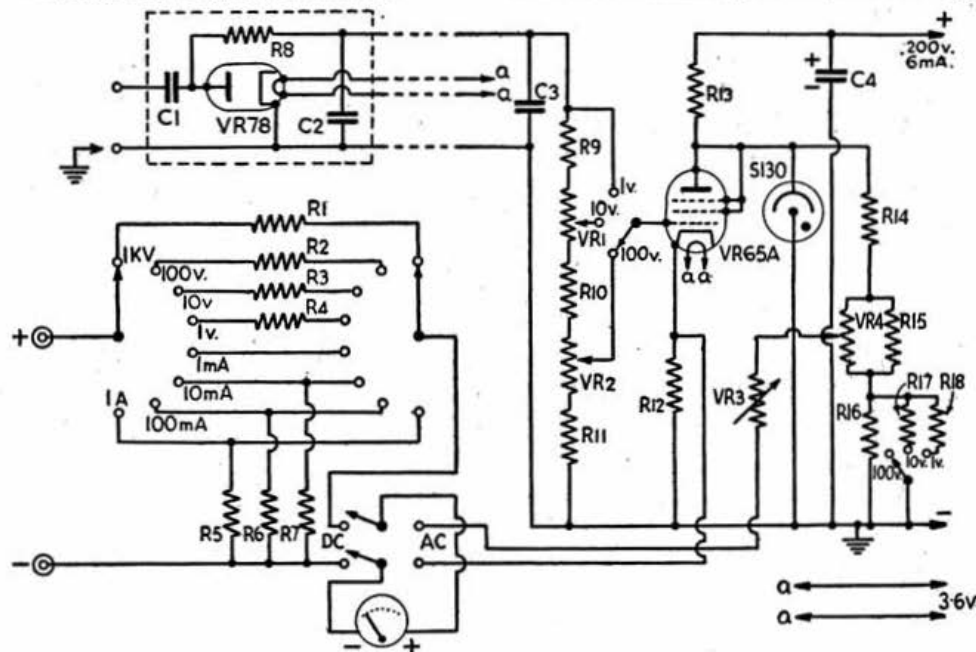


Fig. 1.

Circuit diagram of valve-voltmeter and D.C. volt-ammeter.

R1-7 See text.
R8 2.5 megohm $\frac{1}{2}$ watt.
R9 5 megohm $\frac{1}{2}$ watt.
R10 0.3 megohm $\frac{1}{2}$ watt.
R11 30,000 ohms $\frac{1}{2}$ watt.
R12 200 ohms wire wound.
R13 1,400 ohms 10 watts wire wound.

R14 3,600 ohms 10 watts wire wound.
R15 18 ohms wire wound.
R16 25 ohms wire wound.
R17 950 ohms $\frac{1}{2}$ watt.
R18 60 ohms $\frac{1}{2}$ watt.
VR1 100,000 ohms.

VR2 20,000 ohms.
VR3 50 ohms.
VR4 100 ohms wire wound.
C1 0.1 μ F 400 v.
C2 0.001 μ F mica.
C3 0.1 μ F 400 v.
C4 8 μ F 450 v.

valve-voltmeter can be extended upwards as required by tapping-down on the diode load. As shown in Fig. 1, three voltage ranges are provided, these being 0-1, 0-10 and 0-100 volts for full-scale deflection.

Owing to the space-charge current flowing in the diode load chain, the standing bias on the VR65A alters slightly as the range switch is moved. To avoid the necessity for having to adjust the zero-set control each time, another set of contacts on the A.C. range switch connects additional resistors in parallel with the 25 ohms in the bleeder chain on the 10 and 1 volt ranges. This reduces the voltage between the zero-set control and chassis and compensates for the decreased voltage across the 200 ohm resistance when the range switch is turned to the low voltage positions.

Construction of D.C. Volt-Ammeter

The accuracy of this device depends entirely on the series and shunt resistors, assuming a reliable meter is used. In regard to series resistors, wire-wound types are ideal if they can be bought or wound. There is, however, on the market now a cracked-carbon film resistor of 1 per cent. accuracy. This type of resistor is more stable and thermally inert than the usual composition rod type and is quite satisfactory. Assuming the voltage ranges as shown in Fig. 1 are desired then resistors of 1,000, 10,000, 100,000 ohms and 1 megohm will be required (R1 to R4). Since the meter resistance will be in the region of 100 ohms it will be comparable with the lowest series resistance, and this must, therefore, be shunted to bring the total circuit resistance to 1,000 ohms. This shunt can be of the ordinary carbon-rod type since it will be of a high value compared to the precision resistor and any variation in value, due to age or temperature, will be unimportant. The meter, with its 1,000 ohm resistor in series, should be placed across a source of suitable voltage in parallel with a meter of known accuracy. As this will read low, the 1,000 ohm resistor should be shunted until a correct reading is obtained. The value of this shunt will probably be in the region of 8,000 ohms. It may also be necessary to shunt the 10,000 ohm resistor on the 10 volt range, if this is on the high side, and if 1 per cent. meter accuracy is desired.

It is essential that wire-wound resistors should be used for the shunts (R5 to R7). These can easily be adjusted, using the cut-and-try method, by connecting the meter in series with an instrument of known accuracy. Care should be taken to avoid leaving the meter unshunted with the current flowing, especially when working on the 1 amp. shunt! Clamping the wire under the meter terminals is satisfactory for the preliminary adjustments but the final test should always be made with the shunt soldered in place. Allow a few minutes for the joints to cool before testing to permit any thermo-electric effects to dissipate; these effects can be quite pronounced if certain types of resistance wire are used.

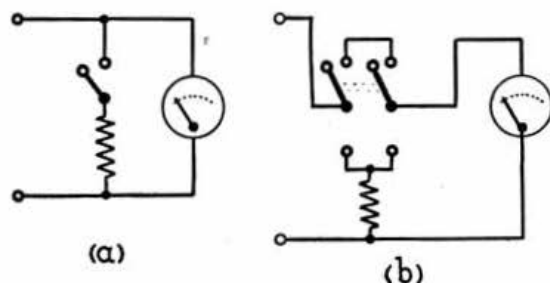


Fig. 2.

Methods of meter shunt switching: (a) incorrect; (b) correct.

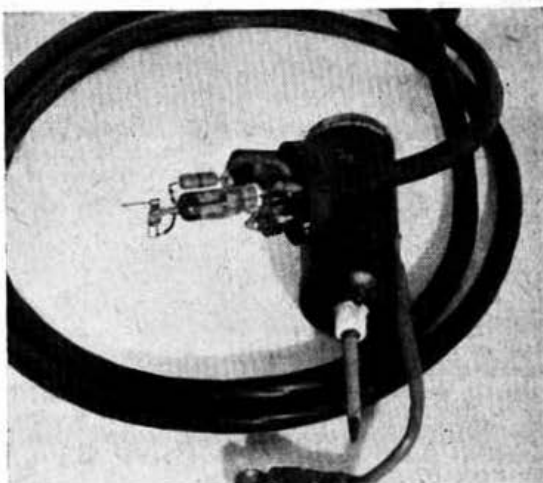


Fig. 3.

Probe head with cover removed.

The D.C. range-switch should be one which has a low contact resistance, such as the type in which a blade passes between a pair of contact springs. The circuit used is such that trouble due to switch contact resistance is reduced to a minimum. This point is explained in Fig. 2 (a) which illustrates a circuit that should never be used for shunt switching, because any resistance in the switch forms part of the multiplying ratio. A circuit such as Fig. 2 (b), using a D.P.C.O. switch, is preferred, as the left-hand section is in the line circuit while the right-hand section is in the much higher resistance meter circuit.

Construction of Valve-Voltmeter

Turning now to the valve-voltmeter, the probe head containing the diode can conveniently be made from an old torch case, connected to the instrument by means of a length of 4-way cable. Special care is needed in the selection of the input condenser C1, because any leakage here will cause serious errors when measuring; for example, at the anode of a valve. Condensers C2 and C3 should also have very high insulation resistance. The pre-set input potentiometers on the 10 and 100 volt ranges can conveniently be carbon-type volume controls (linear law if possible). Cut the spindles off short, slot them, and mount on the chassis in such a position that they will not be accidentally shifted. This method of mounting is also used for the sensitivity control VR3. The reason for the presence of a 100 ohm. potentiometer (VR4) in parallel with the 18 ohm resistor in the bleeder chain may not be immediately obvious but the usual type of 15 ohm potentiometer slider moves in jumps from turn to turn of wire and the result is that exact zero setting is impossible. By using the 100 ohms component as shown, a smooth control is obtained. The value should, however, not be increased beyond 100 ohms, otherwise sensitivity will be affected if the slider is near the centre of the winding due to the extra resistance in series with the meter.

General Assembly Details

The completed instrument, with power supply incorporated, is built into a metal cabinet 12 in. × 7 in. × 7 in. The construction of the probe head is visible in Fig. 3. The input condenser C1 is anchored to the base of the feed-through insulator at the front end of the case and a flying lead clips on to the short spike of wire projecting from the anode connector of the diode. The top of the chassis is

shown in Fig. 4, the valves at the rear being, from left to right, rectifier, stabiliser, and D.C. amplifier. It may be observed that a rather unusual rectifier, the American OZ4 is used. This is an ionic-heated cathode gas-filled valve requiring no filament supply, and was used because no suitable winding was available on the mains transformer. There are no special advantages in using a valve of this type in this circuit, and in the usual case where a suitable winding is provided a normal high-vacuum rectifier should be used.

Valve-Voltmeter Calibration

Calibration is only necessary on the 0-1 volt range, the other two ranges being linear. The meter will read low when the input is lower than about 0.7 volt, due to the curved characteristic of the diode, and for accurate readings a calibration curve should be prepared. Calibration at 50 cycles per second is quite satisfactory, and will be accurate well into the U.H.F. range. It should be remembered, however, that the usual type of rectifier-voltmeter is calibrated in R.M.S. values, and since the valve-voltmeter reads peak volts, full-scale deflection should be obtained on the 0-1 V. range when 0.707 V. R.M.S. input is applied. Most meters are hard to read accurately at voltages of this order and smaller, and a higher voltage applied through a step-down potentiometer to the valve-voltmeter should be used. A suitable ratio is 10:1 and this can consist of 90 ohms and 10 ohms connected in series, the valve-voltmeter being connected across the 10 ohms. The input across the 100 ohm chain should then be set at 7.07 V. R.M.S. and the pre-set resistor VR3 adjusted to give full-scale deflection. The input can then be reduced in suitable steps, bearing in mind that the valve-voltmeter will be reading 0.1414 times the voltage shown on the rectifier voltmeter (as a 10:1 step down input potentiometer is used). The readings should be noted, and a calibration chart prepared. On the other ranges it is only necessary to apply a convenient input voltage and adjust the pre-set controls until a correct reading is obtained.

Care should be taken to ensure that the 50 c.p.s. input voltage used for calibration is sinusoidal in waveform, for although the rectifier-type meter, which will probably be used as the standard, is calibrated in R.M.S. values, its readings are actually proportional to the mean value of the rectified A.C. If the waveform is distorted, the rectifier will not show the true R.M.S. value and the relationship between R.M.S. and peak values will not be as stated. Thus quite serious errors may be introduced, the exact amount depending on the phase of the harmonics. Provided that the supply mains has a sinusoidal waveform, errors due to this effect can be avoided by using a large transformer with generous core area to supply the calibration voltage.

The last step is to adjust R17 and R18 so that the meter zero-setting remains constant as the range switch is altered. It is advisable to have a resistor of about the correct value in circuit on the 1 V. range during initial tests for without any correction the meter will probably go hard over, and it may be impossible to set the zero. During the warm-up period the meter should be kept out of the valve-voltmeter circuit by throwing the A.C./D.C. switch to the D.C. position.

General Notes

The input impedance of the valve-voltmeter is the usual combination of the input capacity and resistance. The input resistance is equal to R8 in parallel with half the value of the total load chain ($R8 + R9 + VR1 + R10 + VR2 + R11$), i.e., 1.5 megohms approximately. If it is not desired to read as low as 1 V. the resistor R8 can be increased,

with a resulting increase in input resistance. The input capacity depends to some extent on the probe construction, and every effort should be made to keep it as small as possible.

If expense is to be kept down to a minimum the S130 can be omitted at the cost of reduced stability. If this is done, the supply H.T. voltage need only be that required by the triode—any value between 100 and 150 V. being suitable and R13 can be omitted. The current taken from the supply is also less, since it consists only of the anode current of the valve (about 5 mA. with no input) and that which flows through R14. This should not be less than 30 mA. since the meter balancing voltage must be developed across a low resistance. The exact value depends on the valve, and may be adjusted during initial tests by slight variations of R14. The higher value of H.T. is necessary when a stabiliser is used, since it forms in effect a variable resistor in the lower half of a potentiometer across the H.T. supply. The combination of R13 and R14 must be such that enough volts are available across the stabiliser to strike it as the H.T.

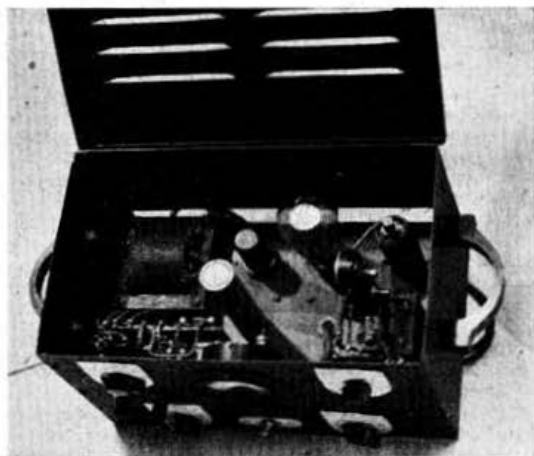


Fig. 4.

Plan view of instrument showing layout of components on top of chassis.

comes up, since in common with other two-electrode stabilisers of similar type the S130 requires a voltage higher than its burning voltage to strike it. The original S130 made by *Cossor* required about 160 V. to strike and burned at 120 V., but the S130's now available by *Osram* strike at 150 V. average, and burn at 110 V. Either type can be used, and although slight differences of striking and burning voltages between individual tubes may be found, the anode voltage of the D.C. amplifier and the voltage across, and therefore, the current through, R14 remain constant which is the important thing.

The power supply is not shown in Fig. 1 since it can take any of the conventional forms, depending upon what is available, provided it will deliver 200 V. at 60 mA. The heater voltage applied to the valves should be rather less than the normal 4.0 V. in order to minimise the space charge current in the diode, and any tendency to grid emission in the D.C. amplifier. 3.6 V. is about the right value. The maximum resistance in the grid circuit of the D.C. amplifier on the lowest voltage range should also not appreciably exceed that shown in Fig. 1, i.e., about 5.5 megohms.

Alternative Valves

In regard to the choice of alternative valve types, it is desirable for obvious reasons to use one of the miniature diodes for the probe rectifier. In regard to the D.C. amplifier, it is essential to use a really

high-slope triode having a fairly low impedance if high sensitivity is to be achieved. The type of short-base high slope R.F. pentode shown makes an excellent triode, having a slope of the order of 10 mA./V. It also has a top-cap grid connection, which is very convenient for wiring to the A.C. range switch, as seen in Fig. 4. Other suitable types are the AC/SP3, also made by Mazda, the Mullard TSP4, and the Osram KTZ41. The conventional type of triode with a slope of about 3 mA./V. can, of course, be used but the sensitivity will be considerably lowered. R8 can be reduced partially to compensate for this, but the input resistance will also be reduced and any step in this direction should be avoided if possible. If it is desired to use valves in the 6.3 V. heater series, a good choice would be the VR92(EA50) for the diode and the VR91(EF50) triode-strapped as the D.C. amplifier. The heaters should be operated at a reduced voltage, say 5.5 V. for reasons as previously given.

In conclusion, the author would like to thank Mr. L. A. C. Hill, BRS7485, for the excellent photographs of the instrument reproduced herein.

BOOK REVIEWS

RADIO RECEIVER SERVICING AND MAINTENANCE (4th Ed.). By E. J. G. Lewis. Pitman & Sons. 324 pp. 8s. 6d. net.

This is a book written essentially for the practical man and is of interest not only to professional service engineers, but also to the amateur who may come across an unfamiliar receiver in the pursuit of his hobby.

In the 15 chapters, subjects covered range from a consideration of matter and elementary theory, to superheterodyne receivers with press button tuning and A.F.C. There are also chapters on Radiogramophones, pickups and turntable motors, with useful hints on the various faults that may develop with these components. Aerials, interference and hum are also covered, and in this edition a chapter is devoted to the American midget-type receiver. A useful chapter on valves and their faults gives much information of a practical nature and includes simple methods of testing them. All the usual types of multi-electrode valve are covered.

This book will be found to be of particular use to the serviceman—some of whom perhaps have not had a wide range of experience in some of the more modern sets—since it endeavours to promote an understanding of the functions of receivers and components and explains how to interpret the symptoms of the various faults a radio receiver and its associated equipment are liable to develop. To the more experienced radio amateur a wealth of service hints are to be found within its pages.

J.W.M.

1947 N.F.D. & D/F Field Day Films

Copies of the above films are now available for display at meetings. The films are 16 mm. silent and the total running time is about 30 minutes.

Application for the loan of the films should be made to Headquarters and at least two alternative dates given.

The following special points should be noted by those who borrow the films:—

- (1) After use they must be rewound on to the original spools and placed in the same cans.
- (2) Breaks must be reported immediately.
- (3) Films must be returned to Headquarters by registered post immediately after use.

Phone Monitor

By C. H. L. Edwards (G8TL)

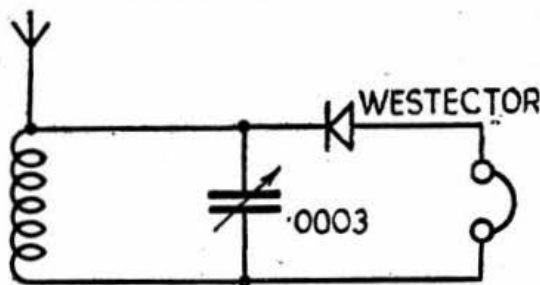
A USEFUL and quite efficient monitor can be made for next to nothing from items usually to be found lying around the shack. The parts required are:—

- 1 Small wooden box about 6 in. × 5 in. × 4 in.
- 3 4-pin coil holders. Alternatively 3 pieces of paxolin tube 1½ in. diameter and about 2 in. long with plugs and sockets (2 pins only required).
- 1 4-pin valve holder (coil mount).
- 1 Variable condenser, single spaced, capacity about .0003 µF, and dial.
- 1 Phone socket.
- 1 Westector, type W4 (used in original).
- 1 1 in. stand-off insulator.



These components are assembled as per the accompanying photograph, and wired according to the diagram. As the layout is not critical, adjustments can be made if the box available is larger or smaller than the size suggested. The coil data is as follows:—

- 160/80 metres.—1½ in. diameter former, 52 turns, 24 S.W.G., enamel.
- 40 metres.—1½ in. diameter former, 10 turns, 20 S.W.G., enamel, turn spaced.
- 20 metres.—1½ in. diameter former, 4 turns, 20 S.W.G., enamel, turn spaced.
- 10 metres.—1½ in. diameter (no former), 4 turns, 11 S.W.G., turn spaced.



Circuit diagram of Phone Monitor.

The monitor is in use at the writer's station, and is mounted close to the aerial change-over panel, with about 2 ft. 6 in. of 14 gauge copper wire attached to the porcelain insulator, and runs parallel to the outgoing W3EDP aerial, at present in use. The pick-up is ample for several pairs of phones.

LOW POWER DRIVER TRANSMITTER

By J. N. ROE (G2VV)

THE writer recently acquired a transceiver designed for plug-in crystal operation in the 7 and 3.5 Mc/s. bands and, having no crystal for the latter band, decided to try out a single valve QRP oscillator as a driver unit. Past experience, coupled with ease of construction, led to the choice of the familiar Hartley circuit. Very satisfactory results were obtained and for those readers who may be interested the following details are presented.

Construction

The essentials in the design of any oscillator are :—

- Absolute rigid construction.
- Complete screening.
- A smooth and constant power supply.

To comply with (a) and (b) an all metal chassis and case were used as shown in the accompanying photographs. The case is actually an ex-W.D. "spare valves carrying case" which cost only a few shillings. These are available and are really ideal for the purpose. The case measures $8\frac{1}{2}" \times 6\frac{1}{2}" \times 8"$ with chassis $7" \times 4\frac{1}{2}" \times 1\frac{1}{2}"$. Reference to the photographs will give a clear idea of the general arrangement of



General view of the complete transmitter.

the condenser dial and coupler being fitted with the chassis in position. The H.T. toggle switch and jack (for key or milliammeter) are wired as a last operation. No. 16 S.W.G. bare tinned copper wire is used for leads in the tuned circuit. H.T. and L.T. connections are taken by way of multi-4-core cable which passes through the back of the case. All fixed condensers are of the mica type. Tubular condensers are not suitable. RFC1 and RFC2 are standard R.F. chokes designed for amateur frequency operation.

Coil Data

Although originally required for 3.5 Mc/s. operation it was decided to cover the 7 Mc/s. band as well. The following winding data will permit the use of only one coil (L) for operation on both bands :—

Wind 25 turns of 20 S.W.G. enamelled copper wire (space wound) on to a standard 4-pin plug-in former. Make the H.T. tap at 10 turns from the grid end. A ceramic coil base is used.

Operation

When the oscillator is used as a driver to replace a crystal the R.F. output is taken, via C1, from the grid side as this provides greater stability than the usual plate method. For this purpose a small stand-off insulator is mounted on the side of the case and is

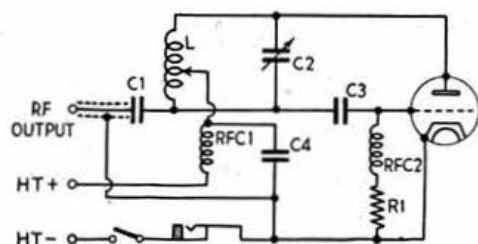


Fig. 1.
Circuit of Transmitter.

C1	50 pF.	RFC1, 2	Standard R.F. Chokes.
C2	-0001 μ F.	R1	25,000 ohms watt.
C3	-01 μ F.	Valve	ML6 or 6CS.
C4	-006 μ F.	L	See text.

components for only the choke (RFC2), the condenser (C3) and the resistor (R1) are wired out of sight under the chassis. The tuning condenser (C2) is a rigid miniature type and fitted well back from the front panel. The insulated flexible coupling provides isolation from the metal panel. As the chassis is bolted to the bottom of the case and the front panel is not removable (being a part of the case), the components were mounted and wired externally—

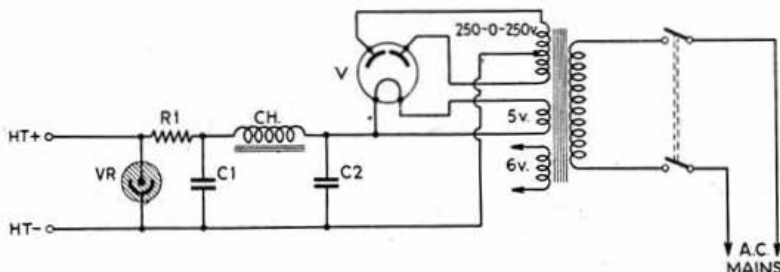


Fig. 2.

Power supply circuit for the Hartley transmitter.

C1, 2	8 μ F 500 v.	T	250-0-250 50 mA.
R1	10,000 ohms.	CH	30 H 50 mA.
V	80.	VR	VR150/30.

connected to the "live" side of the crystal holder. The "earthy" side is connected to the earthed case of the Hartley—a small terminal being mounted at the back of the case for earth connections. The R.F. lead should be kept as short and as rigid as possible. If the lead is more than 6" long, screened wire is recommended, with the screening connected to a convenient earth point. Providing the lead is of reasonable length the additional small capacity will have no adverse effect in operation.

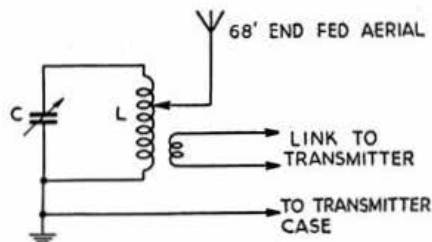


Fig. 3.

Aerial arrangement used by the author. The coil L should be tunable for the band in use. C .0003 μ F.

The power supply shown in Fig. 2 meets the demands of (c) as mentioned earlier. With 150 volts H.T. and using an ML6 or 6C5 valve the plate current is approx. 6 mA. (.9 watt). This is ample power to drive a 7H7 buffer amplifier and with a 7C7 as a P.A., running at 10 watts, T9 reports are normally received.

The H.T. switch, on the oscillator, permits rapid "beat" operation against a station for V.F.O. work without causing interference on the air, as the buffer stage is keyed.

Use as a QRP Transmitter

This oscillator was used as a self-contained transmitter in the recent R.S.G.B. QRP Contest and to comply with the rules the H.T. supply was replaced with a 120 volt H.T. battery. A 68-ft. end fed aerial was employed and was tuned as shown in Fig. 3. Link coupling was used between the aerial tuning unit and the transmitter (Note: Direct coupling on to the tank coil is not recommended as it will seriously upset the stable performance of a self-oscillator). With an input of 1.1 watts (120 volts at 9 mA) 65 out of the 66 stations worked gave T9 reports. The odd report was T8 and it was reasonably assumed that a little more smoothing in the receiver at the other end would have produced a T9 report! As a matter of interest, reports have since been received from D, PA and OK all giving RST569.

Tests on 7 Mc/s. have been quite satisfactory and results compare favourably with those obtained on 3.5 Mc/s. Providing a period of five minutes is allowed for the valve to warm up no appreciable drift has been noted. When using the unit as a self-contained transmitter the key-click filter shown in Fig. 4 is employed not only in consideration for BCL's but to avoid click troubles with the local amateurs. With this filter in circuit the quality of the note remains unaltered. The component values were selected after considerable experiment.

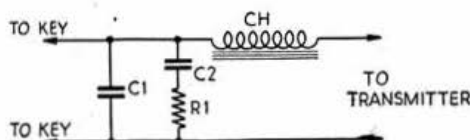
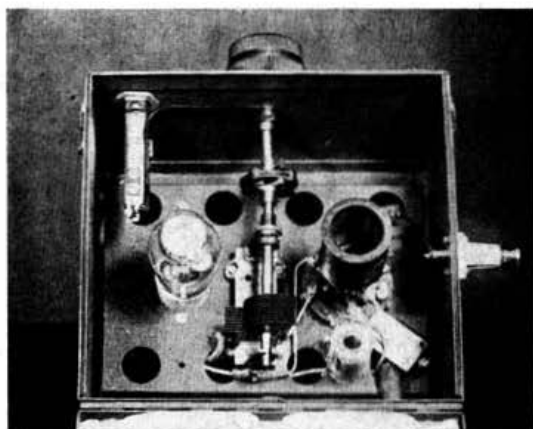


Fig. 4.

Key Click Filter. The condenser C1 (.01 μ F) should be fitted close to the key contacts. C2 .5 μ F. R1 100 ohms. CH 1.5H.



Plan view of transmitter.

General Notes

For higher inputs the H.T. voltage may be increased, in which case additional stabilisers should be added to the power supply. Most probably it will also be necessary to alter the position of the H.T. tap on the coil for the desired "no load" to "full load" plate current.

It should be remembered that the frequency must always be checked against a reliable frequency standard in accordance with licence requirements. This applies equally whether the unit is operated as a driver or as a self-contained transmitter.

The Amateur Licence

The current amateur licence contains a reference to three British Standards definitions, viz., 4119, 4120 and 4121. For the guidance and information of members who do not possess a copy of BS204-1943 (*Glossary of Terms used in Telecommunication*) we give below the relevant definitions.

4119 Type A1 Waves.

(Keyed Continuous waves. C.W. Telegraphy on pure continuous waves.) Continuous waves which are keyed according to a telegraphic code.

4120 Type A2 Waves.

(Keyed modulated waves. I.C.W., M.C.W. Modulated Telegraphy.) Carrier waves modulated at one or more audio-frequencies, the audio-frequencies, or their combination with the carrier wave, being keyed according to a telegraphic code.

4121 Type A3 Waves.

(Sound-modulated waves. Telephony.) Waves resulting from the modulation of a carrier wave by frequencies corresponding to the voice, to music or to other sounds.

* * * * *

Several members have written to enquire whether Frequency Modulation is permitted by the G.P.O. The answer is "yes" but only on the 28, 58.5 and 2300 Mc/s. bands.

The G.P.O. have not yet given a ruling on the use of pulse.

Microwave Activity

First evidence of local activity on frequencies in the 2,400 Mc/s. band comes from G3CBN and G8IH of Ealing, London, who have built and operated several transmitters of a co-axial cavity type using disc-seal triodes. For reception they have tried receivers ranging from the straight crystal plus amplifier to super-regen, and superhet types. A cross-band 2,400/14 Mc/s. QSO has taken place and their DX record to date stands at just over $\frac{1}{2}$ mile.

We hope to publish news of further microwave activity in future issues.

PRESIDENTIAL ADDRESS*

By VICTOR M. DESMOND, G5VM

It is customary in our Society for a new President when he takes office to deliver an address to those members who are able to attend the appropriate meeting in London. I have always felt that the address should be broadcast over one of our own amateur stations so that members in all parts of the country and abroad could hear it if they so wished. However, I am afraid that idea will never materialise unless His Majesty's Postmaster-General allows us to use our new Headquarters' station for that purpose.

In accepting the Presidency I am fully conscious of the great honour which has been accorded to me. This is the first time I believe that a Provincial member has been elected President, and in nominating me for that high office I like to think that the retiring Council had in mind that my election would still further help to remove the myth that the Society is run from London for the benefit of London members. During my long association with the Society I have never felt there has been any truth in that suggestion, in fact I have always been impressed with the impartial, I might almost say detached, manner in which the members of the Council consider the many problems which are brought to their notice. Other Provincial members who have served on the Council will, I am sure, support that view.

Administrative Centre

For well over 100 years it has been the custom of the larger Provincial cities to regard themselves as fully competent to run the country. I do not dispute their claim but when it comes to a Society such as our own, I think it is most desirable that the Administrative Headquarters should be centred in the Capital and within easy reach of those Government Departments which we have to contact from time to time. As we look around we find evidence in plenty that National Societies are controlled from the Metropolis, whilst most of the large commercial concerns which have grown up in the Provinces, find it expedient to establish London Offices.

In drawing attention to this matter of Headquarters I should like Provincial members to know that it will be my aim during the coming year to see that their interests continue to be fully safeguarded. I am only too well aware of the transport problems which confront small and often isolated groups of Provincial members. Petrol rationing will make things even more difficult for them, and for that reason I urge every small group to get together under an elected Town Representative and endeavour to keep the flag flying until travelling facilities enable them to attend meetings in the more populated towns.

Representation

This month a large number of new Representatives take office for a period of two years. With few exceptions these representatives have been duly nominated and elected by the membership, thereby carrying into effect the recommendations of the Delegates Conference held last April. I should like to extend a word of welcome to our new Representatives and assure them that I appreciate very much their interest in agreeing to undertake voluntary duties on behalf of the Society. I am, however, very disturbed at the lamentable showing put up in certain of the Regions where it became necessary to hold an election. The London Region, with its three, four or perhaps five

thousand members provides a glaring example of mass apathy. Two well-known members were nominated for the office of London Regional Representative. Eighteen votes were cast in favour of one nominee and 11 in favour of the other.

I realise that many members are not interested in the administration of the Society but it is difficult to believe that less than 30 in the whole of the London Region fall into that category.

Two years ago the Council gave serious consideration to a proposal that representation should be broadened by arranging for an Administrative Committee of R.R.'s to act in an advisory capacity to the Council, with a view ultimately to the R.R.'s replacing the Council as the Executive body. Until



Mr. V. M. Desmond, G5VM.

such time as the membership generally shows itself willing to shoulder its responsibilities I do not see how the Council can possibly delegate its present duties to a new body.

The recent Council elections provide another example of mass apathy. Nearly 14,000 members were eligible to vote but only about 20 per cent. exercised that right.

Band Planning

I should like now to refer to one or two matters which are of topical interest. During the coming year we expect to be told when the Atlantic City Conference Allocations Table will be introduced. In preparation for that time the Council has delegated to its Codes of Practice Committee the task of examining all matters relating to Band Planning with a view to submitting concrete proposals. I realise that this problem is as wide open to debate as were such hoary annuals as QRP versus QRO and District Notes, in the past. On the other hand, I think that even the strongest antagonist of Band Planning will agree that if the best use is to be made of our restricted wave bands some form of orderly distribution of those wavebands between the users of telephony and telegraphy is desirable. It may be possible during the coming year to arrange a meeting

* Delivered at a meeting of the Society held on January 9th, 1948, at the Institution of Electrical Engineers, London, W.C.2.

with the other I.A.R.U. Societies in Europe to discuss this and other matters of mutual interest.

New Frequency Bands

The year 1948 will see a tremendous exodus to the V.H.F. bands and already there is evidence of wide interest in the new frequencies which we expect to be using in 1949. In order to encourage interest in V.H.F. work, and in particular work in the centimetre portion of the spectrum, I have decided to offer a pair of trophies to the first two home members who succeed in establishing contact with one another over a distance exceeding 25 miles on frequencies within the 420-460 Mc/s. (75 cm.) band. I realise of course that for the time being valves and components suitable for this band are not generally available to amateurs, but I hope that before the new V.H.F. bands are released, manufacturers will have made arrangements to meet the demands which will certainly arise.

The 144-146 Mc/s. (2-metre band) should provide us with many opportunities to emulate the example of our American friends who, in recent months, have been achieving contacts up to 600 miles.

I am hopeful that the 21 Mc/s. band when it becomes available will help to solve some of our present-day DX problems, although I must confess to feeling somewhat disturbed at the possible trouble that may occur due to amateur 21 Mc/s. transmissions interfering with the television service. So far the problem of television interference has been confined to the London area, but I expect that within the next two years the Midland amateurs will be in difficulties unless they have made good use of the experiences gained by those who live in London and the Home Counties. I am especially pleased to know that a spirit of friendly co-operation is being built up between the Society and the television industry, for only by keeping in close touch and by exchanging

ideas can the problem be solved and real success achieved.

Headquarters' Station

The year 1948 will see our new Headquarters station become a going concern. I regret, as must most of you, that the station cannot be used to broadcast important news to members, but I have no doubt that the marker service which it will provide will prove of very great value to us all.

Work for the B.R.S.

Before concluding my Address I wish to say a few words to our B.R.S. members of whom there are now nearly 10,000. I want them to know that although the Society is the National organisation responsible for safeguarding the interests of transmitting amateurs, it is also in being to encourage interest in all other branches of radio science. Those whose interests lie in the development of communication receivers and measuring equipment, have just as important a part to play in the advancement of the art of radio science as have their transmitting colleagues. As more paper becomes available THE BULLETIN will begin to reflect these other activities to a greater degree. In the meantime I would urge upon the younger B.R.S. members to branch out into new lines of experiment. The micro waves provide a most fascinating field for study, whilst the need for organised and systematic observations of transmissions in the short, medium and long wave ranges has, on frequent occasions been emphasised by such eminent authorities as Sir Robert Watson Watt and Dr. R. L. Smith Rose. The setting up of a Scientific Observations Committee will ultimately pave the way for a number of non-transmitting members to participate in a form of research which will not necessarily demand the use of expensive equipment.

Amateur Single-sideband Telephony Tests

THE January issue of *QST* contains a series of articles giving details of what is believed to be the first amateur use of *single-sideband-suppressed-carrier* transmission. A far-reaching influence on amateur telephony practice is forecast for this system, which—it is claimed—could permit more than double the number of stations to operate without interference within any given frequency band. Other advantages, if the system came into general use, would include duplex working, the elimination of heterodyne whistles, and the reduction of unwanted signals to unintelligible background noise. Expensive high power modulators would become unnecessary, increased signal strengths would be obtained from identical power inputs and receiver IF selectivity curves could be made much sharper with resultant reduction in background noise.

Tests with *s.s.s.c.*, as it is called, have been carried out since September last by W6YX of the Stanford University, California, and W01QK of Parkville, Missouri. Although the circuits employed may appear unfamiliar to many amateurs, there is nothing unduly complicated about them—as is shown by the fact that the equipment at W01QK was built in less than a week. Basically the transmitter consists of a speech amplifier, a "ring" modulator, a 9 kc/s. fundamental oscillator, and a low frequency bandpass filter. This is followed by two further balanced modulator and filter units employing heterodyne principles to convert the frequency first to 540 kc/s. and then to 14205 kc/s. The ring and balanced modulators suppress the carrier while the filters

separate the upper from the lower sidebands. A final power stage consists of a Class B R.F. amplifier.

To receive *s.s.s.c.* signals the missing carrier must be restored before the audio detection stage. This can be done on any communications receiver by employing the B.F.O., although this will only be successful if the stability of the beat oscillator is of a high order. A variation of from 10 to 20 cycles will cause distortion and render the speech unintelligible. In the American tests one out of every four stations was unable to obtain clear and undistorted signals but hum modulation of the B.F.O. is believed to account for a number of these failures.

Members wishing to assist in the tests should make a careful note of the tuning procedure which must be followed in order to obtain readable signals:—

- (a) The A.V.C. is switched off;
- (b) The receiver is tuned until the sideband is heard at maximum strength;
- (c) The B.F.O. is switched on;
- (d) Leaving the tuning unaltered, the B.F.O. control is adjusted until the speech becomes clear.

The I.F. and R.F. gain should be kept in check, since overloading of any of the stages will cause distortion. Until the final adjustment of the B.F.O., the signals will remain completely unintelligible and a succession of inverted, bass or high pitched speech will be heard.

A number of DX contacts have already taken place but the operators are anxious to obtain further data.

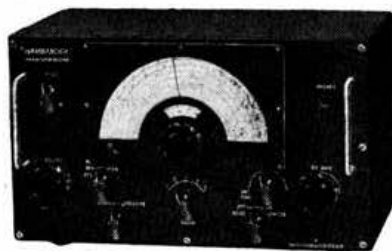
A British C.W. operator has commented that the system appears to be a step in the right direction—but why stop at suppressing only one sideband!

THE RADIOVISION "HAMBANDER"

It is now nearly two years since the Council invited the Radio Industry to give consideration to the problem of producing certain specialised types of equipment which would find a ready sale in amateur circles. The need for an inexpensive communications-type receiver was emphasised as it was felt that a large number of new-comers would be unable to afford receivers costing £50 or more.

The advent of the "Hambander"—a product of Radiovision (Leicester) Ltd.—is the first serious attempt on the part of a British manufacturer to produce a really low price instrument suitable for use on all amateur bands up to 28 Mc/s.

The "Hambander" embodies a number of features which one normally associates only with instruments falling into a much higher price class. These features include a noise limiter, iron-cored coils, five switched wave-bands, separate band-spread dial and a built-in power supply (200–250v. A.C.).



The components are neatly assembled into a fully-ventilated, black-crackle, steel cabinet measuring 13" x 9" x 10" deep.

The valve line-up is:—Frequency Changer (X61M), I. F. Amplifier (6SG7) Detector, A.V.C. and Audio (6Q7), Output (KT61) and B.F.O. (L63). A U50 is used for the rectifier and a CG1-C crystal diode for the noise limiter.

The frequency ranges are:—Band 1, 32–20 Mc/s., Band 2, 21–14 Mc/s., Band 3, 10.5–7 Mc/s., Band 4, 4.6–3.2 Mc/s., Band 5, 2.6–1.7 Mc/s. The 1.7, 7 and 14 Mc/s. bands commence at the extreme right hand edge of the dial. The band-spread is adequate both for transmitting and short-wave receiving purposes varying from 200 divisions in the case of the 28 Mc/s. band to 700 divisions at 1.7 Mc/s. The 21 Mc/s. band as well as the present amateur bands are clearly marked on the scale which is very large and fully illuminated.

As no R.F. stage is incorporated it might be assumed that the performance is inferior to that normally looked for by the discriminating amateur but, due to the use of controlled regeneration in the I.F. amplifier (1.6 Mc/s.), this is not the case. Another feature which assists considerably to improve the performance is a variable aerial compensator control which balances the aerial with the input circuit of the first stage. The regeneration is applied to the I.F. amplifier and for best results should be operated as near to maximum as possible. This control is particularly useful when receiving weak C.W. signals. The effect of the regeneration is to sharpen-up the selectivity curve very appreciably.

On test the receiver was found to be quite sensitive and reasonably selective except on Band 5 where the break-through from the B.B.C. transmitters was so tremendous that reception of all but the strongest local stations was impossible. The

signal-to-noise ratio was found to be good and the output on phones or loud speaker adequate for all normal purposes.

The noise limiter whilst not as effective as those fitted in some of the more expensive receivers, is nevertheless a useful feature.

When employed for the reception of telegraphy signals on 28 Mc/s. signs of slight frequency instability were noticed especially after the send-receive switch had been used to mute the receiver during transmission periods, but this trouble did not appear to be so noticeable when receiving telephony transmissions. On the lower frequency bands the stability was better although it could still be noticed when receiving weak signals. It is understood that stability has been improved on later deliveries by the use of a new type of coil-pack.

The general appearance of the set is most pleasing, in fact it is probably one of the best-looking receivers on the market to-day. The switch controls and other knobs are very satisfactory but some users may feel that the position of the main tuning control is too high for extended periods of operation. The location of the phones jack could probably be improved although it is recognised that the majority of amateurs now use a loud speaker for reception purposes. The loud speaker and aerial terminals are mounted at the back of the set.

Bearing in mind that this is the first communications receiver produced by Radiovision Ltd. (excluding the V55R which was a modified R.A.F. R1155) the results achieved are highly creditable and augur well for the future. The present design will no doubt be modified as experience is gained but even the prototype which formed the subject of this review exhibited features of and performed as well as many more highly priced instruments.

The receiver is offered at the extremely low figure of £22 10s. 0d. There is no Purchase Tax.

J.C.

QSL Bureau

The address of the R.S.G.B. QSL Bureau is 29 Keehill Gardens, Hayes, Bromley, Kent. The service is free to members. Send your cards in bulk addressed by call sign only. A supply of envelopes of suitable size with your call sign in the top left hand corner of each and stamped 2d. should be maintained at the Bureau for collection of incoming cards. Non-members may collect but not send cards through the Bureau.

Have you got any envelopes at the Bureau? Please help us by collecting your cards.

BULLETIN CONTRIBUTIONS

THE BULLETIN invites contributions on a wide variety of technical subjects and will purchase the copyright of all such contributions published at the rate of **Three Guineas per 1,000 words for leading articles, and Two Guineas per 1,000 words for other articles.** Drawings and photographs will be taken into account when assessing the copyright fee to be paid to a contributor.

Prospective contributors are requested to submit a precis of their article before proceeding with the preparation of the manuscript.

Manuscripts should, whenever possible, be typed, using double spacing, and all drawings must be submitted on separate sheets with the name of the author and the title of the article written on the back. Hints to Contributors can be obtained upon application to Headquarters.

The Station behind the Call

G2BB*



Rotary Beam at G2BB.

A well-planned layout combined with careful construction and full monitoring of audio and R.F. output makes G2BB of Yateley, near Camberley, Surrey, an outstanding example of modern amateur station design. Though active on all bands from 1.8 to 60 Mc/s., this station can be heard most often on 28 Mc/s.—on which band more than one hundred countries have been contacted on telephony since post-war activity commenced on February 10, 1946.

The present transmitter—built into two six-foot racks—consists of a 6J5, a 6L6, two single 807 stages, followed by a pair of 807's in push-pull driving two HK54's in the final stage. Crystal control is normally used on DX bands but provision has been made to utilise a variable frequency oscillator—Type 145—on the lower frequencies.

Speech Compression Circuits

Of particular interest are the speech circuits, which employ two separate automatic volume control systems—one in the head amplifier and the other in the modulator unit—together giving about 50 db of compression, and holding the output level within plus or minus 2 db over this range. The steep cut-off characteristics of the controlled valves prevent over-modulation, even after the compression limit has been reached. An oscilloscope with 1-inch screen continuously monitors the R.F. output.

The audio valve line-up is 6K7—6J5—6K7—6J5—2xEL32—2x807 with the two AVC side-chains using 2x6SN7 and 6x6H6 valves. The box on the lower left-hand side of the operating desk houses the microphone head-amplifier—the associated controls permitting several different types of microphone to be faded up at will—and a programme level meter.

*D. P. L. May, Koza Reading Road, Yateley, Surrey.

To the right of the receiver and pre-selector is an electronic keying unit which also contains remote control equipment and an audio monitor. Immediately below this is the 60 Mc/s. converter with output on 12 Mc/s. coupled to the main receiver.

Four Element Rotary Beam

Various aerial systems are used including the 28 Mc/s. four element rotary beam illustrated. The beam—mounted 51 feet above ground—is rotated by means of a 48-foot length of $2\frac{1}{2}$ " duralumin tube set in bearings along the side of the steel lattice tower. The elements and the tube may be lowered independently by means of a permanently fitted steel cable tackle.



View of Transmitter and Receiving Position at G2BB.

The beam can be rotated at about 3 r.p.m. by a $1/10$ h.p. 24 volt D.C. motor fitted with reversible press button control. To indicate direction of the beam, a system of 3 contacts and 12 studs at the foot of the tower, applies power to the fields of a repeater motor installed in the control head set on the operating table.

The Braaten Trophy

With the approach of the A.R.R.L. DX Contest we reproduce below the Rules governing the award of the Braaten Trophy.

(1) The Trophy (donated in April, 1937, by Arthur M. Braaten, W2BSR, of Riverhead, Long Island, New York) will, at the discretion of the Council of the Society, be awarded each year to the fully paid-up Home member of the Society scoring the highest number of points (as recorded in *QST*) in the Annual DX Telegraphy Contest organised by the American Radio Relay League.

(2) The Trophy will not be awarded to a station in Scotland, Wales, Northern Ireland, Isle of Man or Channel Isles, unless at least twelve entries are received by the A.R.R.L. from R.S.G.B. members in the entrant's country.

(3) The Trophy will be held for one year and will be awarded at the Annual General Meeting or at such other function as the Council may decide.

(4) The Council reserves the right to award the Trophy for any purpose other than that mentioned in Rule 1.

Courtney Price Trophy

The Council has been pleased to award the Courtney Price Trophy for the year 1948 to Mr. Frank A. Robb, G16TK, of Belfast, in recognition of his achievement in leading the United Kingdom entrants who participated in the 1947 A.R.R.L. DX Telegraphy Contest.

Correction

In the account published last month of the presentation of trophies it was stated that Mr. G. T. Peck, the winner of the D/F Field Day (South of the Thames) event was not a member of the Society. Mr. Peck is in fact BRS.15402. We apologise for our error.

Side Slip

In Fig. 1 used to illustrate the article by Mr. K. E. V. Willis, A.R.C.S., B.Sc., published in our December issue, the input should have been designated "6 volts D.C." (as indicated by the polarity signs) and not "6 volts A.C."

THE MONTH ON THE AIR

By A. O. MILNE (G2MI)*

The Low End

SUPPORT for the suggestions put forward regarding this subject has been very encouraging. A considerable volume of correspondence has been received during the month, all of it favourable. Some of the letters tell of conduct which has bordered on deliberate interference on the part of certain 'phone stations with their C.W. brothers.

There is however a definite sign that some operators are beginning to examine their consciences as at least the first 50 kc/s. of 3.5 Mc/s. is now reasonably clear of 'phone. Why not try telling 'phone stations which answer you in the C.W. band that you do not QSO in that part of the band and ask them to QSY so that the contact may continue?

QSL's: A Question

Recently we had occasion to examine quite closely some twenty QSL cards chosen more or less at random. After carefully reading everything on them we found that eight of them made no mention of a QSO, six did not mention the band used and fourteen made no specific mention of 'phone or C.W. The eight which were obviously intended as confirmation of contact simply said "Ur sigs. RST... at... etc. Admittedly two of them carried a manuscript note "Tks. fr. QSO" but the other six might just as easily have been mere reports. Have a careful look at your own cards and see if they really say what you want to say. Incidentally if a note is not T9, don't let the owner remain deluded; tell him straight out. Even if we are now "amateurs" we need not drop all our "experimenters" zeal!

Notes and News

VQ1HJP was operated by John Powell VQ3HJP in Zanzibar from 1400 on December 1st to 0200 December 15th, 1947. His only G contact was G6QB. Cards have arrived from VQ3PYE. G8ML worked HC1JP on December 23rd at 21.00 GMT on an otherwise dead 28 Mc/s. band—R4S3 both ways. ZD2KC asks us to say that he will QSL 100 per cent but is awaiting a delivery of cards. He is located 20 miles from the nearest post office which is often cut off by floods. G2FDF/YI is now signing YI2FDF, the note last month regarding YI2AM was incorrect. Please do not QSL direct. Cards should go via R.S.G.B. Bureau only.

We are glad to see the return of a real old-timer in the person of G5VS now living in Maidenhead. BR516296 is now D2J1. QSL via R.S.G.B. The G6WY now on the air is a pirate. This call has been cancelled since "Ham" Whyte went to Canada and we understand that it will never be re-issued.

VQ2DH the new VQ2 QSL Manager is looking for G's. His frequency is 28360 and he is on every afternoon G.M.T. QTH Box 93, Livingstone. VP2KS on St. Kitts is on 28180 also looking for G's. This information comes from G3DAH. G5LR informs us that the Canal Zone Amateur Radio Society Box 407, Balboa, offers a very attractive certificate to anyone working 10 KZ stations. BR516304 has heard ET3AE at 11.30 G.M.T. on 28.5 Mc/s. This station QSL's. Other rare DX includes VQ4NSH, 14130 at 19.00 G.M.T., HH2X on 14.3 at 19.40 G.M.T.

W1FH has worked U80KGA on Cape Smith near Wrangell Is. This is in Zone 23. Station is V.F.O. on the low end of 14 Mc/s.

GC2CNC has a legitimate grouse. He says "many people say I am their first GC and beg me to QSL air mail etc., etc. I have QSL'd 100 per cent, yet returns are barely 25 per cent. In future I shall QSL only after I receive a card." He has worked KP4KD on 7027 and HP2CA/M, KP4KD and ZS3D on 14 Mc/s. Once again the long CQ call is condemned. "What is the use of expasperating the very man you are trying to raise?" he asks "or for that matter answering a DX station by moving to his frequency and calling him for ten minutes?"

G8J1 has been "going to town" on 3.5 with four VE1's VE3, numerous W1, 2, 3, 4, 5, 9 and 0 stations also NY4CM on C.W. VE1, 2 W1, 2 on phone. MD6AR wants contacts in Leicester—28150 kc/s. AC4YN is active again on 28420 'phone. Time there is 6 1/2 hours ahead of G.M.T. He has heard G6J1, R5 S4/7 at 1645 local time. Another genuine AC4 is expected soon. AC4BC and BR were "phoneys" according to 'YN via G6YU.

Has anyone any concrete information on amateur activities in Spain? EA7BA on 'phone gives his address as 33, Sagasta Street, Cadiz. Cards are coming through and it would appear that these fellows are licensed. Is there a Spanish Amateur Society in being?

G5FB is now XZ2KW. K. R. Woolton c/o B.O.C. (Refy.) Ltd., Syrian, Rangoon. VU2KM is now back in G as G3DBO. XADW is now 11AAX, QSL via ARRL. There are now no more XA calls in Italy.

G3YM reports that TG9JK is listening on 3.5 Mc/s. He heard G2AT on 0817 on January 19th. From February 10th—March 25 he will be on 3.5 C.W. and phone, looking for G contacts. Frequencies will be between 3635 and 3685, i.e. that part of the band at present closed to us. The frequency he will use

most is 3650. Watch will start at 22.00 G.M.T. until midnight and he will be on again around 08.00 G.M.T. Reports will be passed daily to G3YM on 28 Mc/s.

VP2AT is now QRT and has moved to Barbados. BR516304 has logged VP2MY in Montserrat working GM8MN on 14345 at 20.45 G.M.T. VE8NB on Resolution Is., 14150, VE8PA believed to be on Baffin Is. on 14320 and VE8OE on Nottingham Is. are three nice ones. These have also been reported by BR511494 of Whitefield, Manchester, who adds W2JV/PK3 on 28160 at 15.30 G.M.T.

VS2BU will be leaving Malaya in March. He met G8PO as he passed through on his way to Australia recently.

From Northern Ireland comes the welcome news that OY7NL has been run to earth and suitably dealt with. G16TK has worked C5CP/CS who was at Su-Chow, Kansa in Zone 23 with the Chinese Boundary Commission. On 7 Mc/s. he has worked ZL4FT, VK2 and 3 PY all W districts and VE7 several OX and LU's. He says TA1DB and TA380 are genuine.

KP4KD recently worked G6ZO on four bands within the space of 7 hours 50 mins. without rearrangement.

Cards have arrived from CR4AX and YU7KX.

AC3SS has been in touch with us, says he will QSL but his cards are at present somewhere between India and this country.

7 Mc/s

G5GK who works on 7 Mc/s. exclusively backs up our insistence that it is a DX band. Here is his list of DX worked: ZD6, ZS, ZS6, ZD3, VQ5, ZL2, VK2 and 3, MD5, PY1, 2, 4 and 7, VE1, 2, 3 and all districts of W.

But this month the honours go to G2BAB who with 50 watts to an 807 and a W3EDP aerial has worked KM6AC, CP5EL, VE6OB, ZE, JJ, VQ3WCP, VP5AM, CM2BQ, HS2F, VR2AF, ZK, AG, MD7RF, OQ6AX, VS, BH and VK7AC. No, he doesn't live on top of a mountain but in Finsbury Park, London, N.41 (What Receiver?—Ed.)

Cards Waiting

Will amateurs recently returned from VU, XZ, D2, YI, MD, MB etc. who may have cards waiting at the Bureau, please send envelopes to the QSL Manager? Cards in some quantity await D2CQ, D2CK and VP9D to name a few.

Eritrea

Once again the prefix has been changed. It is now MI6 for civilian amateurs and MD3 for service amateurs. 16ZJ and 16AB are therefore now signing MI6ZJ and MI6AB. The latter is an Italian citizen, QSL via A.R.I. It is hoped soon to have a QSL Bureau in operation run by the Radio Club of Eritrea, just formed.

A.R.R.L. DX Contests

We understand from G2PU that a number of British entries were lost at A.R.R.L. HQ's hence the list of results published in QST is subject to revision.

The contest this year will run from 00.01 G.M.T. on Saturday, February 14th to 23.59 G.M.T. on Sunday, 15th and from 00.01 G.M.T. Saturday, March 13th to 23.59 G.M.T. on Sunday, March 14 for C.W. and the following February and March week-ends for 'phone. Rules and scoring same as last year.

Hot Spot!

The five year old daughter of a well known G2 was recently heard to excuse her Father's inability to meet a visitor because "Daddy's in bed with a 150 watt temperature!"

A Beam Problem

At about 18.30 GMT on January 26th G8NY (North London) worked VK6HL (Western Australia) on 14 Mc/s. telephony when his beam was pointing towards Kenya and Madagascar. With the aerial beamed on to VK6 his signals disappeared.

During the contact the Australian station had his aerial beamed in a N.W. direction.

G8NY and others would be interested to hear from any member who has a theory to explain these strange effects.

Au Revoir

The many friends of Mr. and Mrs. Jim Hemingway G8ID will wish them well and admire their pluck on their departure for British Columbia. Originally resident in Leeds, Jim and his family came south some years ago to take up Radio Engineering as a profession, after long service with the L.M.S. Railway. Now at an age when many folk are looking forward to retirement, he is starting a fresh adventure on the other side of the world. We shall all miss this genial Yorkshireman and his equally cheery wife. The best of luck Jim and Olive and we'll be listening intently for that VE7 call.

* 29 Kechill Gardens, Hayes, Bromley, Kent.

The Month on Five—and Six

By W. H. ALLEN, M.B.E. (G2UJ) *

THERE has been rather a scarcity of written reports this month, so we propose seeing what can be done by radio! G2UJ will, barring accidents, be on 58.54 Mc/s. from 18.00 to 19.30 G.M.T. on Sunday, February 22 and from 22.00 to 23.00 G.M.T. on Monday, February 23, specially on the look-out for "gen" for this column. So please give a call if you have anything to report, or, of course, at any other time that contact can be made.

The eight-day contest organised by our contemporary, the *Short Wave Magazine*, resulted in considerable, and much needed, activity. Not only were most of the "regulars" to be heard, but it was pleasant to find quite a few newcomers putting up a good show as well. Conditions were nothing out of the ordinary, in fact many commented that they were just plain bad, notwithstanding, no less than 48 stations (all within 60 miles of Tunbridge Wells), were logged at 2UJ.

G2FZR of Snodland, Kent, who is working regularly from 07.45 to 08.45 and again from 22.15 until 23.00 G.M.T. daily, complains of lack of activity. He is fortunate in having a very good aerial location with a four-element wide-spaced beam 60 feet above ground, and would like to find someone willing to maintain a short sked at 08.00 G.M.T. every day for a period of several months for the exchange of reports on conditions and weather.

G5JJ of 23 Rosemary Avenue, Broadstairs, is getting busy and would like to meet anyone with similar interests living in that area.

Very little information has come to hand regarding the six metre band. G5MQ (Liverpool) managed to get across to the U.S.A. on one occasion only in December, but is keeping his six metre beam in position in case conditions improve. He is inactive on five at present.

From Wimblington, 3 miles south of March, Cambs., comes a report from G3WW who is working on 'phone only. Using a Type 37 oscillator driving an 832A to 20 watts feeding a four-element close-spaced beam 27 feet high, he would welcome 'phone

contacts with the London area. He often hears fairly weak C.W. from that direction, excepting G6VX, who comes in well.

All those, particularly in the South of England, who remember the fine signal radiated by Eric Early, F8ZF, from Boulogne, will be interested to know that he is still active almost nightly around 19.15 to 20.00 G.M.T. calling G2KF and G3NR. G2AJ (Hendon) has heard him working French stations on 'phone, while he was RST 549 at G2UJ on January 10. On that occasion he was calling G3NR, who was heard to give him 579, but so far as is known no QSO resulted.

Tailpiece.—A neighbour's remark on seeing 2UJ's beam for the first time. "Oh, I see you've got television now, but don't you find it awkward having the picture on its side?"



G3APY operating the gear which won for him first place in the second Five Metre Field Day last September. Location: Flagg, Derbyshire. G8UZ standing.

Five Metre Contest, 1948

First Section—February 28 to 29, 1948

DESPITE uncertainty as to whether the Five Metre band, as such, will continue to be available to us throughout 1948, the Contests Committee has decided to go ahead with its plans and has organised an event to be run in two sections. The first of these events will be held during the weekend of February 28-29, 1948, and the second during the week-end of September 4-5. The leading entrant in each section will receive a miniature cup and the two runners-up in each event will be awarded certificates of merit. The entrant with the highest combined score in the two sections will be awarded the Mitchell-Milling Trophy and a miniature cup will also be awarded to him provided he is not already eligible for one as a winner of either, or both, sections. Should the Second Section of this Contest have to be abandoned, the Trophy will be awarded to the leading entrant in the First Section.

Rules

Intending entrants are referred to the Rules for the December 1947 event published in the November, 1947, issue of the BULLETIN which remain substantially the same. The only amendments are as follows:

- The event will commence at noon on Saturday, February 28, and conclude at midnight on Sunday, February 29, 1948.
- Completed entry forms must be addressed to the Honorary Secretary, R.S.G.B. Contests Committee, New Ruskin House, Little Russell St., W.C.1, and must bear a post-mark not later than Monday, March 8, 1948.

THE DESMOND V.H.F. TROPHIES

DURING the course of his Presidential Address, Mr. V. M. Desmond announced his intention of awarding trophies to the two home members who first succeed in establishing two-way communication on frequencies within the 420 Mc/s. band over a distance exceeding 25 miles.

It is not yet known when this band will be made available to U.K. amateurs but in preparation for that time many V.H.F. workers are already constructing equipment. The BULLETIN invites contributions from such members on any phase of 420 Mc/s. operation and in particular descriptions of suitable transmitters, receivers and aerial systems.



5 METRES ABOVE THE CLOUDS

OK3IT adjusts his 5 metre dipole 8,560 ft. up in High Tatras, Czechoslovakia. Callsign OK41DT.

LETTERS TO THE EDITOR

Telephony Transmissions

DEAR SIR,—The number of telephony stations that consistently put out broader signals than are necessary, and which incidentally often infringe the terms of the Transmitting Licence, is far too large. In some cases the operator is unaware of the faults in his transmission, as many reports given now are conspicuously inaccurate and uncritical; in others the operator seems content to carry on without attempting to modify his equipment, so long as he can maintain his conversations with John, Bill or George.

Without making any claim to be a technical expert may I draw attention to the following points, and hope that at least some of the offenders will examine their transmitters and their consciences and do something about each.

1. A two-stage transmitter in which the first is a V.F.O. and the second is amplitude modulated almost invariably produces a considerable amount of frequency modulation.

2. Distortion in a modulator very often imposes high-order harmonics on the carrier, giving a broad signal even when the modulation is less than 100 per cent. This is particularly true of overdriven or badly designed Class B modulators.

3. For 100 per cent. anode modulation of 100 watts input, with a sine wave 50 watts of audio are required, but with the peaky wave forms of speech, 100 per cent. peak modulation can often be reached with as little as 30 watts of audio. In any case, 32 watts of audio will modulate 100 watts input with a sine wave up to 80 per cent.

4. A modulated stage should be approximately linear in performance.

5. Efficiency modulation systems cannot be made to work at high average efficiency.

No one objects to poor signals emitted temporarily by the novice or the experimenter, so it is to the consistent "band-buster" that the above is addressed.

Yours truly,

K. MORTON EVANS (G5KJ-GW5KJ/A)

57 Hamilton Terrace, St. John's Wood, N.W.8.

The G8PO Aerial

DEAR SIR,—Having read with interest G2HDU's remarks upon the G8PO aerial as described in the December issue, I should like to state that previous to the article appearing in print, I erected a similar one for use in the 10 metre band. This was at a height of 20 ft. and was from design information previously received and identical to that as published.

With regard to the back-to-front ratio, the results were most disappointing, a maximum of just less than one "S" point being found during both transmitting and receiving conditions. This was in contrast to the 20-30 db. as claimed.

Thus, this is in agreement with the theory as elucidated by G2HDU. I might add that neither by lengthening nor shortening the $\frac{1}{4}$ section (using 75 ohm Polythene balanced feeder cable) was I able to effect an improvement upon the figure quoted.

I should also be glad to hear of further comments upon this aerial.

Yours faithfully,

J. ST. C. T. RUDDOCK (G8TS).

80 Byworth Estate, Farnham, Surrey.

The 144 Mc/s Band

DEAR SIR,—I have studied the article on the "Two-Metre Band" by W. H. Allen, with considerable interest, and append a few remarks which may be of interest to those members who contemplate working between 144 and 146 Mc/s.

The use of single stage transmitters and super-regenerative receivers is to be strongly deprecated (remember the early days on 60 Mc/s.). There seems to be no reason, technically at any rate, why crystal control should not be employed. A crystal controlled frequency sub-standard for 1,000 Mc/s. has been built in the States.

Another line which would well repay study is the use of crystal mixers in the receiver and, of course, grounded-grid technique is by no means perfected.

Measuring equipment will call for a good deal of attention, if the maximum advantage is to be taken of the frequency stability attainable, using crystals, Lecher wire and other resonant line systems. A simple form of Bolometer bridge too, would be an asset. Sensitive and accurate field strength meters are also essential for aerial experiments.

With regard to polarisation, I personally prefer horizontal rather than vertical. Tests conducted by the B.B.C. at, I believe, 45 and 90 Mc/s., showed the advantage of horizontal polarisation over vertical. It will be interesting however to experiment with helical aerial systems and circular polarisation.

Extensive investigation of 3 and 9 centimetre propagation in low ocean ducts was carried out in 1945 by Katzin, Bachman and Binnian, under the auspices of the American Naval Research Laboratory. The effects of ducting at 144 Mc/s. does not seem to have received much attention, though the phenomena will undoubtedly be present; the degree of "trapping" will not be great however.

With regard to Mr. Allen's remarks about C.W. while I agree with him in so far as range is concerned, I think the importance

of telephony cannot be overlooked. An efficient frequency modulator will be a useful piece of equipment, it need not be of the reactance valve type either! Really fine-quality 'phone should be possible on these frequencies.

Finally, if members interested in the 144-146 Mc/s. band could "get together" on the lines of the E.C.B. a good deal of over-lapping in experimentation could be avoided.

Yours faithfully,

J. B. HARRIS, M.INST.R.E.(G3ABT)

* *Talpey and Gilding*: "A Micro-Wave Frequency Standard" (*Proc. I.R.E.*, September, 1947). Dec. Class R.214.1.

Around the Trade

News that 400,000 state-sponsored hearing aids are being produced for distribution under the National Service Act draws attention to an interesting range of British sub-miniature valves specially developed by the *Mullard Wireless Service Co. Ltd.* These instruments which will eventually be available to all persons suffering from defective hearing are $3\frac{1}{2}$ " long with a maximum width of $2\frac{1}{2}$ ". Each unit will contain two of the new sub-miniature valves: the DF70 a voltage amplifying pentode and either the DL71—an output pentode delivering 6 mW—or the DL72 with an output of 23 mW. Less than $\frac{1}{4}$ " in diameter and $1\frac{1}{2}$ " in length, these valves have their electrode structure built up on a flat glass disc and have a filament consumption of only 25 mA. A number of other possible applications will undoubtedly occur to members—particularly those interested in Model Control.

* * *

Details of the latest products of *Labgear Ltd.*, Willow Place, Fair Street, Cambridge, are now available to members. Concentrating as usual on supplying equipment of appeal to the constructionally-minded amateur, the new range includes a VFO "Heart" Unit which can be readily fitted to a home-built exciter. The unit consists of a stable oscillator delivering sufficient voltage—about 30 volts R.M.S.—to drive a pentode or tetrode power valve either as straight amplifier or doubler. The units are factory tuned to cover either 1715-2000 kc/s. or 3500-3800 kc/s. but choice of dial is left to the user.

For rapid frequency changes and simplified transmitter control the new Wide-band Interstage Coupling Units will find many applications. Priced at 17s. 6d. these four-terminal networks are available for all bands between 1.7 and 28 Mc/s. and give a uniform response—variation less than 1 db—over each band.

The *Labgear* Rotary Beam-Head comprises a powerful electric motor with built-in gear reduction mechanism, housed in a strong waterproof container. The turn-table is coupled to the motor in such a manner that stresses caused by violent storms have negligible effect on the motor and reduction gear. Speed of rotation is 1 rpm and a torque of 60 in./lbs. is developed. The entire unit weighs 22 lbs. and the list price is £15 15s. 0d.

For those amateurs who require complete equipment, a 150 watt phone/C.W. transmitter is being marketed. The modern design has been subject to careful attention from the amateur operational standpoint and consists of six units—an R.F. exciter—an 813 P.A.—aerial coupler—speech amplifier and modulator (807's in Class AB2)—and two power units. Each unit may be purchased separately or ready mounted in a six ft. standard Post Office type rack.

Books Reviews in Brief

COIL INDUCTANCE TABLES. "Technical Inspection."

14 Silverston Way, Stanmore, Middlesex.

This is a revised edition of a booklet reviewed in an earlier issue. Some useful examples have been added and all the tables have been re-presented with much greater clarity. This little volume will give the inductance of any coil from $\frac{1}{4}$ in. diameter and $\frac{1}{4}$ in. length to 4 in. diameter and 6 in. length wound with gauges between 10 S.W.G. and 28 S.W.G.

SECOND YEAR RADIO TECHNOLOGY. By W. H. Date. Longmans. Price 7/6.

This is a new radio textbook intended to cover the syllabus of the City and Guilds Radio Communication Grade I examination. It omits the basic principles of magnetism and electricity but, starting with capacitance, inductance, and resonant circuits, it takes the reader by easy stages through the principles of electronic valves used as rectifiers, amplifiers and oscillators to the basic theory of transmitters, receivers, direction-finding and simple radio measurements. In brief it will prove useful to the serious student who wants a textbook of a standard intermediate between that of the more "popular" books and that of the advanced treatises of the professional engineer.

H. A. M. C

South London U.H.F. Group

A sign of the times is an announcement in *CQ Local* (monthly publication of the South London group) that a U.H.F. Group has been started. The first meeting took place on February 1st when equipment suitable for use on the 420 Mc/s. band was displayed, together with valves capable of operation at 2300 Mc/s.

Further details of the activities of the Group can be obtained from Mr. C. E. Newton, G2FKZ, 105 Underhill Road, S.E. 22 or from Mr. Hughes, G4CG, 57 Kingswood Road, South Wimbledon.

NEWS FROM HEADQUARTERS

COUNCIL, 1948

President:

VICTOR M. DESMOND, G5VM.

Executive Vice-President: W. A. Scarr, M.A., G2WS.

Hon. Secretary: K. Morton Evans, O.B.E., G5KJ.

Hon. Treasurer: A. J. H. Watson, F.S.A.A., G2YD.

Hon. Editor: Arthur O. Milne, G2MI.

Immediate Past President: S. K. Lewer, B.Sc., G6LJ.

Members: I. D. Auchterlonie, G6OM, G. F. Bloomfield, Ph.D., A.R.I.C., G2NR, F. Charman, B.E.M., G6CJ, D. N. Corfield, D.L.C.(Hons.), A.M.I.E.E., G5CD, C. H. L. Edwards, A.M.I.E.E., G8TL, R. H. Hammans, G2IG, J. W. Mathews, G6LL.

General Secretary: John Clarricoats, G6CL.

December Council Meeting

Resume of the Minutes of a Meeting of the Council of the Incorporated Radio Society of Great Britain, held at New Ruskin House, Little Russell Street, London, W.C.1, on Monday, December 8, 1947, at 6 p.m.

Present.—The President (Mr. S. K. Lewer in the Chair), Messrs. Auchterlonie, Bloomfield, Clark, Desmond, Edwards, Evans, Hammans, Mathews, Milne, Scarr, Watson, Watts and John Clarricoats (General Secretary).

Apology.—An apology was presented for the absence of Mr. Gardiner.

I.A.R.U. Societies and Band Planning.

The draft of a letter to the I.A.R.U. Societies in Europe inviting them to submit their views on Band Planning was read and approved.

Claims for Expenses.

Resolved that representatives cannot be reimbursed for the cost of printing lecture cards.

It was agreed that such costs should be borne either by local members or by District funds.

Resolved that the Council can only allow claims for the personal out-of-pocket expenses of representatives as set out in the circular issued to representatives in December, 1946.

QSL Bureau.

Resolved to award honoraria totalling £108 to 13 members in appreciation of the services they have rendered to the QSL Bureau during 1947.

Resolved further that the Society shall, as a mark of appreciation, pay the annual subscriptions of the two members responsible for operating the Northern Ireland and Channel Islands QSL Bureaux.

Contest Matters.

Resolved to publish a statement in the BULLETIN drawing attention to the fact that certain competitors in recent contests had shown marked carelessness in preparing their entry forms and score sheets.

Second 5-Metre Field Day.

Mr. Spragg, G3APY, was judged to be the winner of the 5-Metre Field Day held on September 7. Mr. L. W. Dymond, G3HW, was placed second.

N.F.D., 1948.

Resolved to accept certain recommendations of the Contests Committee regarding the scope of the 1948 Field Day.

It was agreed that the event should be advertised as the "1948 Low-Power National Field Day," and that all published announcements should make it clear that the low power feature has been introduced solely because of petrol restrictions.

"Worked all Counties of England" Certificate.

Resolved to support a recommendation of the Contests Committee that no useful purpose would be served by introducing a "Worked all Counties of England" certificate.

The Secretary was instructed to write and thank the two Queensland (Australia) members who had put forward the suggestion.

Miniature Trophy.

Resolved to award a miniature trophy to Mr. G. Peck, winner of the D/F event (South of the Thames).

Circular to Representatives.

A circular addressed to all representatives setting out their duties and other general information was approved for distribution.

Amateur Radio Exhibition.

The Secretary submitted a statement dealing with the Exhibition.

Resolved (a) that the President be asked to write letters of thanks to the Manager of the Royal Hotel, and to Mr. H. Freeman (Exhibition Manager).

(b) that a cheque for £50 be forwarded to Mr. Freeman as a token of the Society's appreciation of his services as Exhibition Manager.

(c) that the Society shall, as a mark of appreciation, pay the annual subscriptions for the year 1948 to six members who rendered outstanding service to the Society during the Exhibition.

(d) that the thanks of the Council shall be recorded to the General Secretary and his staff for the able and efficient manner in which they performed their duties during the Exhibition.

The Council expressed the view that, although a loss of approximately £140 had been incurred (largely as the result of a charge for £294 made by Caustons for printing the catalogue), the venture could be regarded as a valuable service to the 5,400 members who attended and to the membership as a whole, by reason of the stimulation of the interest of the Trade in the Amateur Market.

50 Mc/s. Licences.

The Secretary submitted 12 letters and a resolution from Glasgow members protesting against the arrangements made by the Council in dealing with the temporary 50 Mc/s. licences.

A draft of a statement prepared for publication in the December BULLETIN was also submitted.

Resolved to instruct the Secretary to send a copy of the Statement to the Region 14 Representative and to each of the members who had lodged a protest.

Resolved to apply for an extension of the present facilities and to point out to the G.P.O. that already much valuable experience has been gained and useful data obtained by the members to whom the facility has been granted.

It was agreed to endeavour to obtain permission for all U.K. amateurs to use the 50-54 Mc/s. band for a period of two to four months up to April 30, 1948, or alternatively to endeavour to obtain the facility for all those who are interested in the band. It was pointed out by Mr. Scarr that the persons who had been granted the facility had devoted much time and effort to the construction of special equipment and aerial systems.

A letter was submitted from Mr. Edwards (Region 3 Representative) in which he requested the Council to make arrangements in future for the R.R.'s to be kept fully informed of such matters as the issue of limited licence facilities. The Council appreciated Mr. Edwards' point but recorded the view that until additional staff is available it may not always be possible to accede to his request. In the present instance the time factor was of the utmost importance. If a letter had been sent to the R.R.'s requesting names several days would have been lost and the period of good conditions would have passed. (A copy of each Resume is sent to R.R.'s as soon as it has been approved by the Council. R.R.'s thus receive information regarding the decisions of the Council approximately one month in advance of the general membership. R.R.'s also receive an advance copy of each issue of the BULLETIN.—ED.)

Admiralty & M.O.S. Surplus.

A resolution from the Chingford Section was considered, in which they demanded that a Sub-Committee be formed to enquire into the conduct of certain members relative to their activities in connection with the various issues of Admiralty and M.O.S. surplus schemes.

Resolved to advise the East London D.R. that if the Chingford Section is prepared to submit to the Council, in confidence, full particulars of the activities of the persons referred to in their resolution the Council will consider what steps can appropriately be taken.

Licence Matters.

The G.P.O. Liaison Committee was instructed (a) to consider and report upon certain proposals concerning amendments to the Amateur Licence, which had been received from the G.P.O. (b) to protest against the action of the G.P.O. in carrying out routine inspections in the absence of the owner. (c) to consider and report upon certain proposals made by the G.P.O. in regard to Log Book entries.

Membership.

Resolved (a) to elect 155 Corporate Members, 29 Associates, and 9 Junior Associates. (b) to grant Corporate Membership to 6 Associates who had applied for transfer.

Blind Persons.

Resolved that the Society shall pay the first year's subscription of two blind persons who had applied for membership.

Auditors' Report.

A copy of the Auditors' Report was handed to each member of the Council.

Regional Representation.

Resolved, on the recommendation of the retiring R.R., to appoint Mr. Phil Hardie, G6MJH, to the office of Region 13 Representative for the years 1948/9.

Headquarters' Station.

It was reported that Haynes Radio had donated two transformers for use in connection with Headquarters' station. The Council recorded its thanks to the Company concerned.

Mr. C. Young.

A letter was submitted from Mr. C. Young, G2AK, of Birmingham, in which he complained about the method of issuing the 50 Mc/s. licences, a statement regarding affiliated Societies which he alleged was made at the Birmingham O.R.M. in April, 1947, the absence of a report of this meeting in the BULLETIN and the recent distribution of 145 Oscillators.

Resolved to ask the President to reply to Mr. Young.

North Kent Radio Society.

Mr. Overton (T.R. for N.W. Kent) forwarded a resolution, passed by R.S.G.B. members present at a recent North Kent Radio Society meeting, to the effect that as it is impossible (in their view) for the C.R. of the South London Region to carry out efficiently his duties owing to the size of the area, the Council should examine the possibility of dividing the area into more compact sections each under a C.R.

Resolved to inform Mr. Overton that his suggestion should be communicated to the new London R.R. for his consideration.

Type 145 Oscillators.

Mr. MacQueen, GM4PW, one of the C.R.'s in Region 14 (West Scotland), wrote protesting against the arrangements made by Mr. Edwards in regard to the distribution of Type 145 Oscillators.

Resolved to request the President to set out in a letter to Mr. MacQueen the circumstances under which the oscillators were purchased and the reasons for giving publicity in the BULLETIN to the methods of distribution.

(The 40 oscillators in question were purchased privately by Mr. C. H. L. Edwards and a colleague because the M.O.S. would not include them in the Surplus Transmitters Scheme. Mr. Edwards asked for publicity to be given to the purchase in order that members living within easy reach of the four distribution centres should have an equal opportunity of taking part in the Ballot.—Ed.).

Affiliated Societies.

A letter was submitted from Mr. F. E. Barlow, G5IW, in which he recommended the Council to give earnest consideration to the establishment of a closer liaison between the R.S.G.B. and its affiliated Societies.

Resolved to refer the letter to the Articles of Association Committee.

Braaten Trophy.

Resolved to award the Braaten Trophy to Mr. J. M. Kirk, G6ZO, the leading English station in the 1947 A.R.R.L. DX C.W. Contest.

The meeting terminated at 10.25 p.m.

London (I.E.E.) Meeting

There was an attendance of about 120 members at the meeting held on January 9, 1948, at the Institution of Electrical Engineers, London, W.C.2. The Immediate Past President opened the proceedings by introducing the new President. Mr. Lewer referred to Mr. Desmond's long association with the Society and of his pre-war experience as a member of the Council. He recalled that Mr. Desmond had represented the West Midlands District for a period of 17 years prior to his election last year to the office of Executive Vice-President, and mentioned that he had been an active amateur on all bands since 1927.

Mr. Desmond, after being formally installed as President, delivered an address to the members.

Following the address, Mr. J. N. Walker, G5JU, read a paper entitled "The Design and Construction of Amateur Transmitters." (The paper will appear in the Spring issue of the *Proc. R.S.G.B.*). A vote of thanks to the lecturer was proposed by Mr. F. Charman, B.E.M., G6CJ.

Committees of the Council

The following have been appointed to serve on the Committees of the Council for the year 1948:—

Articles of Association.—Messrs. C. H. L. Edwards, K. Morton Evans, A. O. Milne, W. A. Scarr, A. J. H. Watson and A. E. Watts.

Codes of Practice.—Messrs. G. P. Anderson, I. D. Auchterlonie, K. Morton Evans, J. W. Mathews and W. E. Russell.

Contests.—Messrs. C. H. L. Edwards, C. J. Greenaway, G. Hume, W. R. Joss, J. M. Kirk, B. C. Leefe, W. H. Matthews, P. Pennell, W. A. Scarr, J. M. S. Watson and E. S. Wilson.

Finance and Staff.—Messrs. C. H. L. Edwards, K. Morton Evans and A. J. H. Watson.

G.P.O. Liaison.—Messrs. John Clarrieoats, V. M. Desmond (Deputy W. A. Scarr), and A. E. Watts.

Membership.—Messrs. I. D. Auchterlonie, C. H. L. Edwards, and S. K. Lewer.

QSL Bureau.—Messrs. K. Morton Evans, J. W. Mathews and A. O. Milne.

Scientific Observations.—Messrs. H. A. M. Clark, H. R. Hatch, D. W. Heightman, W. A. Scarr and E. J. Williams.

Technical.—Messrs. W. H. Allen, A. J. Bayliss, G. F. Bloomfield, F. Charman, H. A. M. Clark, D. N. Corfield, E. L. Gardiner, R. H. Hammans, J. M. Kirk, S. K. Lewer, J. W. Mathews, A. O. Milne and R. H. Newham.

The President is an ex-officio member of all Committees, except the G.P.O. Liaison Committee, of which Committee he is a member.

FORTHCOMING EVENTS

REGION 1

Manchester.—Mar. 1, 7.30 p.m., at College of Technology.

REGION 2

Barnsley.—Feb. 27, Mar. 12, King George Hotel, Peel Street.
Bradford.—Mar. 2, Mar. 16, 7.30 p.m., Cambridge House, 66 Little Horton Lane.

Catterick.—Tuesdays, 7 p.m., S.T.C., H.Q. Block, Vimy Lines.

Doncaster.—Wednesdays, 7 p.m., 73 Hexthorpe Road.

Halifax.—Feb. 23, Mar. 8, Toc H Rooms, 32 Clare Road.

Harrogate.—Wednesdays, 7.30 p.m., rear of 31 Park Parade.

Huddersfield.—Feb. 25, Mar. 10, 7.30 p.m., Plough Hotel, Westgate.

Hull.—Feb. 25, 7.30 p.m., Imperial Hotel, Paragon Street.
Leeds.—Fridays, 7 p.m., Swathmore Settlement, Woodhouse Square.

Middlesbrough.—Mar. 15, 7.30 p.m., Cleveland Scientific and Technical Institute, Corporation Road.

Newcastle.—Feb. 23, 8 p.m., British Legion Rooms, 1 Jesmond Road.

Sheffield.—Feb. 25, 8 p.m., Dog and Partridge, Trippet Lane.

Mar. 10, 8 p.m., Albreda Works, Lydgate Lane.

South Shields.—Fridays, 7 p.m., St. Paul's School, Westoe.

Spenborough.—Mar. 3, Mar. 17, 7.30 p.m., Temperance Hall, Cleckheaton.

Sunderland.—Wednesdays and Fridays, 7 p.m., Prospect House, Prospect Row.

York.—Wednesdays, 8 p.m., 29 Victor Street.

REGION 3

South Birmingham.—Feb. 15, Mar. 7, 10.30 a.m., at Stirchley Institute.

REGION 7

London Meeting.—Mar. 12, 6.30 p.m., at Institution of Electrical Engineers, Savoy Embankment, W.C.2. Tea at 5.30 p.m. Lecture by Mr. D. N. Corfield, D.L.C., (Hons.), A.M.I.E.E. (G5CD), on "The Practical Use of Frequency Modulation on Amateur Frequencies."
Croydon (Surrey R.C.C.).—Mar. 9, 7.30 p.m., at Blacksmith's Arms, South End.

East London.—Feb. 22 and Mar. 21, 2.30 p.m., at Ilford Town Hall (Lambourne Room).

Edgware.—Feb. 18, 25, Mar. 3, 10, 17, Orchard Cafe, Broadway, Mill Hill.

Enfield.—Feb. 15, Mar. 21, 3 p.m., A. & B. Cafe, Southbury Road (junction with Ladysmith Road).

Peckham.—Mar. 1, 7.30 p.m., at the Kentish Drover, Rye Lane (next Jones & Higgins).

Ruislip.—Feb. 19, 26, Mar. 4, 11, 18, 7.30 p.m., at Oddfellows Hall, Wexwell Lane, Pinner.

Southgate.—Mar. 5, 7.30 p.m., at Merryhills Hotel (near Oakwood Station).

Welwyn Garden City.—Mar. 2, 8 p.m., at Council Offices.

Weybridge.—3 p.m., at Old Studio Restaurant, Balfour Road, Solar Noise, by G. S. Stewart. (A p.c. to G6NK if attending).

REGION 8

Brighton and Hove.—Feb. 23, Lecture on "The Synchrony Receiver," by D. G. Tucker, Ph.D., A.M.I.E.E.

Guildford.—Mar. 21, 3 p.m., at The Cinema Cafe. (A p.c. to T.R. if attending.)

Southampton.—Mar. 6, at 22 Anglesea Road, Shirley.

South Hants. Radio Trans. Society.—Feb. 24, 7.30 p.m., at Cosham Civic Centre.

REGION 10

Cardiff.—Mar. 8, 7 p.m., at Tudor Room, Carlton Hotel, Queen Street.

REGION 11

Rhyl.—Feb. 15, 3 p.m., at Crown Hotel.

REGION 14

Glasgow.—Feb. 25th, 7 p.m., at Institute of Engineers and Shipbuilders, 39 Elmbank Crescent. Lecture by Mr. W. Jamieson, B.Sc., on "Standing Waves."
Stirling (including Falkirk, Alloa and Larbert).—Mar. 11, 7.30 p.m., in Plough Hotel, Stenhousemuir.

Ministry of Supply

The Ministry of Supply has again advised the Society that no correspondence will be entered into with members, other than with C.R.s and officials of the Society.

In spite of previous statements to this effect the Ministry still receives many letters from members requesting details of equipment now available. All surplus material is now disposed of at public auctions and no private tenders are considered.

HIC ET UBIQUE

Cancelled Licences

We understand from the G.P.O. that 14 Amateur Transmitting Licences have been cancelled during recent months for one or more of the following irregularities:—

- (a) Passing third party messages. (b) As licensee, permitting unauthorised persons to use the station during his absence. (c) As licensee, not qualified in Morse, consistently operating the station without the authorised operator being present. (d) Exceeding the authorised power. (e) The unauthorised use of radio telephony. (f) Having no frequency measuring apparatus. (g) Operating on an unauthorised frequency, using a false call-sign. (h) Using an amateur station for business purposes. (i) Log irregularities including false entries.

The following is an analysis of the above information:—

No. of Cancellations.	No. of Irregularities.	No. Previously Warned
5	1	2
5	2	2
3	3	3
1	4	1
14	—	8

The G.P.O. invariably issue a warning before cancelling a licence. The exceptions are serious breaches of the regulations.

Wireless Receiving Licences

Members may be interested to learn that the number of broadcast receiving licences (including television licences) in force in Great Britain and Northern Ireland at the end of November, 1947, was approximately 10,992,200.

Television licences numbered 31,250, an increase of 3,400 on the October figure. In six months the total has risen by 12,515 (over 66 per cent.).

Heard Island

We are informed that a station, operating under the call VK30X, has been set up on Heard Island, a tiny island in the Antarctic region, by an Australian scientific expedition. The station will be used primarily to maintain contact with official sources but amateurs will also be worked.

For some strange reason the Australian licensing authorities declined to allocate a special prefix to the station.

The equipment is understood to be an ex-army B3 running at 25 watts. The operator possesses only one crystal (7060 kc/s.) but as the set is designed for frequency doubling calls can be expected on 14120 kc/s.

Headquarters will be glad to hear from any member who hears or works VK30X.

Amateur Radio at El Adem

With the return to England of Charles Bray—MD1F—another phase of amateur operating at El Adem, Tripolitania, has ended. At this isolated airfield, some 500 miles from Cairo, Amateur Radio has given much pleasure and instruction since the evening of Christmas Day, 1946, when C. H. Osborne (now G3CIH) first began transmissions under the call sign LI2BO; soon to be followed by LI2CL (later MD1D) and LI2JC (MD1E).

Lack of power transformers meant that 24 volt rotary converters had to be used to obtain the 1000 volts required by the 211's run in the PA and modulator stages. Another difficulty to be overcome was the proximity of the airfield which prevented the employment of elaborate aerial systems. But by utilising the apex of a large hangar, dipoles were erected at a reasonable height and with good radiation in the most important direction—the United Kingdom.

Since listening to the 7 Mc/s. band in Britain, the former operators of LI2BO have been able to appreciate fully the perseverance of those G stations who were contacted on that band. Most consistent 7 Mc/s. signals were received from G5GK of Burnley and GW4CC of Swansea.

It is expected that the station will be reopened shortly under yet another call sign in order to provide a link with the outside world.

Atomic Scientists Association

The first of a series of five informative lectures on Atomic Energy, arranged by the above Association, was given on February 6 by Professor H. S. W. Massey, F.R.S., in the lecture hall of the Royal Society of Arts, John Adams Street, Adelphi, London, W.C.2.

The remaining lectures in the series will take place at the same venue on February 20, March 5 and 19, and April 2, when the speakers will be Dr. F. C. Champion (Elementary Atomic Theory), Dr. W. J. Arrol (Medical and Biological Applications of Atomic Energy), Dr. E. H. S. Burhop (Atomic Energy and Industrial Power), and Prof. Massey (International Control of Atomic Energy).

Tickets (2/6 per lecture) can be obtained from Dr. L. E. C. Hughes, 15 Avenue House, Allitsen Road, St. Johns Wood, N.W.8.

Call-sign Badges

Due to rising costs the price of lapel-type call-sign badges has been increased from 3/6 to 5/—, for badges embodying five characters. Additional characters will be charged for at the rate of 6d. each.

Otago (N.Z.A.R.T.) Centennial DX Contest

To celebrate the 100th anniversary of the first settlement by white people in the Province of Otago, New Zealand, the Otago Branch of N.Z.A.R.T. is holding an International DX Contest during the last week-end in February and the first three week-ends in March. The contest will commence at 12.00 G.M.T. February 28 and will continue for 24 hours each week-end from the same hour.

Serial numbers will be exchanged and one point will be scored for each completed contact. Contestants outside ZL will multiply the total number of contacts on each band by the number of ZL Districts (1, 2, 3, 4) worked on that band and add an additional 20 points for each ZL contact on that band. Closing dates for logs May 31, 1948. Entries to be addressed to ZL4AR, 137 Bay View Road, Dunedin, S.2.

Certificates will be awarded to entrants gaining the highest score in each call area.

The rules for this event were posted from Dunedin by sea mail on December 10, and did not reach us until this issue was closing for press, consequently it has not been possible to reproduce them in detail.

Channel Island Contest

Mr. E. Banks, GC2CNC, with a score of 940 points was placed first in a Listening Contest held in Jersey from January 19-25 inclusive. The maximum operating time was 35 hours. Mr. E. S. Clapham, GC2FMV, 528 points was 2nd, Mr. P. Amy, 187 points, 3rd, and Mr. L. C. Gallie, 157 points, 4th. The winner heard 115 countries in 36 zones. The Contest was run on a handicap basis. GC3GS who is holding the completed logs will be pleased to advise other amateurs whether their signals were heard during the contest. A stamped addressed envelope should be enclosed. His address is, 6 Greve D'Azette Gardens, St. Helier, Jersey.

International Amateur Radio Union

The December, 1947, issue of the I.A.R.U. Calendar records the election to membership in the I.A.R.U. of the Chinese Amateur Radio League (C.A.R.L.), the Radio Club of Chile (R.C. Chile), and the Radio Club Paraguayo (R.C.A.), and the receipt of an application for membership from Islenzkir Radio Amatorar, the National Society for the Republic of Iceland.

The Calendar also reports that the South African National Society has changed its title from S.A.R.R.L. to S.A.R.L. (South Africa Radio League)—the word "Relay" having been dropped—and that the Experimental Radio Society of Egypt has been deleted from the membership list, no word having been received from them since the war.

During 1947 I.A.R.U. Headquarters issued 827 W.A.C. certificates compared with 134 in 1946. No less than 283 of the 1947 certificates were for radio telephony work.

Food Parcels

Several members who have received food parcels from overseas amateur organisations have written to Headquarters requesting that their thanks be recorded for the welcome gift.

Whilst we are glad to publish an omnibus expression of thanks we recommend that the recipients of parcels send an air mail letter direct to the donors. The personal touch will be greatly appreciated by our friends abroad.

Further to the notice published in our November issue we are informed by Mr. R. Campbell, VK4RC, that the W.I.A. (Queensland Division) Food for British Hams Committee have sent parcels to the following:—G2AO, 2BKZ, 2HAX, 3APX, 3AU, 4JZ, 5BM, 5VB, 5WI, 6KU, 6RB, 8DU, 8IH, 8TD, 8MOIS. The generosity of our Australian friends knows no bounds.

Members who wish to be included in the next draw for food parcels are invited to send a *Post Card* to Headquarters by not later than March 1, 1948. Those who have already received a parcel through the Society should not apply.

Radio Amateurs' Examination

March 1st next is the closing date for entries for the examination due to be held on May 5th. Entries should be submitted through a technical institute. The examination fee is 10/—.

Cardiff Wireless College (3 Park Grove, Cardiff) are now running courses of evening instruction for those who wish to sit for the Radio Amateurs' Examination. The full training fee is 30/— per month, or for telegraphy only 15/—.

Silent Keys

We record, with deep regret, the passing at an advanced age of Mr. John Horace Reeves, M.B.E., M.A., latterly of Torquay and formerly of Earls Court, London. Mr. Reeves was a Vice-President of the Society and a past Member of Council. His passing will be mourned by the many "old timers" who were associated with him in the early days.

We also record, with regret, the death of Mr. Frank Jackson, G3NT, of Canisborough, Yorkshire.

Elections

Mr. I. T. Haynes, G3AUT, who was recently elected T.R. for Rugby, finds himself unable to continue in office due to increasing pressure of private business. Nominations for his successor should be made in the form prescribed in the November, 1947, BULLETIN and should reach Headquarters not later than March 1, 1948.

Consequent upon the election of Mr. L. Ridgeway, G2RI, to the office of Region 4 Representative and the appointment of Mr. P. H. Hardie, GM6JH, to the office of Region 13 Representative, vacancies now exist for the offices of Leicestershire and Lothian's C.R.s.

Nominations made in the prescribed form, as set out in the November, 1947, issue of the BULLETIN, should reach Headquarters by February 29, 1948.

East London District

The meeting at Ilford on Sunday, January 18, opened what promises to be another great season—well over a hundred attended including a fair sprinkling of ladies.

The absence of T.R.s for Grays, Bow, Hornchurch and Walthamstow is regretted as these areas were represented last year. In addition a large membership in Dalston, Hackney, Leytonstone and East London generally is without representation.

Profits made during the next few months are to be dispensed, pro rata, to the District N.F.D. stations.

Stourbridge & District Radio Society

At a recent meeting of the Society, Mr. D. A. G. Edwards (G3DO), R.S.G.B. Representative for Region 3, gave many interesting details of R.S.G.B. activity. Topical questions were invited and ably dealt with by Mr. Edwards. Meetings take place at the King Edward School, Stourbridge, on the first Tuesday in each month. The Secretary is Mr. W. A. Higgins (G8GF), 35 John Street, Brierley Hill.

Sunderland Group has New Headquarters

The Sunderland group recently occupied fine new headquarters on the fourth floor of Prospect House. The transmitter (call G3CSR) is working on 3.5 and 7 Mc/s. and will soon be testing on 60 Mc/s. The club offers facilities for study and Morse practice. The premises are open twice a week (see "Forthcoming Events"). Secretary and T.R. is John Bates (BR512197), 22 Ewesley Road, Sunderland.

Thames Valley Amateur Radio Transmitters' Society

Mr. Leslie Cooper, G5LC, was re-elected President of the Thames Valley Amateur Radio Transmitters' Society at the recent well attended A.G.M. held at the Caernarvon Castle Hotel, Hampton Court. Mr. John Claricoots, G6CL, was re-elected Vice-President, whilst the office of Hon. Secretary passed into the capable hands of Mr. D. R. Spearing, G3JG, Orchard Way, Esher. Others taking office were Messrs. Alan Mears, G8SM (Hon. Treasurer), N. C. Rogers (Press Officer), G. Spencer, G2KI, H. Palmer, G3BF, and F. Clarke, G4FO (Committee Members).

It was reported that the Society has a substantial credit balance and that an interesting programme of lectures, contests and social events had been prepared. Visits are being arranged to London Airport and Alexandra Palace Television station. The Society meets on Monday evenings on the "top band" between 10 p.m. and midnight.

Headquarters are at the Caernarvon Castle Hotel. Details can be obtained from the Hon. Secretary.

U.N.O. Amateur Radio Club

To enable radio amateurs of the United Nations Secretariat, and others interested in U.N. activities, to talk to other amateurs throughout the world, informally and in a private capacity, a U.N. Amateur Radio Club has been organised at Lake Success, N.Y., U.S.A.

The Club will operate a 1 k.w. Broadcasting station under the call sign K2UN (Come to United Nations!). The italics are ours!

The above information comes to hand from the U.N. information Centre, Russell Square, London, W.C.1.

Ann Cup and Trophy

The Ann Cup awarded annually to the non transmitting member in South London who, in the view of a Committee, has constructed the best piece of equipment during the year has been won by Junior Associate E. King and B.R.S. member J. Lewis, who will hold it for six months each.

Mr. D. Smith, BR51268, has been awarded the Ann Trophy.

Heard on Twenty

"I don't think Bristol is in Wales—in fact I'm sure it's not."
"Am using a BC610 running very cool—only about 140 watts."
"Standing by for your final final."
Can you beat 'em?

Good News!

Purchase Tax is no longer payable on the Stratton "640" Receiver, the retail price of which has been reduced to £39.10.0.

Can you Help?

Mr. R. T. L. Allen, BR59849, c/o 8 Dublin Crescent, Henleaze, Bristol, wishes to obtain small amounts of perspex or similar material, and seeks a source of supply.

Mr. J. Bell, BR512735, 17 Salmesbury Avenue, North Shore, Blackpool, has a U.S. Army Signal Generator Type BC221D, but has no calibration book. He has calibration books for the 221N and 221T and would exchange either of these for a book applicable to the Model D. Alternatively he would purchase the book.

Mr. J. M. Ivison, "Braunston," St. Nicholas Road, Witham, Essex, requires the loan for a few days of "CQ" dated May, 1945.

Mr. Jean Ollé, 200 Route de Narbonne, Toulouse (Haute Garonne), France, would like to correspond in English with a British radio amateur, preferably a student aged about 20.

Mr. J. A. Hay, G3AAR, 84 Oxford Gardens, Kensington, London, W.10, requires a copy of the manual dealing with the ex R.A.F. Receiver Type 1147B. He would also like to hear from any member who has modified the somewhat complex L.F. side for normal B.F.O. working.

Mr. D. R. Ralph, BR516004, 2 Telford Avenue, Lillington, Leamington Spa, seeks information on the U.S. receiver type R5/ARN7.

Mr. G. Arnold, G3BYP, 24 Walsall Road, West Bromwich, Staffs, would appreciate circuit details of the ex-R.A.F. receiver R1147B.

Mr. J. F. Beatty, BR57022, 3 Whiterock Gardens, Belfast, N. Ireland, requires information on the CRV 52233 Transmitter which forms part of the U.S. Naval Aircraft equipment TAB. Also circuit of the BC 375 Transmitter.

Mr. W. G. Thomson, BR516007, 9 Kirkhill Crescent, Prestwick, Ayrshire, is anxious to obtain details of the type 81 B set.

Mr. L. W. Skipper, G4LS, 148 Boston Manor Road, Brentford, Middlesex, wishes to convert the Radar Vision unit type 291 (Navy) or 97 (Army) into an oscilloscope and would welcome advice.

Mr. A. J. White, BR57228, 7 West End Gardens, Esher, Surrey, requires circuit details of the Koln German Receiver E 536 or E52 B/1 and also the BL7.

Mr. M. S. Crothall, BR56006, 23 Sunderland Road, South Ealing, W.5, would appreciate information on the R.A.F. receiver type 69—especially external connections.

Mr. T. F. Wareing, BR514613, 105 Sheffield Road, Southport, Lancs, seeks details of the R.A.F. equipment type TR 1148A.

Offers

Mr. J. E. Hodgkins, BR510811, 43 Hawthorn Avenue, Bury, Lancs, requires a circuit diagram of the *Halicrafters* 820K. He has information on the *Halicrafters* 820, Army 18 (Mk III), 38 (Mk II) No. 9, and Canadian No. 58 Mk I.

Mr. W. J. Green, BR511901, Oxford Bank, Sinclair Street, Helensburgh, Scotland, can give advice on the use of Magalips and Synchros.

Mr. R. E. Ross, G3BOF, 111 Ryecroft Street, Stapleford, Notts, can supply photostat copies of the theoretical circuit of the BC348 Receiver, the chassis layout and wiring, and the coil box and its contents. The diagrams measure 14" x 10" and are available, price 2/- per sheet, or 6/- per set of three, post free.

Strays

Mr. E. H. Simmonds, one time G8QH, is now firmly installed at Villa Melisande, Quartier Massolin, Roquebrune-Cap-Martin Alpes Maritimes, France, at which address he will be glad to receive letters from old friends. Mr. Simmonds is hoping to obtain a licence eventually.

Transmitting members living in the Croydon area who are interested in the Boy Scout movement and who would be willing to assist in the formation of a local Scout communication network, are asked to contact Mr. B. S. Katchoff, BR57615, 43 Willett Way, Petts Wood, Kent.

Sympathies

Are extended to Council Member Mr. C. H. L. Edwards, G8TL, on the sudden death of his father last month.

OUR FRONT COVER

THIS month's picture, which is reproduced by courtesy of Messrs. Radiocraft Ltd., of Upper Norwood, S.E.19, shows a Model 7 AvoMeter being used on a small Transmitter to check the anode voltage of the first valve, a 6L6, which was being adjusted to run at 325 volts. The H.T. anode and screen feed to the transmitter are supplied by the bleeder resistor. The Model 7 AvoMeter is a multi-range A.C./D.C. instrument which is particularly suitable for radio testing by virtue of its comprehensive range of readings and small power consumption. Fully descriptive pamphlet available on application to The Automatic Coil Winder & Electrical Equipment Co., Ltd., Winder House, Douglas Street, London, S.W.1.

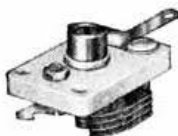
"Cyldon"

Variable Capacitors

MINIATURE AIR TRIMMERS to HIGH-VOLTAGE TRANSMITTING Capacitors

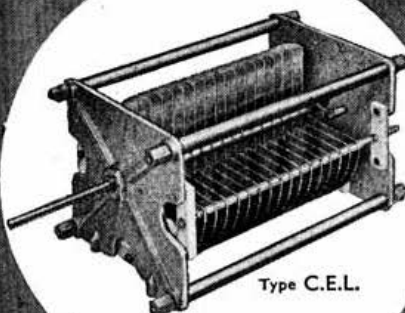


Type No. 8 F.A.T.



Type No. 184

AIR TRIMMERS



Type C.E.L.

TRANSMITTING

SYDNEY S. BIRD & Sons, Ltd.

CAMBRIDGE ARTERIAL RD., ENFIELD, MIDDLESEX
Phone: Enfield 2071-2. Grams: Capacity, Enfield.

PROCESS OF ELIMINATION



Radio interference *can* be eliminated . . . and B. I. Callender's make the anti-interference aerial for doing it!

By a patented combination of aerial and transformers it cuts out all static caused by local electrical disturbances without loss of volume. It is simple to install and when well sited makes possible the maximum choice of programmes against a quiet background.

Write to-day for folder No. 221R containing further information.

*Licensed under Amy Aceves & King, Inc.
Patents Nos. 413917, 424239 and 491220*



ANTI-INTERFERENCE

AERIAL

BRITISH INSULATED CALLENDER'S CABLES LIMITED
NORFOLK HOUSE, NORFOLK STREET, LONDON, W.C.2

MORSE CODE TRAINING



There are Candler Morse Code Courses for **BEGINNERS AND OPERATORS.**

Send for this Free

"BOOK OF FACTS"

It gives full details concerning all Courses

THE CANDLER SYSTEM CO.

Room 55, 121 Kingsway, London, W.C.2.
Candler System Co., Denver, Colorado, U.S.A.

MAP OF THE WORLD

Equidistant Projection Map of the World centred on London showing all call signs for different countries, together with the 40 zones.

The grid on the map is used with a separate alphabetical list for easy reference.
The times of day relative to Greenwich are also shown.

A series of small world maps is also shown denoting the hours of darkness when 12 noon at Greenwich for each month of the year.

The size of the Map is 50 ins./40 ins., and is available on medium paper. PRICE 7/9 EACH, obtainable only from the **PICTORIAL MAP CO., 157, Southcote Road, Bournemouth.**

COULPHONE RADIO

Proprietor: C. Coulborn, G3AJM.

58 DERBY STREET, ORMSKIRK, LANCs.

EDDYSTONE, QUALRAD & WEYMOUTH Components
Undrilled 16 S.W.G. Aluminium Chassis. Four sides 3 in. deep. 10 in. x 8 in., 8/6; 12 in. x 9 in., 9/6; 14 in. x 9 in. or 16 in. x 8 in., 10/6; 20 in. x 8 in., 12/6.

Rotary Convertors, with 6 v. input 250 v. 50 mA. out, with 12 v. input 480 v. 40 mA. out. Note the price, 15/- post paid.

Mains Transformers. Primary 200-250 v. With 4 v. or 6.3 v. and 5 v. L.T.S. 250 v. 50 mA., 19/6. 300 v. 60 mA., 23/6; 350 v. 100 mA., 28/6; 450 v. 200 mA., 45/-; 1250 v. 300 mA., no L.T.'s, 115/-

Filament Transformers. 4 v. or 6.3 v. at 6 A.C.T., 17/6

Terms:—C.W.O. or C.O.D. Post free over 5/-.

Return of Post Service.

Send 2½d. stamp for latest 24-page catalogue. "T.R."

20 METRE BEAMS

DURAL MASTS

20 METRE DURAL BEAMS.
I have designed the Beam you have been waiting for, giving **HIGH GAIN AND OPTIMUM PERFORMANCE.** Wide spaced adjustable elements. Broad band coverage. Very light, yet strong. Smartly finished. Popular price. Ready shortly. Write to-day for advance details, etc.

30 FT. DURAL MASTS.
THE IDEAL AERIAL MAST. Will withstand any exposed location, yet only weighs 13 lbs. you can **ERECT IT YOURSELF WITHOUT HELP.** 30 ft., in three sections, smartly finished with sprayed aluminium, looks fine when erected, and takes little ground space. £3 10s. carriage paid.

HERBERT TEE (G8DC)

469 BRUNSHAW ROAD,
BURNLEY, LANCs.

! AMATEURS! PRICE REDUCTION

NOW FIVE SHILLINGS & THREEPENCE

POST FREE.

LARGE NEW ORDERS MAKE THIS REDUCTION POSSIBLE.

COIL

INDUCTANCE

TABLES

AS SUPPLIED TO H.M. GOVERNMENT, OVERSEAS AMATEURS, AND OTHER BODIES.

NO CALCULATING!

NO GRAPHS!

NO CHARTS!

Many OLDTIMERS use these TABLES and one, GSBC (Jim Blake), says "They are just the job. I always use them." If YOU wind your own coils YOU, too, need these TABLES.

THESE TABLES DEVISED AND COMPILED BY GSLEF AND WORLD COPYRIGHT.

TECHNICAL INSPECTION

14 SILVERSTON WAY, STANMORE, MDDX.

NOW READY!

NOW READY!

THE RADIO AMATEUR CALL BOOK

LATEST 1948 EDITION.

NEW AND IMPROVED.

Contains an up-to-date record of over **100,000 CALL SIGNS**

World Wide—Names and Addresses.

We have pleasure in informing readers of the R.S.G.B. BULLETIN that the latest 1948 Edition of the "CALL BOOK" is now ready. To comply with import regulations we have arranged with the American Publishers to post copies to subscribers direct from Chicago without delay. Present delivery about 4 weeks.

300 PAGES | 10/- POST PAID | 4 QUARTERLY ISSUES FOR 35/-

ORDER NOW AS SUPPLIES ARE LIMITED.

Send your remittance to:—

DALE INTERNATIONAL

Publications Limited

105 BOLSOVER STREET, LONDON, W.1

Telephone: MUSeum 1023.