R.S.G.B Bulletin

JOURNAL OF THE RADIO SOCIETY OF GREAT BRITAIN

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R.S.G.B. BULLETIN

Devoted to the Science and Advancement of Amateur Radio

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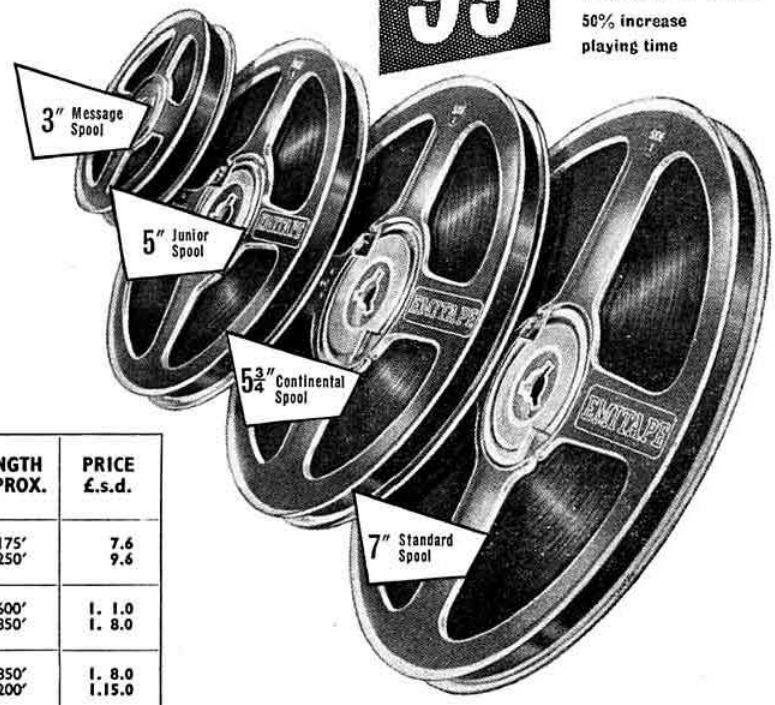

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Current Comment

Royal Inauguration

IN a fortnight's time the official start of the International Geophysical Year is to be given a regal *cachet*, when H.R.H. the Duke of Edinburgh, who is this Society's patron, will be making a broadcast about it.

All over the world, Societies engaged on many branches of science have laid their plans for the I.G.Y. The contribution of Amateur Radio, with its hundreds of thousands of potential observers, should prove to be valuable.

But radio amateurs are individualists and what is required if useful work is to be done during the I.G.Y. is the *collective* approach. The member who may be wondering what he can do to help, and whether in fact his contribution is likely to be of any value, finds the answer in the present issue of the BULLETIN. Elsewhere this month details are given of an I.G.Y programme that should be of the greatest practical interest to receiving as well as transmitting members. Never before, perhaps, have the B.R.S. men had such an opportunity offered to them to make systematic observations over an extended period.

On the transmitting side GB3IGY on high power on 2 metres will be providing what many v.h.f. men have long sought: a marker station capable of putting out regular transmissions on a fixed frequency over an extended period of time. There will be widespread gratitude to the member who, at considerable expense and personal inconvenience that only his enthusiasm overrides, is putting GB3IGY on the air.

Many others, however, will be making smaller but in the aggregate no less important contributions to the Year. And if I.G.Y. may seem to be prominent in BULLETIN affairs over the next several months, let us remember that in the lifetime of most of us the chance to participate in an I.G.Y. may never occur again; and secondly that this Society is, after all, primarily a scientific one.—J.H.

Council Meetings

IT was in Mr. Findlay's Presidential Address that the idea of holding Council meetings less frequently than once a month was first hinted at; and most members will know that the matter has had further consideration since then.

Now, in the *Council Proceedings*, printed in the present issue members may read that the subject is to be offered as a matter for discussion in the correspondence columns of this magazine, and no doubt at local meetings as well.

This Society's Council consists of the Officers, the ordinary elected Members and the Zonal Representatives. At a full meeting of the Governing Body this means that seventeen people are gathered together round the Council table faced with an agenda containing perhaps anything up to three dozen items for consideration over the next three or four hours.

Anyone who has ever been engaged on committee work will know that by the time each (or most) of those seventeen people have had their say on any one point, proceedings can become somewhat protracted —a situation that does not make for efficient disposal of the agenda, especially remembering that fatigue sets in fairly quickly in any gathering where sustained cerebration must be applied after the ordinary day's work has been done.

That is one argument in favour of having fewer people at Council meetings.

Just as important is the argument that bringing so many people from the farthest corners of the country to London regularly once a month costs the Society a great deal of money in fares and hotel bills at a time when curtailment of expenditure is more than ever imperative. Even one Council member, journeying from a long distance, may cost the Society anything up to £200 a year in travelling and accommodation alone. When this is stated the practical value of having smaller Council meetings becomes at once apparent.

Lest it be thought that the *pro* reasons alone have been stated let us now give the *contra* ones. It is, after all, important that the membership shall see all sides to this particular problem, the better to be able to state their opinions on it, and by expressing them, to assist the Council ultimately to take the right decision.

So here are the *contra* arguments.

Visualizing a reduced-sized Council meeting every month but a full Council meeting only once a quarter (although everybody would be "kept in the picture" by the circulation of Council proceedings to all), what is the smaller body to do if it be faced with a matter of major importance that demands imperatively the attention of the full Council?

Secondly, would a reduced Council revive the once heard allegation that the Society is governed from London? The answer to this one might as well be given straight away. It is that this situation has not existed for many years and that even before the creation of Zonal Representatives, the provincial content of the Council was as high—if not higher—than the London content.

Enough for now: the change cannot be made without a Special Resolution approved by the membership (perhaps at the next A.G.M.). So there is time for thought, and for due expression of opinion by groups and individuals.

May we have some, please?—J.H.

Welcome In !

IMPRESSIVE as are the lists of new members printed in recent numbers of the BULLETIN—reflecting the good work being done on the membership drive—one feature which will have not passed unnoticed is the large number of overseas, and especially U.S., amateurs who have come into the Society.

This reflects the " reflections " that the DX bands have obligingly produced! Without them, home members would not be able quite so easily to noise abroad (literally) the advantages of belonging to the R.S.G.B.

One prominent DX enthusiast alone has already brought in many dozens of overseas operators by sending with his QSLs a copy of the special airmail-type Application Form which does not require the signatures of two Corporate members. Such action can put members to quite a little expense in the way of sending QSLs direct rather than through the Bureau. It is pleasant to think that so many do so.

To the many " ex-U.K." members newly with us a warm welcome is extended. Clearly, the main advantages of membership will be the BULLETIN and the QSL Bureau. We hope they will conclude that these are among the best of their kind in the world —or tell us if they don't!

It will be quite a moment when the first R.S.G.B. Group is formed outside British territory!—J.H.

R.S.G.B. Bulletin Production

AS from next month the Society's Journal will be printed by Loxley Bros. Ltd., of Letchworth.

In order to enable our new printers to publish the BULLETIN in time for bulk postings to take place by not later than the 14th day of the month, it will be necessary, in future, to adhere strictly to the advertised closing date for editorial copy—namely the 22nd day of the month preceding publication (21st if the 22nd falls on a Saturday or 23rd if the 22nd falls on a Sunday). Copy received after closing date will be held over for future use if it is still topical.

Feature contributors, Society Representatives and Club Secretaries will greatly assist the Editorial staff by posting copy to reach Headquarters by not later than the 20th of the month whenever possible.—J.C.

Society News

Resignation of Mr. James Taylor (GM2DBX) as Zone F Representative

THE Council has accepted, with regret, the resignation, for reasons of health, of Mr. James Taylor (GM2DBX) from the office of Zone F Representative.

Consequent upon Mr. Taylor's resignation a casual vacancy now exists on the Governing Body of the Society.

* * *

Not later than July 24, 1957, any 10 Corporate Members resident in Zone F (Regions 12, 13, 14, 15) may nominate any other duly qualified Corporate Member to serve as Zone F Representative on the Council, by delivering their nomination in writing in a single document to the Secretary, together with the written consent of such nominee to accept office, if elected, but each such nominator shall be debarred from nominating any other person for this election.

Candidates for Zonal Representative must be resident within the Zone for which they are nominated and the nominators must be resident in that Zone.

In the event of more than one candidate being nominated, a Ballot will be conducted in accordance with the Articles of Association.

Region 13 Representative

WITH regret the Council has accepted the resignation, for reasons of health, of Mr. James Taylor (GM2DBX) from the office of Region 13 Representative.

Bye-Election

Not later than July 24, 1957, any 10 Corporate Members resident in Region 13 may nominate any other duly qualified Corporate Member resident in the Region for the office of Regional Representative, by delivering their nomination in writing to the General Secretary, together with the written consent of such person to accept office if elected.

In the event of more than one candidate being nominated, a Ballot will be conducted, details of which will be published in the August or September issues of the BULLETIN.

Falkland Islands Dependencies

FOLLOWING the receipt of letters from several members the Council at its meeting on May 20, 1957, gave further consideration to the question as to whether or not the Society should handle QSL cards received from and addressed to Argentine and Chile Amateur Radio stations which operate from British Antarctica.

After studying the correspondence and its earlier decisions in this matter, which date back to 1950 and 1952, the Council resolved unanimously to re-affirm its instruction to the Society's QSL Manager not to handle such cards.

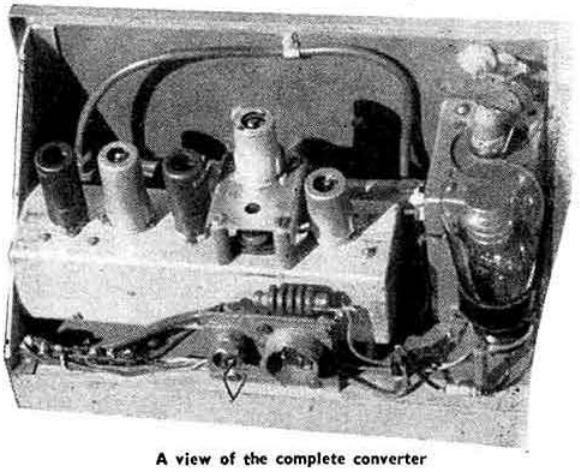
In making this decision the Council kept in mind that the territories concerned form part of the British Commonwealth of Nations. Amateur stations which operate from Commonwealth territory without a licence issued by the appropriate authority must be regarded as unlicensed and irregular.

The Council feels that if Argentine and Chile stations wish to operate from British territory in the Falkland Islands Dependencies they should apply to the appropriate British authorities for a licence in the same way as did the organisers of a recent Norwegian Expedition who were issued with the call VP8BK.

A Low Noise Converter for Four Metres

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

MOST v.h.f. workers know that although encouraging results have been achieved with simple receiving equipment, the need for something better soon becomes apparent. Modified surplus gear, although helping to populate a new band at the time of its release, has in the past soon been bettered by amateur built equipment as will no doubt be the case on four metres. The converter to be described was, therefore, designed to give extremely good performance, yet to be of comparatively simple construction to help those starting up on the band, whether they have had previous v.h.f. experience or not. It can be put into use with the knowledge that the performance will be as good as is required for serious work and difficult to better.



A view of the complete converter

Design

The circuitry is quite conventional and is based on current two metre techniques. The converter is divided into two parts, a pre-amplifier and the main converter unit. The pre-amplifier (Fig. 1), which employs a grounded grid triode, is built as a self-contained unit which, if required, may be used by itself feeding into an existing converter. This may prove of considerable advantage if, for instance, a modified R.F. Unit type 26 is in use.

As the input impedance of the grounded grid triode is about 100 ohms with the valve employed, no useful voltage step-up can be achieved between the aerial and the cathode, and therefore the input is connected directly to V1. The tuned circuit L1, C1 is used to tune out circuit reactance and also to provide a measure of front end selectivity, the cathode of V1 being tapped well down the coil to prevent heavy circuit damping. L2, L3 is a bifilar wound self resonant r.f. choke. In the author's case this choke was wound on to a $\frac{5}{8}$ in. diameter ribbed former taken from an American I.F.F. unit. However it would be quite satisfactory to use instead two heater chokes of the type employed in the converter unit itself. All the chokes were wound to be self-resonant at 70.3 Mc/s as checked with a grid dip oscillator. The anode circuit has a low C, high Q tank circuit from which the output is link coupled.

The converter itself (Fig. 2) consists of a 6AK5/EC91 parallel connected cascode, followed by a 6AK5 triode-connected mixer, a 9002 tunable oscillator operating on the low side of the signal frequency and finally a 6AK5 triode-connected cathode follower giving a nominal i.f. output of 7 Mc/s. For operation on the 72 Mc/s band the i.f. is changed to 9 Mc/s which causes a small loss of gain as the i.f. coil (L5) is resonant at 7 Mc/s. However, the converter front end gain is sufficient to swamp this, especially as the tuning controls of the pre-amplifier are adjustable from the front panel.

The earthed cathode triode of the cascode is neutralized by L2 resonating with the anode/grid capacity of the valve. This neutralization, which only serves to improve the noise factor of the cascode a little, is unnecessary if the pre-amplifier is used but is included in case the converter section is used alone. It is unnecessary to provide adjustable tuning for L3 as the circuit bandwidth is large because of the circuit damping caused by the low input impedance of V2.

V3 operates as an anode bend mixer with the local oscillator injection introduced on a tap on the mixer grid coil L4. The local oscillator tuned circuit L6, C16, 17, 18, 19 and 20, has a large fixed capacity to swamp valve capacity changes during the warm-up period and as a result the oscillator has proved to be extremely stable. The tuning range is restricted so that 180° of the dial represents a tuning range of 70 to 70.6 Mc/s. The mixer anode circuit is broadly resonant, and is capacity coupled into the cathode follower V5, the grid resistor of which provides sufficient circuit damping to prevent an undue loss of gain when the i.f. is changed to 9 Mc/s for operation on the 72 Mc/s band.

Construction

The pre-amplifier is constructed on a $3\frac{1}{4}$ in. by 3 in. by 2 in. deep brass or copper box with an internal partition to divide the anode and cathode circuitry. This screen is made to fit snugly over the suitably orientated B7G valve holder and is soldered to the chassis and also to pins 1 and 6 and the spigot of the valveholder. Both tuning capacitors are mounted in one side of the box, and project through the front panel of the complete converter unit.

The converter itself is built on a copper or brass chassis 8 in. by 2 in. by 2 in. deep. Again, a partition

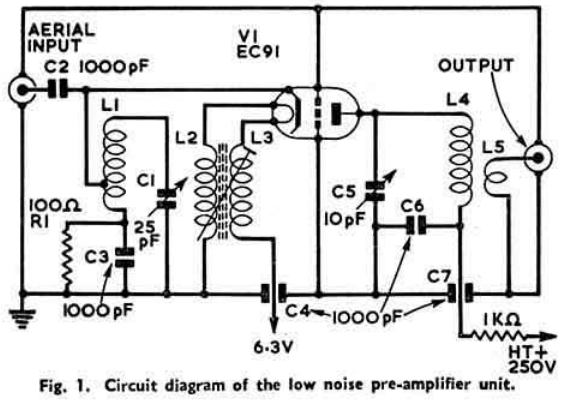


Fig. 1. Circuit diagram of the low noise pre-amplifier unit.

*10 Liphook Crescent, Forest Hill, London, S.E.23.

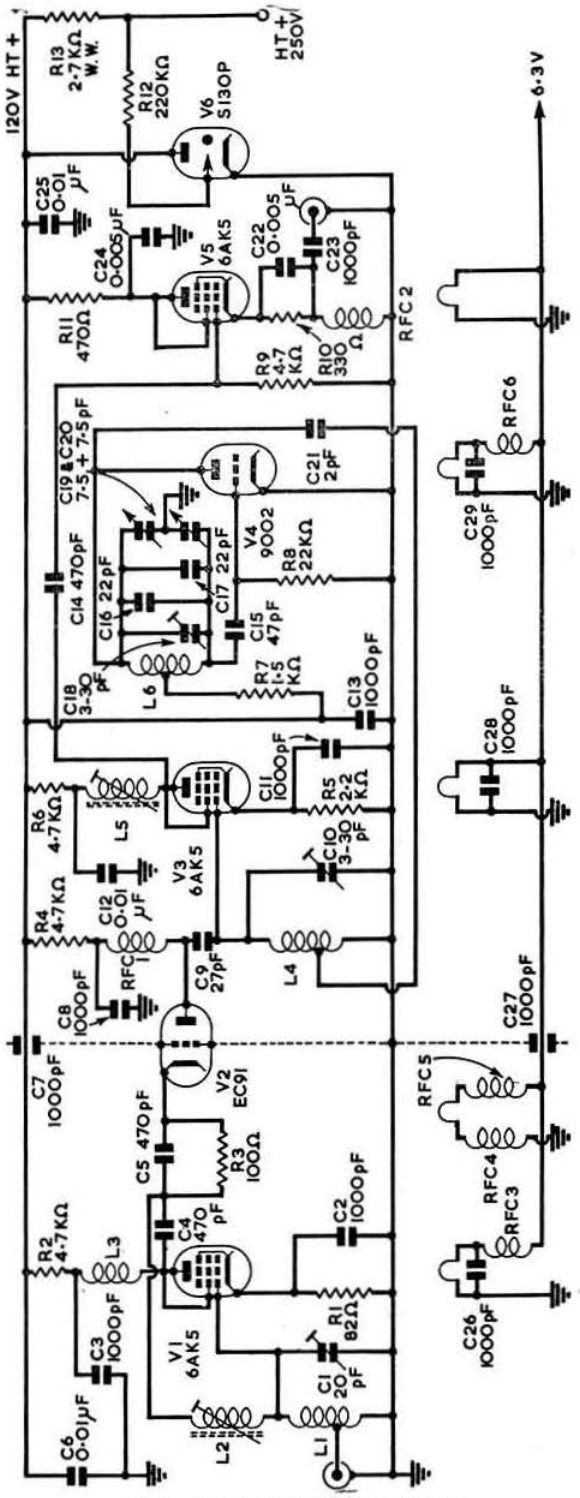


Fig. 2. The circuit of the main converter.

is soldered in a similar manner to that used in the pre-amplifier over the valveholder of V2. The three coils L1, 2 and 3 are mounted on mutually perpendicular axes to prevent interaction between the tuned circuits. The cathode follower is built on a small sub-chassis supported on pillars as it was added as an afterthought, but could be built on to the main chassis if required. The power inputs and i.f. output are taken through a screened three-way plug mounted in one side of the chassis.

The r.f. chokes, with the exception of R.F.C.2., are made in the following manner. The 24 s.w.g. wire is close wound on to a ¼in. mandrel and then painted with polystyrene cement. When dry the coil is removed. The iron core is made from a standard ¼ in. diameter slug filed down until it is a push fit into the coil. The ends are then sealed with polystyrene cement. The use of iron cored chokes prevents them from becoming unduly bulky and is now common practice in commercial equipment.

Wiring generally, especially that in the oscillator section, should be kept short and rigid.

Aligning the Converter

On completion of wiring, the most simple method of aligning the r.f. tuned circuits is by means of a grid-dip oscillator. However, if this is not available it is still possible to find the band in the following manner. The converter is connected to a suitable power supply and the i.f. output connected to a receiver tuned to

COIL TABLE

Pre-amplifier

L1, 4, 5, 16 s.w.g. tinned copper wound on ¼ in. diameter mandrel, spacing one wire diameter (L1, 5 turns, tapped at 1¼ turns; L4, 9½ turns; L5, 2 turns).

L2, 3, Bifilar close-wound, 11 turns each 24 s.w.g. enam. copper. Former ¼ in. diam. smooth iron-dust core (see text).

Main Converter

L1, 4, 6, 16 s.w.g. tinned copper wound on ¼ in. diam. mandrel, spacing one wire diam. (L1, 7 turns tapped at 3 turns; L4, 5 turns tapped at 1½ turns; L6, 3 turns.)

L2, 11 turns 20 s.w.g. tinned copper wound on ¼ in. diam. slug tuned Aladdin former, turns spaced one wire diam.

L3, 10 turns 20 s.w.g. tinned copper wound on ¼ in. diam. mandrel, spaced one wire diam.

L5, 49 turns 38 s.w.g. enam. copper, close-wound on ¼ in. diam. slug tuned Aladdin former (i.f. coil as used in RF Unit type 24, etc.).

RFC1, 3, 4, 5, 6, 21 turns 24 s.w.g. double silk covered, ¼ in. diam. (see text).

RFC2, 2.5mH.

COMPONENT INFORMATION

Pre-amplifier

C1, 5, air-spaced variable capacitors.

C2, 3, 6, 1000pF hi-K ceramic.

C4, 7, 1000pF hi-K ceramic feed-through.

Main Converter

C1, air-spaced variable capacitor.

C2, 3, 4, 5, 8, 11, 13, 14, 23, 26, 28, 29, hi-K ceramic.

C6, 12, 25, paper tubular.

C7, 27, hi-K ceramic feed-through.

C9, 15, 21, ceramic.

C10, 18, 3-30pF air-spaced trimmer.

C16, ceramic (neg. temp. coeff.).

C17, ceramic (pos. temp. coeff.).

C22, 24, disc type hi-K ceramic.

All resistors are ½ watt with the exception of R13 which is a 5 watt wirewound type.

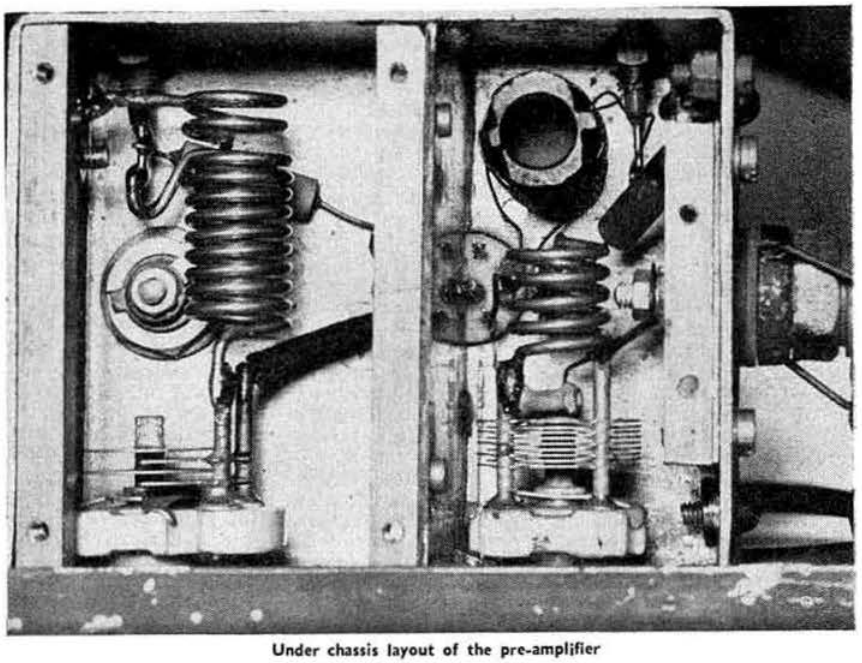
7 Mc/s. The local oscillator is then set to approximately 65 Mc/s using an absorption wavemeter (R.S.G.B. BULLETIN, December, 1956). L5 and C10 are then tuned for maximum noise output. C1 should then be tuned, resonance being indicated by a pronounced increase in noise (Resonance should occur with C1 approximately half meshed).

One of two procedures may then be adopted. If a local 70.3 Mc/s station is active a search can be made adjusting the local oscillator and/or the communication receiver frequency (i.e. the converter i.f.), until a signal is found. Another method of finding the band is to utilize the third or fourth harmonics from the local oscillator of another receiver as follows:

Suppose the receiver covers the band 20-25 Mc/s with the local oscillator on the high side. The problem is to find the receiver dial setting, assuming the calibration is accurate, which will result in a harmonic signal of 70.3 Mc/s being generated. Now the oscillator frequency to produce a third harmonic of 70.3 Mc/s is 70.3/3, i.e. 23.43 Mc/s, 23.43 Mc/s less the receiver i.f. (say 1.6 Mc/s) is the dial setting, i.e., 21.83 Mc/s.

The receiver can thus be used as a signal generator by tuning around this frequency until a signal is received in the converter, using a short wire aerial, and the converter local oscillator adjusted until the correct band is covered.

Having found the band, the r.f. stages can be correctly aligned either again using a "live" signal or else a communication receiver as described. Finally, the neutralizing coil L2 should be adjusted for minimum signal output with the h.t. disconnected from V1.



Under chassis layout of the pre-amplifier

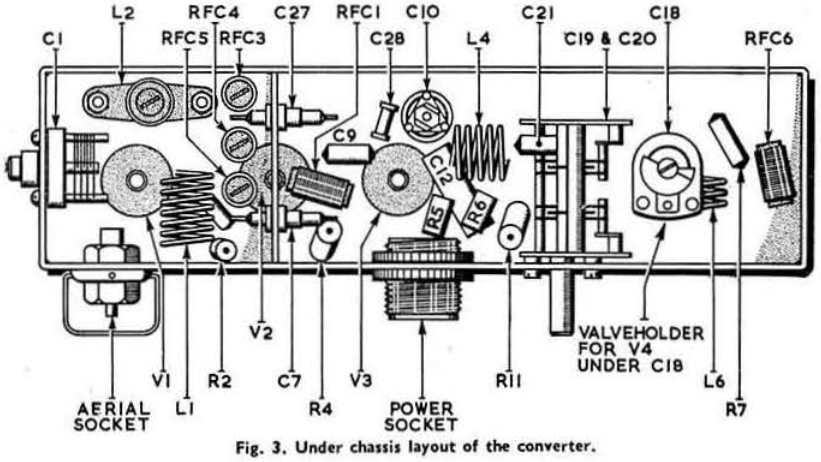


Fig. 3. Under chassis layout of the converter.

Aligning the Pre-Amplifier

The two turn link L5 is spaced about ¼ in. from the end of the anode coil L4. With the output coupled to the converter and power applied C5 should be tuned for maximum hiss. This tuning will be very sharp. With the aerial connected C1 should then be adjusted for *minimum* hiss.

As a final measure of the converter performance, the following tests should be made. First, the converter should be switched off. The noise output from the i.f. receiver should then disappear. Secondly with the converter working normally the h.t. should be removed from the pre-amplifier. The noise output should then drop appreciably.

Assuming that the band has been found correctly and the above procedure carried out, the converter is now ready for use.

R.S.G.B. Amateur Radio Call Book

NEWLY licensed amateurs and licence holders who change their address are asked to send the relevant details direct to Mr. W. J. H. Kempton (G8LN), 24 Edison Grove, Plumstead, London, S.E.18 who has succeeded Mr. J. P. P. Tyndall as Call Book Editor. Headquarters should also be notified immediately a change of address.

Members who wish to be quite certain that Mr. Kempton has a record of their call, name and address are invited to write to him at the above address.

A Stable Oscillator for Two Metre Receivers

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

WHEN planning a converter for two metres there are two possible arrangements which may be made in regard to the oscillator: it may either be tunable, or a crystal oscillator plus multiplier chain may be employed and tuning carried out on the main receiver.

In the first case, any interference-free i.f. within reason may be chosen and, this being fixed, the head i.f. amplifier in the converter can be designed for a fairly narrow band width with consequent high gain.

With a crystal controlled oscillator there should be no difficulty in achieving a stable injection frequency, but coverage of the band will necessitate tuning the main receiver over a two megacycle range. Precautions must be taken to ensure that within that range no signals at the i.f. are received and no harmonics or spurious beats from the oscillator/multiplier system are encountered. An i.f. of 15 Mc/s or more becomes necessary or much of the gain of the i.f. head amplifier will be sacrificed to the necessity of obtaining a 2 Mc/s bandwidth. To ease this requirement it is common practice to employ an i.f. of 20 or 30 Mc/s or even higher if the main receiver tuning extends that far. As most receivers in common use are not capable of giving their most efficient performance at such frequencies, suffering from increased susceptibility to second channel interference and a degraded noise factor, the overall performance may leave much to be desired although the converter, as such, is perfectly satisfactory. This, however, is the price which must be paid to rid oneself of the necessity of providing a stable and tunable oscillator in the converter.

Turning now to the design of a satisfactory tunable oscillator, two alternatives are available; a coil and condenser arrangement with temperature compensation, possibly with thermostatic control of the oscillator section, or a tuned circuit which possesses inherent frequency stability and large thermal capacity to prevent changes in the ambient temperature causing sudden alteration of the oscillator frequency. Such conditions are met by a linear circuit such as that to be described.

The circuit is shown in Fig. 1, from which it will be seen that the oscillator is a conventional Hartley in which the screen grid of the valve acts as anode with the anode proper available for coupling the output of the oscillator to the mixer circuit.

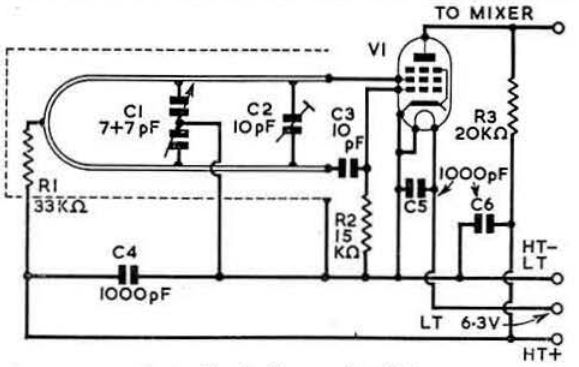


Fig. 1. Circuit diagram of oscillator.

C1, 7 + 7pF miniature split-stator condenser (see text); C2, 10pF miniature air-spaced trimmer (Wingrove & Rogers); C3, 10pF disc ceramic or silver mica; C4, 5, 6, 1000pF hi-K ceramic feed-through (see text); R1, 33K ohm ½ watt; R2, 15K ohm ½ watt; R3, 20K ohm ½ watt; V1, 6AK5.

*32 Earls Road, Tunbridge Wells, Kent.

Construction

The oscillator is built in a copper box 7 in. long 1¾ in. wide and 1¾ in. deep. The tuned circuit consists of a hairpin-shaped loop of ¼ in. diameter silver plated copper tube or wire 4½ in. long held centrally in the box by two transverse strips of ¼ in. thick polystyrene secured to the sides of the box by two short 6 B.A. bolts on each side tapped into the strips.

The centre-to-centre spacing of the limbs of the hairpin is ¼ in. The valveholder is fitted in the side of the box 1¼ in. from one end so that the screen grid pin is immediately adjacent to one end of the hairpin line. The distance between the grid contact and the other side of the line is conveniently bridged by the grid condenser. All earthy connections on the valveholder and the lower end of the grid-leak are taken to a tag under one of the valveholder fixing bolts. The most rigid construction is ensured if the h.t. and heater bypass condensers are of the feed-through type but this is not essential and normal silver mica condensers may be used provided care is taken to prevent vibration.

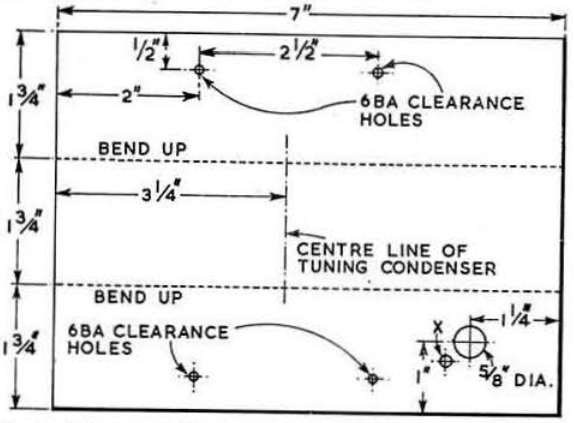


Fig 2. Diagram of the box made from 18 s.w.g. copper. Two pieces 1¾ in. square are sweated into place to form the ends of the box. No holes in the bottom of the box for outgoing leads are shown. X indicates the position of the lead-through insulator carrying the mixer injection lead from the anode of the oscillator.

The bandsetting condenser is mounted on a small block of ¼ in. thick polystyrene bolted to the bottom of the box between the two sides of the hairpin loop thus bringing its contact lugs in such a position that very short pieces of 20 s.w.g. wire serve to connect them to the ends of the line. The split-stator tuning condenser is the metal frame type with one moving and two fixed plates in each of its sections. It is mounted across the side members of the box using 6 B.A. bolts, and it is obviously an advantage to make the width of the box suitable for the condenser employed. A slight increase in this dimension will have no effect upon performance but if the condenser end plates are much less than 1¾ in. apart the width of the box should remain at 1¾ in. and metal washers or distance pieces inserted to make up the difference.

The shaft of the condenser is 3¼ in. from the valve end of the box and the connections between the stators

and the line are soldered approximately 1½ in. from the open end of the line. The bandspread available with a given variable capacity depends upon this distance and slight adjustment of the point of attachment to the line may be made without having to shift the condenser frame from the position mentioned. When soldering to the line it is advisable to use heat shunts (for which purpose crocodile clips are suitable) between the connection and the nearest polystyrene strip.

Screen voltage is fed to the loop end of the line, and again the bypass condenser arrangements may be as previously mentioned. A feed through insulator or small length of polystyrene rod drilled to pass the coupling lead from the anode of the valve to the mixer is set in the wall of the box close to the anode tag of the valveholder.

The copper box may be bolted directly to the chassis, suitable clearance holes being drilled to pass the outgoing leads or feed-through condensers. Alternatively, the box may be mounted clear of the chassis by 4 B.A. bolts and distance pieces.

Performance

The circuit is very modest in its power requirements, 25 to 30 volts at less than 1mA giving sufficient injection voltage for most mixers. The oscillator described was tested at h.t. voltages up to 200 and the stability was found to be little affected although considerably more heat was generated. If such operation should be required for any purpose the 20,000 ohm anode resistor must be increased in power rating.

A well regulated h.t. supply is required for best results and a potentiometer network connected across an 85 or 105 volt stabilized supply and passing 5 or 6 mA is quite satisfactory, the actual voltage on the oscillator being varied until correct injection to the mixer is obtained.

Valves such as the 6AM6, EF91 and similar types will oscillate in this circuit, although not directly interchangeable with the 6AK5, but the latter is by far the more economical in its h.t. requirements and, as a result of the reduction in heat, more stable.

Stability is such that a c.w. transmission may be held satisfactory for considerable periods provided, of course, that the oscillator h.t. voltage is not removed during periods of transmission and the distant transmitter is itself of good stability. Unfortunately some stations do not satisfy this requirement, although crystal controlled, and the possibility of transmitter drift should not be overlooked when first assessing the performance of the oscillator.

On test the oscillator was itself tuned to 146 Mc/s, which meant that a less favourable L/C ratio was in use, and compared with a harmonic of a stable crystal. The two oscillators stayed within audible range for over three hours when the test was discontinued. During that time the frequency of the v.h.f. oscillator underwent slight and random variations but at no time did the beat note change by more than a hundred cycles or so. When used as a receiver oscillator on around 137 Mc/s no difficulty was encountered in holding stable amateur 'phone transmissions for the duration of lengthy contacts. Satisfactory stability was achieved within a few minutes of first switching on.

" A Multiband Aerial "

MEMBERS constructing the multiband aerial described by G2BVN in the May issue of the BULLETIN may find it helpful to know that the winding length of the coils is 2in. It is essential that the traps should be finally adjusted with a grid dip oscillator.

Increasing the Tuning Ranges of the ZC1

By L. N. Goldsbrough, M.A., B.Sc. (G3ERB)*

THE nominal 2 to 1 frequency coverage on each band of the ZC1 Mk. II transmitter receiver is rather irritating in that if fixed capacity is added to each stage on the l.f. range (2.0-4.0 Mc/s), in order to cover the whole of Top Band, the maximum frequency is reduced to 3.5 Mc/s or below. If the process is repeated for the h.f. range (4.0-8.0 Mc/s) to bring in the 3.5 Mc/s band at the l.f. end, the maximum frequency falls below 7 Mc/s. In other words, the amount of fixed capacity required is such that the frequency coverage is reduced to about 1.8 to 1.

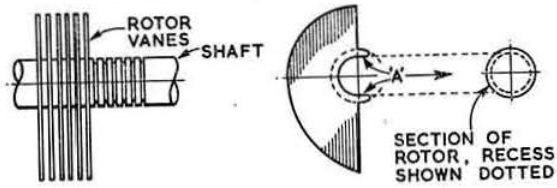


Fig. 1. The addition of plates to the tuning condensers.

Other ways of increasing the frequency coverage are to increase the value of the inductances or of the tuning condensers in each stage. Altering the inductances would be a laborious business, but fortunately the ganged condensers have only about half the number of moving plates which the rotors can accommodate. The writer therefore tried adding one spare plate (taken from an old 500 pF variable of about the same physical size) in each section; the six new plates were cautiously pressed into vacant spaces on the rotors. The idea is illustrated in Fig. 1.

The results of the modification, which took less than fifteen minutes (exclusive of re-aligning, which presented no difficulties), were very gratifying. The frequency coverage was improved to over 2.1 to 1, which means that, if 3.8 Mc/s is set at 4.0 on the l.f. dial, 1.8 Mc/s falls at about 2.0 Mc/s. Similarly, the h.f. range now accommodates both the 3.5 and 7 Mc/s bands; incidentally, as the scale is more open at the l.f. ends of the ranges, there is rather better bandspread on 3.5 Mc/s on the h.f. range. The modification has the additional merit that it has no effect on the excellent tracking of the ganged tuning arrangements on either transmitter or receiver, and it should be of particular interest to R.A.E.N. or mobile enthusiasts using the ZC1.

*54 *Kings Lane, Bebington, Cheshire.*

MONDAY NIGHT AT 8
IS TWO METRE ACTIVITY TIME

Everyone who has two metre equipment in operation should switch it on between 8 and 10 p.m. every Monday evening, whether conditions seem likely to be good or not.

Monday night is two metre activity night. See how many stations you can work, and report the results to G2AIW (V.H.F. Editor).

AND WEDNESDAY NIGHT, TOO

Listen on 70.2 to 70.4 Mc/s on Wednesdays. This is 4 metre activity night.

A Wide-range Oscilloscope Time Base

By A. H. KOSTER, Dr. Ing. (G3ECA)*

THE requirements of a good time base are wide range, good linearity, rapid fly-back and a large sweep amplitude. To satisfy all these points circuits of some complexity are needed. The time base to be described utilizes a circuit suggested by Fraser and Jelffs[1] which is simple and scores highly on all the above-mentioned requirements.

The Circuit

The circuit most frequently used by amateurs since the war is the Miller-transitron time base which owes its popularity to its simplicity. If this circuit is to be used over a wide range of frequencies, however, its limitations become apparent. It is inherent in the arrangement that if good linearity is the first consideration the anode load should be high, but if rapid fly-back is the most important requirement it should be low, and a compromise has, therefore, to be made. Of various designs which were tried to overcome this difficulty, the circuit described here has been found the simplest and most efficient.

The time base covers switchable ranges from 150 c/s to 230 kc/s, which can be extended downwards as far as desired by externally added capacitors. The peak-to-peak sweep voltage is about 160 volts for an h.t. supply of 360 volts.

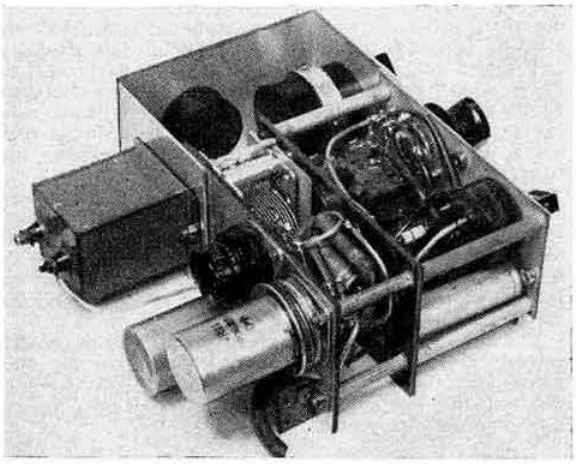
To ensure that the upper frequencies are reached, some means of measuring the frequency is wanted. This is readily provided by an ordinary broadcast receiver or by a communication receiver tuned to Top Band with a short length of wire from the aerial terminal to the vicinity of the time base. The harmonics of 230 kc/s are clearly recognisable as broadbanded noises centred on 1.61, 1.84, 2.07 Mc/s and so on every 230 kc/s. Other frequencies can be measured in the same way, but the lower the frequency the more difficult it becomes, because the harmonically related noises move closer together and the peaks are no longer clearly defined.

Such measurements will show that stray capacities around the switch S1, the valvebases and the lead to the c.r.t. deflector plate should be kept down if the highest frequencies are to be reached. Furthermore, the strays have a detrimental effect on the speed and shape of the fly-back.

The time base (Fig. 1) employs an EF50 as a Miller integrator, an EF54 as a means for switching and self-running, and a 6H6 to relieve the grid of the EF50 of having to conduct the current through R7 and the charging current which becomes considerable if the fly-back is rapid. Ignoring the EF54 for a moment the circuit boils down to a plain Miller integrator. The EF50 cannot oscillate on its own because the usual transitron coupling between screen and suppressor which would turn the integrator into a self-running Miller transitron is missing. The addition of the EF54 makes the circuit self-running by providing the necessary coupling to the suppressor of the EF50 through C1.

The application of a separate valve to complete the circuit has two advantages. First, the gain of the EF54 is greater than that of a transitron and makes the switching from sweep to fly-back and vice versa faster.

*195 Woodford Avenue, Ilford, Essex.



A view of the time base intended for use as an external plug-in unit.

Secondly, the EF54 changes the anode load of the EF50 alternatively from R2=330K ohms to a value of about 12K ohms. Therefore it fulfils the requirements of a high anode load while discharging for good linearity, and of a small anode load while charging, for rapid fly-back.

A full explanation of the working requires a lengthy discussion and reference should be made to the literature[1, 2]. Here it must suffice to explain that during the sweep, i.e. during the discharge of the timing condenser which may be any one of C2 to C11, a constant current flows through R6 + VR2, thereby producing a constant negative grid bias on V2. VR2 is pre-set so that the bias is enough to cut off V2 leaving R2 as the anode load of V1. Towards the end of the sweep a slight change in grid bias occurs and is amplified by V2, transmitted through C1 to the suppressor of V1 and by cumulative action cuts off V1 abruptly. The grid bias on V2 collapses and V2 becomes highly conductive, so that R2 is by-passed by the resistance chain VR1, R5, the resistance of V2, VR2 and R6, which add up to a value of the order of 12 K ohms. The timing condenser is rapidly re-charged through this small resistance, whereby the charging time represents the fly-back. Simultaneously the Miller valve V1 is re-set, the discharge begins again, the grid bias on V2 reappears and with R2 back in the anode circuit the new linear sweep begins.

The following frequency ranges can be covered with adequate overlap:—

Switch Position			
C11	VR3 variable:	30—74	c/s
C10	VR3 variable:	74—150	c/s
C9	VR3 variable:	150—300	c/s
C8	VR3 variable:	300—600	c/s
C7	VR3 variable:	600—1200	c/s
C6	VR3 variable:	1.2—2.5	kc/s
C5	VR3 variable:	2.5—5.0	kc/s
C4	VR3 variable:	5.0—10.0	kc/s
C3	VR3 variable:	10.0—20.0	kc/s
C2 max	VR3 variable:	20.0—40.0	kc/s
C2 variable	VR3 at zero:	40.0—200	kc/s
Cs	VR3 variable:	130—230	kc/s
Cs with external 0.5 μF	VR3 variable:	30—15	c/s
Cs with external 1.0 μF	VR3 variable:	16—8	c/s
Cs with external 2.0 μF	VR3 variable:	8—4	c/s
Cs with external 4.0 μF	VR3 variable:	4—2	c/s

For good all round performance it is satisfactory to replace R5 + VR1 by a fixed resistor of 10 K ohms and R6 + VR2 by 1000 ohms, but for best results, in particular in the higher ranges above 10 kc/s, variable resistors are to be recommended. If the trace of the time base is examined on an oscilloscope which has a time base of its own the effect of these two adjustments can be seen. With VR2 at too high a value the fly-back starts with a slight curvature. As VR2 is decreased the curvature disappears and turns into a vertical line. A further decrease of VR2 has no effect until it becomes very small and then the sharp corner of the fly-back blurs. If VR1 is too large the transition of the fly-back into the new sweep is not a sharp sawtooth, but there is a tiny radius on it and the approach to the turn-over is also slightly curved. A reduction of VR1 will rectify this blemish at the expense of sweep amplitude. If VR1 becomes much too small the gain of V2 falls and the time base ceases to oscillate. In those cases where a rapid fly-back at high frequencies is more important than a large output these two adjustments will be found very useful.

Construction

The time base excluding VR1 and VR3 is built into the strobe box of a type 62 indicator unit, so that it can be made an integral part of such a unit. Space for VR1 and VR3 can be provided on the front panel adjacent to the strobe box. The photograph shows an alternative arrangement in the form of a plug-in unit which can be used externally in conjunction with any existing oscilloscope by feeding the sweep to the appropriate X terminal.

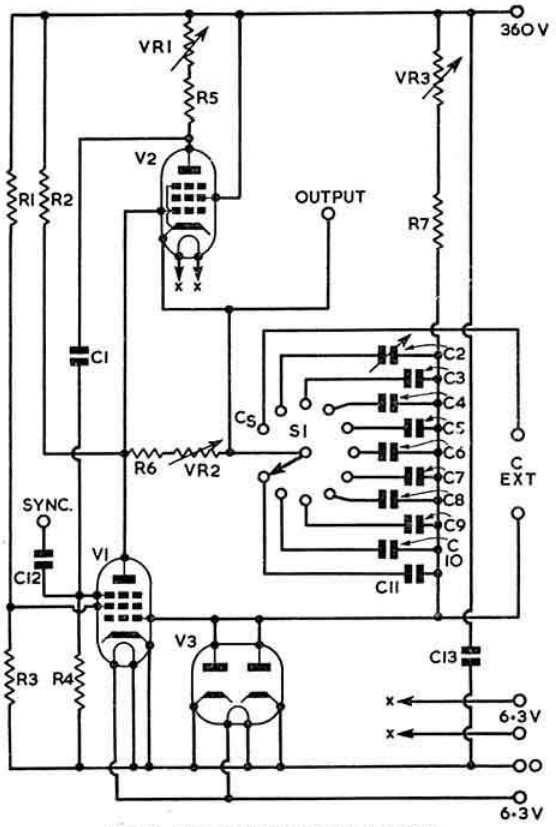


Fig. 1. Circuit diagram of the time base.
C1, 0.1μF; C2, 0.0005μF variable; C3, 0.001μF; C4, 0.002μF; C5, 0.004μF; C6, 0.008μF; C7, 0.016μF; C8, 0.032μF; C9, 0.066μF; C10, 0.13μF; C11, 0.25μF; C12, 50pF; C13, 4μF 400V paper; R1, 25K ohms 2W; R2, 330K ohms 1W; R3, 20K ohms 1W; R4, 1 Megohm ½W; R5, 2K ohms ½W; R6, 300 ohms ½W; R7, 39K 3W; VR1, 10K ohms 2W variable; VR2, 5K ohms 2W variable; VR3, 100K ohms 10W variable (see text); V1, EF50, V2, EF54, V3, 6H6.

At low values of VR3 the current flowing through VR3 + R7 is about 9 mA and the windings left on VR3 must be capable of carrying this current safely. VR3 therefore consists of a twin 50K ohm 5 watt potentiometer in each section with the windings in series.

Since the permissible heater to cathode voltage of an EF54 is only 100 volts a separate heater winding must be used. The back plate arranged to carry the valveholders is originally of a paxolin type material and should be covered with metal sheet and earthed to the frame. Care must be taken to ensure that the stator of C2 does not make metallic contact with this sheet. The whole unit is then enclosed in a metal cover. If the strobe box is to go back into a 62 Indicator the original strobe cover can be used. The power supplies are provided via a 5-core cable. An octal valve holder fixed to the inside of the back plate makes a useful tag board and by drilling through the centre of the holder the cable can be fed in.

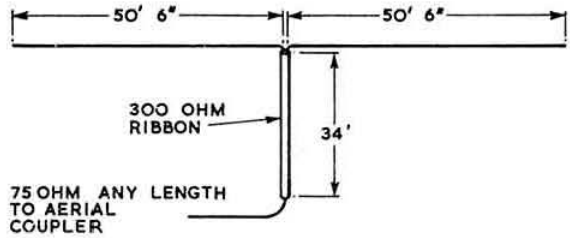
References

(1) "A Rapid Fly-back Miller Time Base Circuit," W. Fraser and M. W. Jeffs, *Electronic Engineering*, February, 1954.

(2) "A Linear Sawtooth Oscillator," W. T. Cocking, *Wireless World*, June, 1946.

How Does It Work ?

FOR the past few months a well-known member living in Bedfordshire has been using the aerial illustrated below with outstanding success on the DX bands.



In a note to Headquarters he asks, "how does it work and who invented it ?"

Who knows the answer ?

* * *

The Editor will be pleased to consider for publication other technical queries.

West German Amateurs on 4 Metres

A LIMITED number of West German amateurs are to be allowed to operate in the band between 70.3 and 70.4 Mc/s during the I.G.Y.

It is understood that D.A.R.C. have applied to the West German Government for permission to operate a special I.G.Y. station using the call DL0IGY but no details are yet available.

Constants for Tuned Circuits

By K. P. SPRAY (G3CMA)*

WHEN it is necessary to design a tuning system having a particular bandspread, it can be quite a tedious business if one has to resort to experiment. However, the calculation of the required values of the tuned circuit components can be much simplified by use of the basic formula relating frequency to inductance and capacity, viz.,

$$f = \frac{1}{2\pi \sqrt{LC}}$$

The frequency range of a tuned circuit depends entirely on the ratio of the maximum to the minimum value of the tuning capacity and obviously this ratio can be reduced to almost any value by connecting a fixed or padding condenser across the tuning condenser as shown in Fig. 1.

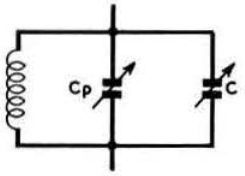


Fig. 1. Theoretical tuned circuit referred to in the text. Cp is the padder and C the tuning condenser. Cp should not be variable.

Let C vary from Ca (minimum) to Cb (maximum).

*94 Blue Bell Hill, Nottingham.

The maximum frequency to which this circuit will tune will be

$$fa = \frac{1}{2\pi \sqrt{L(Cp + Ca)}} \quad \text{..... (i)}$$

and the minimum frequency will be

$$fb = \frac{1}{2\pi \sqrt{L(Cp + Cb)}} \quad \text{..... (ii)}$$

Dividing equation (i) by (ii) and squaring

$$\left(\frac{fa}{fb}\right)^2 = \frac{Cp + Cb}{Cp + Ca} \quad \text{.....(iii)}$$

$$\therefore Cp = \frac{Cb - Ca\left(\frac{fa}{fb}\right)^2}{\left(\frac{fa}{fb}\right)^2 - 1} \quad \text{.....(iv)}$$

Since the values Ca and Cb of the tuning condenser are generally known, by substituting the calculated value of Cp into either equation (i) or (ii), the value of the inductance can be calculated, or alternatively obtained from an Abac.

If it is required to cover several bands with the same variable capacity, the calculations must be repeated for each frequency range, from which Cp and L may be obtained.

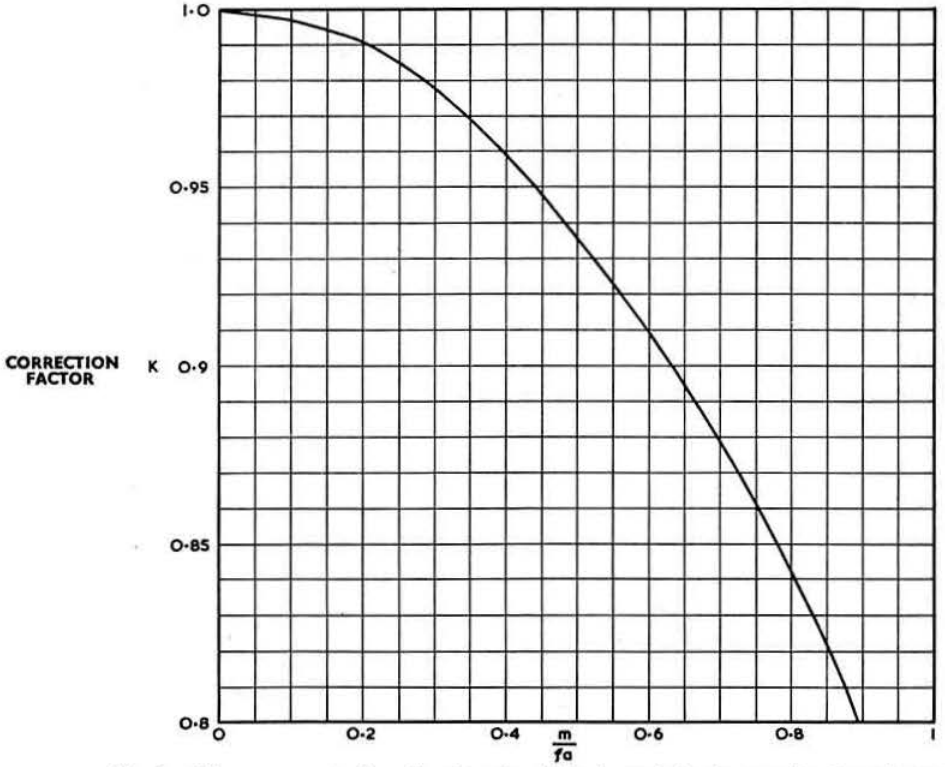
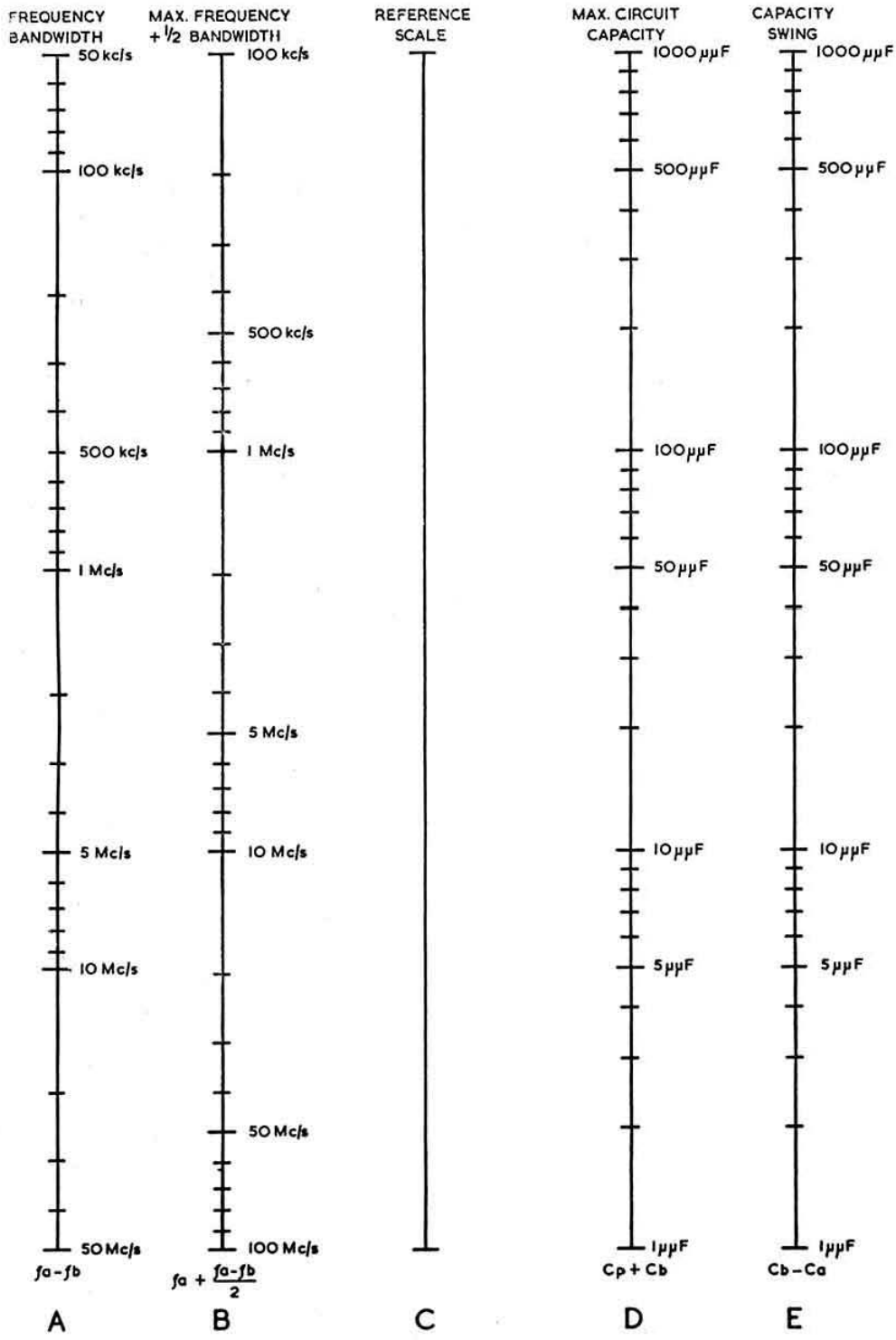


Fig. 2. When an accurate figure for the value of Cp is required, the correction factor k may be obtained from this graph.



Abac for determining tuned circuit constants.

The maximum capacity of the tuned circuit is $Cp + Cb$ which is equal to

$$\frac{Cb - Ca\left(\frac{fa}{fb}\right)^2}{\left(\frac{fa}{fb}\right)^2 - 1} + Cb \quad \text{.....(v)}$$

and it can be shown that this expression is also equal to

$$\left(\frac{Cb - Ca}{m}\right) \times \frac{1}{2}\left(fa + \frac{m}{2}\right) \times \left(1 + \frac{m^2}{4fa^2 - m^2}\right) \quad \text{.....(vi)}$$

where $m = fa - fb$ which is the bandspread required.

For values of m/fa which are less than $\frac{1}{4}$ the expression in the right hand bracket of equation (vi) can be ignored; thus there is a direct relationship existing between the remaining quantities, and a chart may be prepared to give the value of $(Cp + Cb)$. Such a chart is shown on page 548.

Using the Chart

To use the chart, it is necessary to know the bandwidth to be covered, the upper frequency limit and capacity range of the tuning condenser.

To find the value of the padding condenser, place a straight edge across the value of the capacity swing (scale E) and the bandspread required (scale A) and mark the point where the reference line C is crossed. Next place the straight edge across the point marked on line C and the value of the top frequency plus half the bandwidth (scale B) and read off the value on scale D. From this value subtract the maximum capacity of the variable condenser thus giving the value of the padding condenser.

The chart as it stands will give reasonably accurate results for values of m/fa which are less than $\frac{1}{4}$ but beyond this figure the error rises to about 10 per cent. at $m/fa = \frac{1}{3}$, this being the normal maximum which can be obtained, i.e., a 3:1 change in frequency.

Should it be required to obtain an accurate figure for the value of Cp, then it is necessary to apply a correction factor k, which depends on m/fa and can be obtained from the graph in Fig. 2, the value of $(Cp + Cb)$ being divided by k to obtain the correct value.

"An Amateur Band Converter"

Calculation of Coil Values

By A. H. KOSTER, Dr. Ing (G3ECA)*

MANY requests have been received regarding the calculation of the values of the coils for arbitrary ranges and intermediate frequencies for use in the converter described in the August 1956 issue of the R.S.G.B. BULLETIN. The author has therefore prepared the following Appendix to the original article.

$$C_s = \frac{C_v \times F_1^2}{F_2^2 - F_1^2} \text{ and } L = \frac{10^6}{4\pi^2 F_2^2 \times C_s} = \frac{25{,}300}{F_2^2 \times C_s}$$

where

F_1 is the lowest frequency of the desired range, in Mc/s.

F_2 is the highest frequency of the desired range, in Mc/s.

C_v is the capacity range of the tuning condenser in pF. The specified condenser with a nominal range of 25pF was found to cover 4 to 27pF, hence C_v is 23pF.

C_s is the fixed capacity which will tune L to F_2.

$C_s + C_v$ will tune L to F_1.

L is the inductance in μH.

The number of turns is given by Wheeler's formula for single layer cylindrical coils :—

$$N = \sqrt{L \times \frac{9r + 10\,l}{r^2}}$$

where

N is the number of turns.

L is the inductance in μH.

r is the outer radius of the coil in inches.

l is the length of winding in inches.

The recommended coil formers are the $\frac{3}{8}$in. diameter Aladdin type; since r refers to the outer diameter this includes the wire thickness, making r approximately 13/64in. The winding length l is $\frac{3}{4}$in.

Substituting these figures gives

$$N = 15\sqrt{L}$$

In the h.f. bands the inductance of the leads is not negligible and the number of turns quoted in Table I of the original article for these bands is slightly less than calculated.

*195 Woodford Avenue, Ilford, Essex.

Worked Example

The Top Band range is 1.8 to 2.0 Mc/s. An overlap of 25 kc/s is allowed at either end. This makes F_1 = 1.775 Mc/s and F_2 = 2.025 Mc/s. C_v as we know is 23 pF. Putting these values into the equation for C_s we find C_s = 76 pF. It must be remembered that this value includes all the stray capacities which are approximately :—

residual capacity of tuning condenser	4pF
valve input capacitance	7pF
capacitance to the anode or aerial coil	5pF
self capacitance of the coil	5pF
wiring	3pF
Jones plug and socket	12pF
Total stray capacitance approximately	36pF

Subtracting this value from C_s leaves 40 pF. All other bands require larger capacities, therefore C18 and C19 of 39pF each (this being the nearest preferred value) are wired permanently across C1 and C8. This leaves nothing for C2 and C4.

Substituting C_s = 76 and F_2 = 2.025 into the equation for L we obtain $L = 81\mu$H.

Finally, this value into the equation of N, gives N = 135 turns for a winding length of $\frac{3}{4}$in. Hence an enamelled copper wire giving 180 turns per inch is required. The nearest to it in the wire tables is 39 s.w.g. with 175.4. However, odd gauge numbers are not readily available. 38 s.w.g. with 151.5 will do, making the winding length $\frac{7}{8}$in. instead of $\frac{3}{4}$in. and leaving the slug to do the rest.

The oscillator is treated in the same way with C_v again 23pF, but F_1 becomes 2.332 Mc/s and F_2 2.582 Mc/s. This yields C_{osc} = 103 pF, C20 = 68 (for 67)pF, $L_{osc} = 37\mu$H, N_{osc} = 91, 36 s.w.g., $l = \frac{3}{4}$in. and C6 = nil.

When calculating the other bands it should be remembered that the C_s values must be reduced by 76pF to obtain the C2 and C4 values, and C_{osc} by 103pF to obtain C6.

Two Metre Handy-Talkie for R.A.E.N.

By M. J. HITCHMAN (G3HAN)* and
M. H. KIND (G3GXZ)†

EXPERIENCE has shown that two metre portable equipment would form a very useful part of the apparatus available in an emergency. However, a careful survey revealed that there is little information available in this country on this type of equipment. The authors decided, therefore, to design a unit specially for R.A.E.N. use. The following specification was arrived at after careful consideration of the various factors involved:

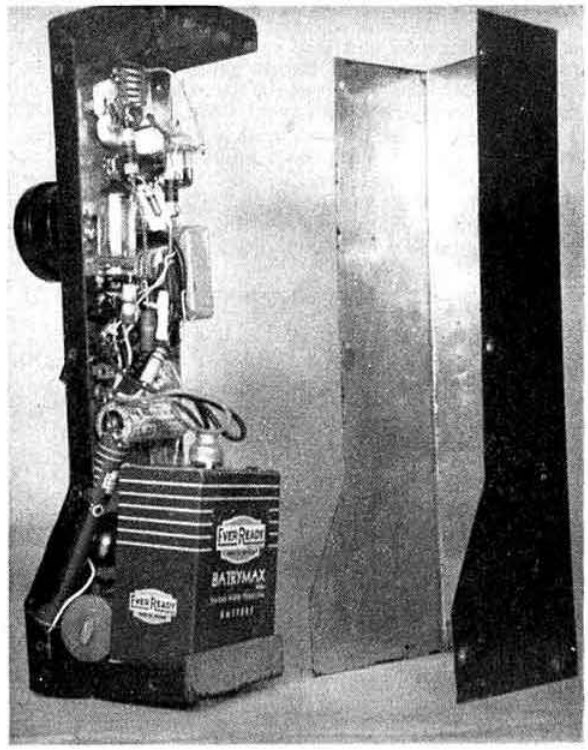
1. The equipment should be self-contained with no appendages.
2. It should be compact and light.
3. It should be relatively stable and capable of working with higher power mobile equipment.
4. The design should be suitable for easy duplication by other members of R.A.E.N.

The Circuit

The circuit (Fig. 1) is quite conventional and comprises an oscillator/detector (V1) followed by an audio amplifier/modulator (V2). When transmitting, the oscillator is modulated by the audio amplifier stage using the single earpiece as a modulation choke in the Heising mode of operation. The modulation depth is 70-80 per cent. V1 acts as a super-regenerative detector on reception; it is resistance-capacity coupled to the audio stage which has quite a high gain.

It was found possible to dispense with the regeneration control and no difficulty should be experienced in obtaining adequate quenching, providing the circuit values are followed closely. R2 allows V1 to squegg at the optimum frequency during reception but on transmit it is virtually shorted to earth by the gridleak R3 which is used to bias back V1 by reason of the grid current flowing through it

* *8 West Cotes Drive, Wigston Magna, Leics.*
† *62 Clifford Street, South Wigston, Leics.*



A view of the two metre handie-talkie with the case removed.

It will be seen that by using resistance-capacity coupling, only a simple microphone transformer is required; there is no need for the third winding usually found in this type of arrangement. The single earpiece is a 2000 ohm type which performs satisfactorily in its dual function. The modulation can be monitored during transmission. C5 should not be omitted as it was found that instability resulted without it.

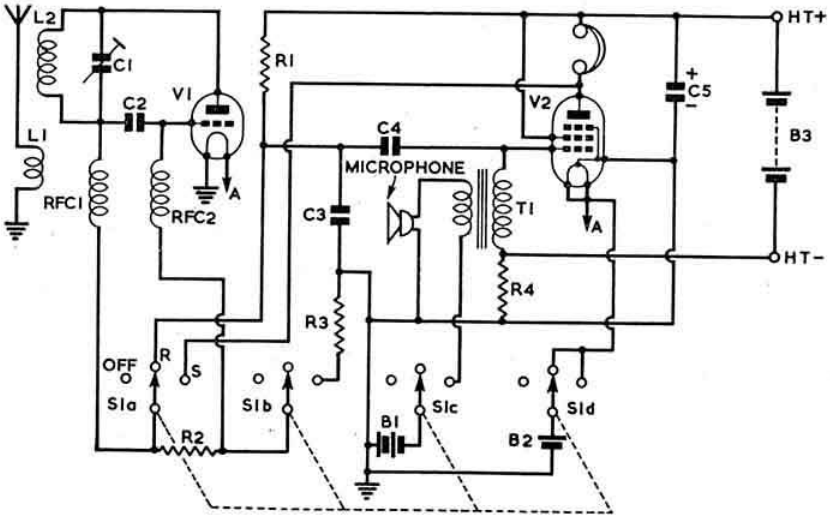


Fig. 1. Circuit diagram of the simple handy-talkie.

C1, 5pF air-spaced trimmer; C2, 20pF silvered mica; C3, 0.001μF mica; C4, 0.01μF ceramic (T.C.C.); C5, 8μF electrolytic; L1, 1 turn 16 s.w.g. tinned copper ¼ in. diameter; L2, 6 turns 16 s.w.g. tinned copper ¼ in. diameter spaced 1 wire diameter; R1, 100K ohms ½ watt; R2, 3.3 Megohms ½ watt; R3, 22K ohms ½ watt; R4, 470 ohms ½ watt; RFC1, 2, 40 turns 34 s.w.g. enam. copper close wound on ¼ in. diameter former; V1, 958; V2, 3S4; B1, 3 volts (Ever-Ready 1915); B2, 1.5 volts (Ever-Ready U2); B3, 90 volts (Ever-Ready B126); T1, 100:1 microphone transformer.

The microphone is a standard G.P.O.-type insert, the metal case of which is soldered direct to the chassis. The earpiece is fixed by means of a screw and a rubber grommet to a bridge which is in turn soldered to the chassis. When the earpiece was fixed rigidly to the chassis, audio feed-back resulted and the audio stage became unstable.

The leads to the 958 are soldered direct to its pins. Provided a pair of snipe-nosed pliers is used to grip the pin between the seal and the soldering iron no harm will be done to the valve.

The general layout is shown in Fig. 2 and details of the construction of the chassis and cover in Fig. 3.

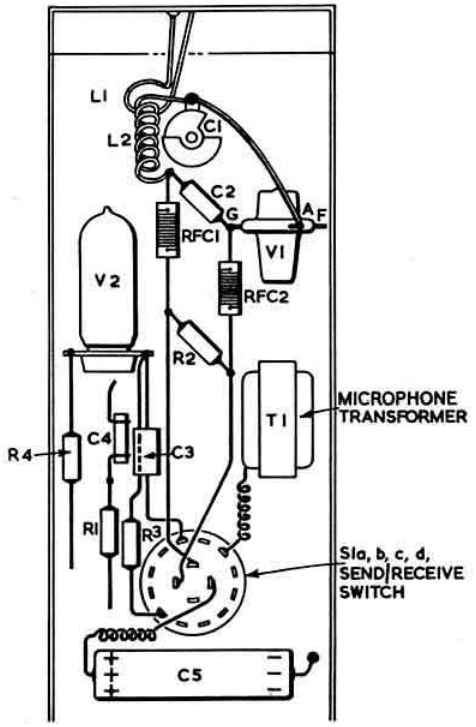


Fig. 2. Layout of the principal components.

The Aerial Circuit

The tuning coil L2 is self-supporting and is wound with 16 s.w.g. tinned copper wire. The tuning capacitor C1 is a small preset trimmer capable of tuning L2 from 142 to 146 Mc/s. Mid-band frequency adjustment can be accomplished by compressing or stretching L2, which is soldered directly to the tags of C1. One end of L1 is soldered direct to the chassis while the other is connected to the aerial standoff insulator. This is fitted with a 4 B.A. screw which screws into a pillar soldered to the bottom of the whip. The aerial is 18½in. long, the rest of the quarter wavelength being made in the insulator and L1.

Results

Battery consumption is very small. The filaments take only 170 mA, the h.t. requirements being 11 mA on receive and 14 mA on send. In addition, the microphone takes 60 mA while transmitting. The power input to the oscillator is 0.45 watt and the total h.t. consumption 1.26 watts.

The model shown in the photograph is the second of its type. Both were easy to construct and get into operation. The prototype has been used up to a mile from a 5 watt transmitter with a three element beam; at this distance, solid communication can be carried out in a built-up area. The prototype was also used during a contact with G3BKQ at a distance of three miles, communication being 100 per cent both ways. A significant fact is that G3BKQ was using a narrow band receiver and the handie-talkie was sufficiently stable to be received easily.

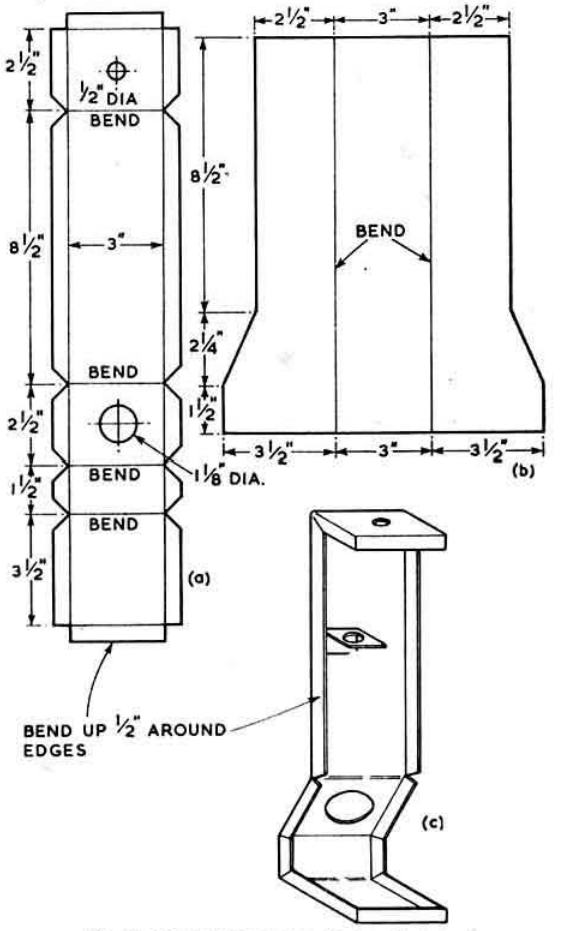


Fig. 3. Construction of the chassis and cover.

Coronation Trophy 1957

EAST Ham Group, with 187 points, were the winners for the second year in succession of the Coronation Trophy, followed by Ilford with 163 points. Chingford Group were third with 144 points.

MOBILE COLUMN

Due to pressure on space the **Mobile Column** has been unavoidably held over to the July issue. Further reports can be included provided they reach Headquarters not later than June 20.

Ten Metre Converter

Simple Conversion of the RF26 Unit

By A. H. KOSTER, Dr. Ing. (G3ECA)*

THE conversion to be described is very simple and effective and consists of adding a few fixed condensers and one resistor to the well-known RF26 unit without having to make modifications to the coils or other components. The tuning range covers 28 to 30 Mc/s for a dial rotation from about 10° to 170°, thereby leaving a small overlap at either end. A grid dip oscillator is a great help when adjusting the range.

the cable must be earthed at the receiver and at the converter chassis. A six-pin Jones plug with a cover at the converter end is essential to avoid i.f. breakthrough. The latter is then negligible and can be eliminated altogether by tuning the receiver around 7.5 Mc/s to find a clear channel. The aerial transformer T1 in the converter helps to reduce breakthrough and its removal makes matters slightly worse. Many receivers change bands around 7 Mc/s, e.g. 3.5 to 8 Mc/s and 7 to 16 Mc/s are common frequency ranges. It has been found better to use the higher band, i.e. 7 to 16 Mc/s. The results obtained compare favourably with any commercial 10m receiver. Reference should also be made to the article by G5PP in the December BULLETIN and to the letter by G2BUN on page 376 of the February issue.

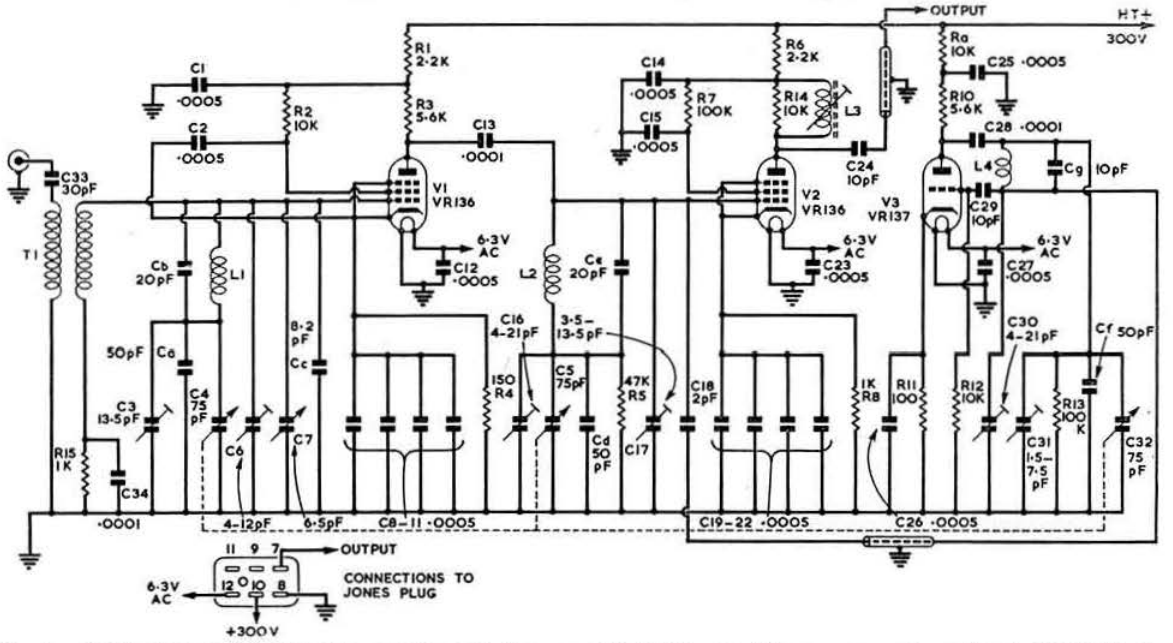


Fig. 1. Circuit diagram of the 10-metre converter made from a modified RF26 unit. The new components are Ca, Cd, Cf (all 50 pF), Cb, Ce (both 20 pF), Cc (8.2pF) and Cg (10pF). Ra (10K ohms) is fitted in place of the original R9.

Fig. 1 shows the circuit of the RF26 unit with the additional components. The original condensers and resistors bear the suffixes 1, 2, 3, etc. and the additional ones a, b, c, etc. Having added the components, the grid dip oscillator is coupled to the oscillator coil L4. The desired range is 35.5 to 37.5 Mc/s which can be obtained by means of the trimmer C30 and the slug in L4. If the range is too wide, say, 35 to 38 Mc/s, then the capacity of C30 must be reduced, and the inductance of L4 increased by means of the slug. If the range is too narrow, e.g. 36 to 37 Mc/s the opposite procedure is adopted. By trial and error and judicious adjustment of C30 and the slug of L4 the required range can be set without difficulty.

The grid dip oscillator is then transferred to L2 and C17 and the slug in L2 adjusted in the same way as for the oscillator, the required range being 28 to 30 Mc/s. Finally, the input circuit is set by means of C6 and the corresponding slug in L1, the aerial tuning condenser C7 remaining in mid-position. The resistor Ra replaces R9 to reduce the heterodyne voltage which is otherwise unnecessarily high and adds to the noise.

The i.f. of 7.5 Mc/s is fed through co-axial cable from the converter to the main receiver. The screen of

Happy Days "Smithy"

HIS very many friends in the R.S.G.B. will wish Mr. H. F. Smith, until last month Editor of *Wireless World*, a very happy retirement. "Smithy" has been connected with radio for 46 years, starting his career with the Marconi Co. at the age of 19. After serving with the Naval Reserve during World War I he joined *Wireless World* in 1925 and assumed editorial control in 1941.

A luncheon in his honour was given on May 6 at Grosvenor House where many tributes to his work were paid by his colleagues.

Mr. Smith has always been a very good friend of the radio amateur and he has helped the R.S.G.B. in many ways. His successor is Mr. F. L. Devereux who has been with *Wireless World* for 33 years.

ZE3JJ in G-land

MR. IVAN WOOD (ZE3JJ, ex-G3CHP) who has been in Salisbury, Southern Rhodesia, since 1949, is at present staying at "Fairlawn," Riverwoods, Marlow, Bucks (Tel.: Marlow 404) at which address he will be pleased to meet, or hear from, old friends. Mr. Wood expects to leave England again at the end of next month.

Useful Logging Device

By V. H. S. CURLING (G6VC)*

THE method described below of logging different countries and zones is the most suitable yet tried by the writer, for it avoids the complications that arise when an operator has to flick over the pages of a book with one hand whilst keying with the other.

The materials required are as follows:—One piece of stiff cardboard 16 in x 11 in, one piece of cartridge paper 16 in x 11 in, one piece of celluloid 16 in x 11 in, a tube of Samson Cement, one reel of Sellotape, red and blue Chinagraph or Markall pencils.

Preparation

First mark out the cartridge paper as shown in Fig. 1 (a), then cement it to the cardboard allowing 10 minutes for it to dry. Next place the celluloid over the paper and hold it in position at the edges with Sellotape. If two pieces of celluloid are used join them with Sellotape on the underside only before fixing over the paper.

*26 Burch Road, Northfleet, Kent.

The size of paper can, of course, be increased if it is thought desirable to add information about, for example, W.A.S. and similar awards. At the writer's station Countries and Zones only are logged.

Fig. 1 (b) shows how the countries or zones are indicated by means of red and blue marks on the celluloid. The types of pencil specified, however, must be used; ordinary crayons will not do the job. If an error is made in the logging a damp finger will remove the pencil marks.

Using the Logging Device

A glance at Fig. 1 (b) shows that Finland (OH) has been worked on all bands except 21 Mc/s, but no confirmation (QSL) has been received for the 7 and 28 Mc/s contacts. Blue indicates the country worked and red that a QSL has been received. The same arrangement could, of course, be applied to Zones or States worked.

The log hangs on the wall above the operating position and can be read while keying. No pages have to be turned.

In the diagrams used to illustrate this article a blue mark is represented by cross-hatching and a red mark by dots.

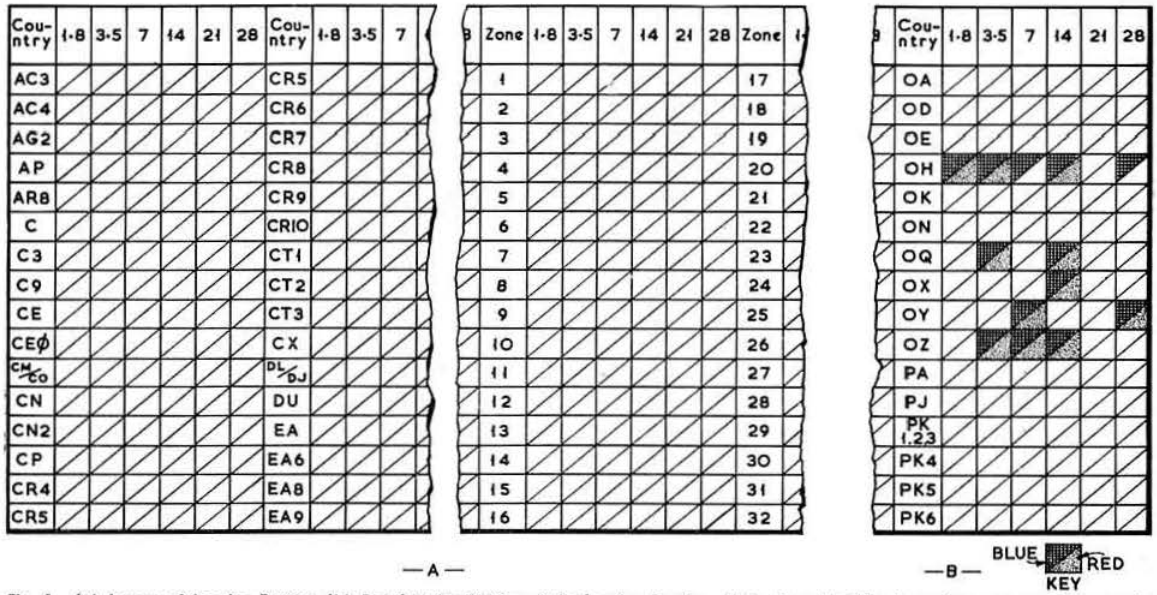


Fig. 1. (a) Layout of Logging Device; (b) Practical Application of the Logging Device. Note. Cross-hatching is used to represent blue marks and dots to represent red marks.

Mr. G. G. Blake now an M.Sc.

FROM the *Sydney Daily Telegraph* we learn that Mr. G. G. Blake—well known to early members of the Society—recently received the Master of Science Degree at Sydney University. Mr. Blake, who was a pioneer of X-ray and radio work in England, has been carrying out research at Sydney University since 1938. He held an amateur licence prior to World War I and in 1913 carried out some early radio telephony tests. In that year he transmitted 'phone from his home in Richmond, Surrey, to the London Telegraph Training College in Earl's Court. His was probably the first voice to be transmitted across London by radio.

Intruders

AMATEUR stations who suffer from interference in "exclusive" amateur bands are asked to send full details to Mr. D. W. J. Haylock (G3ADZ), 3 Norris Gardens, Grange Estate, Havant, Hants, who recently accepted an invitation extended to him by the Council to organize an "intruder watch."

Details of the interference, together with date, time and frequency should be included in the report.

The exclusive amateur bands in the U.K. are 7000-7100 kc/s, 14000-14350 kc/s, 21000-21450 kc/s and 28000-30000 kc/s.

In Days of Old

By W. FARRAR, B.Sc. (G3ESP)*

THE writer recently had the good fortune to peruse a bound copy of a 1924–25 volume of a popular wireless magazine. The following notes on a random selection of items contained therein show that in some respects the old-timers were definitely barking up the wrong tree; but on the other hand quite a number of ideas which the present generation might think are of fairly recent origin are to be found in this "historical document."

In a short article entitled "Will Valves Work from Dry Cells?" a staff writer starts off with the Joadism: "It all depends upon what is meant by dry 'cells,' by 'valves' and by 'work'"! He goes on to point out how much more satisfactory accumulators are.

The Assistant Editor writes: "If you work on very short waves . . . (well below 100 metres) you will be astounded how much energy can be by-passed through tiny stray capacities."

A circuit is shown of "a non-radiating antenna . . . commonly known as an 'artificial' or dummy aerial." It consists of a coil, condenser and resistance, and one is told that the dimensions of the inductance should not exceed 3 sq. ft.!

Many firms announce that they will repair burnt-out or broken valves at 6s. 6d. each. (This sort of service would be useful these days when the filament of an 813 fails!)

A reader's query asks why it is that a perfectly good amateur telephony signal should suddenly become violently distorted, accompanied by whistling. The answer given says it is due to an amateur switching on his transmitter in the middle of the conversation of another station, with whom he does not know he is interfering. (Little did the old-timers realise what the 80 metre 'phone band would be like some 30 years later!)

Another reader asks for a reliable method of comparing signal strengths. The method recommended is to shunt the telephones with a variable resistance and to adjust the latter until the signals are rendered just inaudible. The resistance in the shunt is then determined. Suppose that the resistance of the 'phones is R, and on two occasions resistances R_1 and R_2 were used in the shunt. Then the signals strengths are in the ratio $R + R_2 : R + R_1$. (At least this method would seem to be as reliable as some of the S-meter readings heard over the air today.)

Now hold on to your seats! A sarcastic editorial entitled "Badges for Good Boys" refers to the great scheme upon which the committee of the R.S.G.B. had been working so long and arduously, namely, that the Radio Society badge would shortly be ready. "We have no doubt," states the editorial, "that the members as a whole will show their contempt for this absurd and schoolboyish coat-button idea by refusing to take the badges even as a gift," and refers to the loss of dignity which this scheme entails. (Subsequent readers' letters tended to disagree with the editorial view.)

The Assistant Editor sighs for a one-handle control for superheterodyne tuning, but points out the great difficulty in maintaining a constant frequency difference between two circuits tuned by two condensers on the same shaft.

*6 Hemsworth Road, Ackworth, Pontefract, Yorkshire.

A small paragraph informs us that whaling ships plying the North Sea are now fitted with Marconi direction finders, in order to locate each other and avert collisions in fogs or darkness. (Who said radar is modern?)

A reader writes that F8NS wants to work with English amateur transmitters, and appeals for any offers.

A photograph shows members of the Chicago "Flying Squad" with their radio car, which maintains communication with headquarters by wireless telephony.

We are informed that thermionic valves can be used to melt steel into white-hot liquid, and would soon be used practically. The scheme involved generating an alternating current of extremely high frequency, which is passed through the metal.

The latest discovery by John Reinartz and other American experimenters is that waves of less than 30 metres will not travel in the dark. (So, if you can't get out on 14 Mc/s after dark, don't throw the transmitter out of the window—wait until dawn breaks!)

Ah for the good old days. . . .

In days of old, when hams were bold,
And transistors weren't invented.
Their bright emitters would give us the jitters,
Yet they were very contented.

Michigan Wolverine Award

THE Grand Rapids Amateur Radio Association offers this award in the form of a 3-colour certificate to any station located outside the United States of America and Canada who qualifies under the following rules:—

1. Contacts fixed or fixed/portable stations in at least 25 of Michigan's 83 counties.
2. Contacts must have been made since January 1, 1947, and can be either phone, c.w. or both on any or all amateur bands.
3. Reports of less than R3, S3, T8 on c.w. or R3, S4 on phone will not be accepted.
4. *No QSL cards are required.* Send a transcript of log entries showing station worked, town, date, time, and operator's name.
5. Application must be accompanied by 4 I.R.C. If application is approved, certificate will be returned by air mail. If not approved, full explanation will be returned together with unused I.R.C.
6. Mail applications and log transcripts to either Grand Rapids Amateur Radio Association, P.O. Box 333, Grand Rapids, Michigan, or Norman C. MacPhail (W8DLZ), Awards Chairman, 1340 Giddings Avenue, S.E., Grand Rapids, Michigan.

W.A.G. (Worked All Goose) Certificate

THE Goose Bay Amateur Radio Club has instituted an attractive award known as the W.A.G. (Worked All Goose) Certificate. The rules governing the award are as follows: (i) All contacts must have taken place since April 11, 1957. (ii) W/K and VE/VO stations must work five different stations located in Goose Bay. (iii) All other applicants must work four different stations in Goose Bay. Phone or c.w. or a combination of both may be used.

When the required number of VO2 stations have been worked, a list should be sent, with three international reply coupons, to O. F. Harvey, VO2AB, W.A.G. Manager, c/o Dept. of Transport, Goose Bay Airport, Labrador, Canada. QSL cards are not necessary.

"G5FO" Pirate

THE call-sign of the late R. Jeakings, G5FO, is being used by an unlicensed station.

I.G.Y. News

Beacon Station Approved—World Calendar and Programme Details

By D. W. FURBY (G3EOH)* and G. M. C. STONE (G3FZL)†

FOLLOWING the announcement in the April issue of the BULLETIN of the appointment of the writers as co-ordinators of the Society's I.G.Y. programme, an I.G.Y. Co-ordinating Group has been formed whose function is to carry out the detailed planning of that programme and to keep in touch with organizations in other countries carrying out similar work. In addition to G3EOH and G3FZL the members of the group are G5KW, G3HBW, G2FKZ and G2AHL. The President, G3BZG, also attends meetings and provides valued assistance in helping to overcome the many problems encountered.

Two Metre Beacon Station to be set up

The Post Office has agreed to a request by the R.S.G.B. for permission to set up an automatic transmitter operating in the two metre band with an input not exceeding one kilowatt. The call-sign will be GB3IGY and the frequency 145.5 Mc/s. Subject to site clearance by the various authorities concerned, the station will be at the home of Ken Ellis (G5KW). The equipment at present planned will consist of a 500 watt automatic transmitter and a 6-over-6-over-6-over-6 slot beam having a gain of 18db beaming northwards.

At the time of Regular World Days, Special World Intervals and other internationally nominated study periods, the equipment will be operational throughout the 24 hours, coming on the air every hour and half hour for five minutes. It is hoped that it will be possible to include an indication of the nature of the study period, i.e., R.W.D., etc., in the transmission as a reminder to

*54 Oakhurst Road, Enfield, Middlesex.
†10 Liphook Crescent, Forest Hill, London, S.E.23.

World Meteorological Interval 20 21 22 23 24 25 26 27 28 29

Regular world day (11)
Regular world day at new moon (10)
Unusual meteoric activity 8 **(but not world day)**
Regular world day with unusual meteoric activity (17)
Day of total eclipse [12]

June 1957 (Advance Trial)

Sun.	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	(27)	(28)	(29)
30						

July 1957

Sun.	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.
	1	2	3	(4)	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	(26)	(27)
28	29	30	31			

August 1957

Sun.	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.
				1	2	3
4	5	6	7	8	9	10
11	(12)	13	14	15	16	17
18	19	20	21	22	23	24
(25)	(26)	27	28	29	30	31

September 1957

Sun.	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.
(1)	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	(23)	(24)	25	26	27	28
29	(30)					

October 1957

Sun.	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	(22)	[23]	(24)	25	26
27	28	29	30	31		

November 1957

Sun.	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.
					1	2
3	4	5	6	7	8	9
10	11	12	13	(14)	15	16
17	18	19	20	(21)	(22)	23
24	25	26	27	28	29	30

December 1957

Sun.	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.
1	2	3	4	5	6	7
8	9	10	11	12	(13)	14
15	(16)	17	18	19	20	(21)
(22)	23	24	25	26	27	28
29	30	31				

World calendar for the period up to the end of 1957 showing regular world days and other I.G.Y. data.

observers and also as an indication of Special World Intervals.

The notification of an S.W.I. is received from the Meterological Office at Dunstable at about 5 p.m. and the message is repeated direct to G5KW. Thus a general warning will be sent out over GB3IGY very shortly after official notification has been received. It is hoped to make special arrangements for certain area activity co-ordinators who are outside the normal range of GB3IGY to be notified by other means.

I.G.Y. World Calendar

The basic object of the International Geophysical Year is to arrange that during the period July 1957 to December 1958, scientists in all parts of the world interested in any field of geophysics shall collaborate in carrying out observations simultaneously in as great a detail as possible. To attain this objective a Calendar of World Days has been arranged which is intended to concentrate the greatest range of activity within the limitations of three or four such days each month.

In drawing up the calendar of R.W.D., two days have been selected in each month at new moon, with the third day near the quarter moon. Since one of the major items of interest during this special period is to observe the effect of the arrival of streams of meteors into the earth's atmosphere, the third day and certain additional days included in the calendar have been chosen with the knowledge that unusual meteoric activity may be expected on these occasions.

A part of this basic calendar covering the first few months of the I.G.Y. is reproduced on the preceding page.

In addition to this pre-arranged calendar a number of Special World Intervals (S.W.I.) will be announced at approximately three-monthly or quarterly periods, when there is reason to believe from the current observations that there is likely to be unusual activity in magnetic, ionospheric or auroral conditions or some serious disturbance in these conditions such as a magnetic storm and an interruption or curtailment of world-wide radio communications.

Advance warning of the possible announcement of a Special World Interval will be given by an " alert " signal about four to six days before the time in which there is more than usual expectation of a major disturbance in geophysical conditions. Not less than 12 hours before the beginning of the special period under consideration an announcement of the S.W.I., or of its cancellation as a result of further information received since the alert was set up, will be made.

Other and more specialized observations will be conducted during periods of six World Meteorological Intervals which have been chosen to include the Regular World Days of each month. In addition special programmes will be arranged at the time of the total eclipse of the Sun on October 23, 1957, which will be mainly visible in the South Atlantic, Pacific and Antarctica; and of an annular eclipse of the Sun on April 19, 1958, which is mainly of interest to observers in the tropical regions of Asia.

By the aid of all these advance arrangements, it is anticipated that the greatest practical use can be obtained from the observations made simultaneously in all parts of the world, and that this will result in a very great advance in our knowledge of the physical properties of the earth and its atmosphere and all the phenomena associated therewith.

(The foregoing information on the I.G.Y. Calendar is based on a circular written by Dr. R. L. Smith-Rose for the British National Committee for the International Geophysical Year issued by the Royal Society.)

R.S.G.B. I.G.Y. PROGRAMME

V.h.f. Propagation Study

The R.S.G.B. I.G.Y. programme concerned with the study of v.h.f. propagation falls into two categories:

(i) To provide information of use to the world I.G.Y. organization.

(ii) To provide material for the future use of amateur v.h.f. operators in forecasting band conditions.

(In connection with (ii) we wish to find out comparatively simple methods by which it is possible for the average amateur operator using a minimum of special equipment to forecast with a reasonable degree of accuracy v.h.f. band conditions.)

To provide the data necessary it is essential to have a large number of observers recording v.h.f. conditions at their own locations. In fact a large number of observers each having modest equipment is preferable to a few elaborately equipped stations which can only provide information regarding conditions in their own particular areas.

It is not sufficient to rely on amateur band stations alone as, in general, their operating times are erratic and confined to limited times of the day. Hence we propose to set up a network of observers equipped with one or more of the following:

Name (Block letters please) .....

Call-sign or B.R.S./A number .....

Address .....

.....

1. Have you
   - (i) A multi-channel television receiver?
   - (ii) A 90 Mc/s (Band II) v.h.f. f.m. receiver with good aerial?
   - (iii) Receiving equipment covering any part of the spectrum 30 to 150 Mc/s? If so, please give details.
   - (iv) Receiving equipment for the 70 Mc/s, 144 Mc/s and/or 435 Mc/s bands?
2. (i) What is the height of your station above sea level?
   - (ii) How good is the optical clarity and what is the estimated visibility, north, south, east and west, in miles?
3. (i) Are you available for three or more evenings a week between 7.30 and 8.30 p.m.?
   - (ii) What other times are you available?

   (For the purposes of correlation it is essential for all observers taking met. readings to do so between 7.30 and 8.30 p.m. clocktime.)
4. (i) Have you a good barometer?
   - (ii) Have you a wet and dry bulb thermometer?
   - (iii) If not, are you prepared to buy a wet and dry bulb thermometer at a cost of, say, about 25/-.

   (Advice on the use of instruments will be supplied in the form of information sheets.)

Members are asked to follow the above layout when giving details in order to simplify reference by the Co-ordinators.

(i) A multi-channel television receiver.
(ii) A 90 Mc/s (Band II) v.h.f. broadcast receiver.
(iii) Apparatus for monitoring other parts of the spectrum between 30 and 150 Mc/s.
(iv) Equipment for the 70 Mc/s, 144 Mc/s or 435 Mc/s amateur bands.

These observers will be asked to check on the reception of, say, certain B.B.C. v.h.f. stations at ranges beyond 50 miles from their homes, or to check TV channels other than local ones. At the same time, it will be desirable, if possible, to record the meteorological conditions using a barometer and a wet and dry bulb thermometer.

Consistency of reporting is essential and to encourage this it is hoped to issue certificates to those observers who complete reports covering more than 10 days a month during the period of the I.G.Y. To be an observer one does not need to hold a transmitting licence (a receiving licence *is* necessary!) and thus the field is open to all members to provide data essential to ensure the success of the R.S.G.B. I.G.Y. programme.

28 Mc/s Propagation Study

The exact details of this aspect of our I.G.Y. programme have not yet been finalized but Vic Collins (G2HOF) of Wallasey has agreed to organize schedules with amateurs in Northern America to provide checks on the trans-auroral propagation path. In addition we shall be able to give great assistance to the A.R.R.L. I.G.Y. programme if we are also equipped with 50 Mc/s converters or receivers. As operation in the 50 Mc/s band is not allowed in the U.K. transatlantic contacts for 50 Mc/s American stations can only be cross-band, and 28 Mc/s provides the most suitable frequency for this purpose as propagation conditions when favourable are similar.

Those interested in taking part in this part of the programme are asked to contact G2HOF, 37 Rosclare Drive, Wallasey, Cheshire, to enable him to compile a list. Details will be finally decided when the extent of the interest in 28 Mc/s propagation study is known.

Registration of Observers

To enable the I.G.Y. Co-ordinators to complete their plans, all members wishing to take part in the I.G.Y. programme are asked to write immediately in the form shown in the accompanying example.

I.G.Y. High Power Licences

TO facilitate a useful contribution to the I.G.Y. on the part of radio amateurs, the Post Office is prepared to examine a scheme whereby, as an exceptional and temporary measure, a small number of amateurs, say, up to ten in number, sponsored by the R.S.G.B., could experiment on 144 and 420 Mc/s with higher power than is allowed under the normal amateur licence.

The Post Office has made it clear that individual licences would be granted subject to "site" clearance and no objections being raised by other Government departments.

Applications are invited from those who wish to be considered for these additional facilities, and should be addressesd to the Radio Society of Great Britain, New Ruskin House, Little Russell Street, London, W.C.1, the envelope being marked "IGY."

Radio Hobbies Exhibition

THE Council has authorized Mr. P. A. Thorogood (G4KD) to proceed with plans for organizing a Radio Hobbies Exhibition in the Old Hall of the Royal Horticultural Society, Westminster, London, during the week October 21-27, 1957.

N.A.T.O. to Install Scatter Communications System

A NEW communications system using tropospheric scatter will soon replace the present system for the North Atlantic Treaty Organisation (N.A.T.O.). Described as almost jam-proof, this network will combine over-the-horizon "forward scatter" and line-of-sight radio relay links to further integrate communications facilities of N.A.T.O.

The communications systems now in use have been considered inadequate because of their vulnerability to enemy jamming.

The scatter system has many advantages over other means of communications. Regardless of atmospheric conditions it can transmit messages accurately over considerable distances, thus eliminating many in-between relay stations and reducing the number of operators to approximately 250 for the entire scatter system.

Eventually, the system will cover the communications network from the northern tip of Norway to the eastern portions of Turkey and also will be integrating with Western Europe's new air defence system.

The engineering and installation will be carried out by the International Standard Electric Corporation, of New York City, and Hycon Eastern, Inc., of Cambridge, Massachusetts. An engineering centre will be established in Paris for general supervision of the project.

"Radio Pill" as New Diagnostic Device

THOUGH still regarded as experimental, the recently developed "radio pill"—a plastic capsule about an inch long containing a transistor oscillator—is expected to become an important medical tool. When swallowed, the instrument sends out radio signals of pressure, acidity and other conditions encountered in its passage through the digestive tract. The signals are received by an external f.m. radio set. Valuable information is expected to be obtained in this way which may serve as a guide in understanding and treating spastic colitis, ulcerative colitis and some other organic and functional diseases. Unlike the usual diagnostic techniques—X-ray or tubes inserted through orifices in the body—the "radio pill" involves no discomfort or danger.

In the United States, scientists at the Rockefeller Institute, the New York Veterans Administration Hospital, and the Radio Corporation of America co-operated in the development of the new device. At the same time, two German scientists, Professor von Ardenne, an atomic scientist in East Germany, and Professor Sprung, Director of the Academy of Medicine's surgical clinic at Dresden, have invented a similar capsule. The American "radio pill" was demonstrated at the Rockefeller Institute in New York early in April.

Copyright in Sound Recording

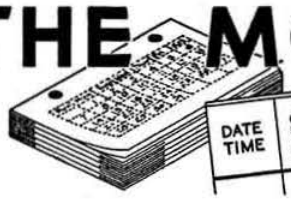
PETER Ford, LL.B. (Hons.), F.R.S.A., of Gray's Inn, London, is the author of a useful little booklet entitled *Copyright in Sound Recordings*.

The booklet is published by the British Sound Recording Association price 1s. 2d. post free. Copies can be obtained from the Hon. Librarian, 3 Coombe Gardens, New Malden, Surrey.

Monte Carlo

G2BSA reports that although other amateur stations have been licensed by the Monaco authorities the only one currently active is 3A2BF of Monte Carlo, who works phone on 14 Mc/s. Those who have had contacts with a station using that call on other bands worked a pirate.

THE MONTH ON THE AIR



By S. A. HERBERT (G3ATU)*

AS Spring gives way to Summer, conditions on the various bands are following the normal seasonal pattern. In other words, the lower frequencies are becoming noisy with static, while at the other end of the scale the falling M.U.F.s mean fewer and fewer DX openings on ten metres until the band opens again later in the year. Twenty metres remains much the same as for some months past, but seekers after DX in the Caroline Is. area—Truk, Yap, Ponape, etc.—could do worse than keep watch on the band from mid-day onwards during June, July and August, when openings to KC6 can again be expected. Currently, however, the accent is on fifteen metres, which has drawn favourable comment from almost everyone as the Band of the Month and so we start with the happenings thereon.

Fifteen Metres

It makes a pleasant change to be able to report fifteen as the principal DX band and certainly things have been lively there of late, with openings during most of the day and night. During the day, of course, those pestilential jamming things still wobble sickeningly up and down, but later on they become silent for a time. Perhaps it would be a good thing if those responsible for them could be persuaded to run their horrible charges flat out for a day or so, when eventually they might either blow up or just melt!

G3IOR (Norwich) worked some new ones. On phone, he got VP3YG, HC1PL, ZS3BC, VK9BS, HI7LS, HI7LMQ, MP4KAC, CR4AS, UO5AA (who said "Please QSL direct and send photos") and some OAs, while other rare ones worked were KR6QN, ZP5AM (running 30 watts to a whip), W7BHK (Utah), W7YOA (Mont.), VP8CC, HS1B and HS1MQ, both of whom are quite genuine. HS1MQ in fact has already QSL'ed. Pat had no luck with VK9HO, JZ0PB, 'PC, but he turned to c.w. and worked W7VZG (Ariz.), VK9AJ and some JAs. **G2HIO** (Nottingham) concentrated on phone and worked a variety of DX, including VQ5EK (13.15), VQ2IB (P.O. Box 558, Broken Hill), CE2HX (22.50), VK9AJ (whose QSL arrived via G4ZU), CR5SP (Sao Tome Is.—20.40), FQ8AC, '8AI, VU2RX (17.00), VP5CM, VP2AD (Leeward Is.), VP2LU (Windward Is.) and Hal, of HS1B.

B.R.S.20133 (Melton Mowbray) is up to 36Z/132C this year on phone, using an AR88 and a 66ft Windom on the three h.f. bands only. His latest are UD6AL and HS1B (both new ones), KH6BGF, VK9BS, '9BW, '9HO, VS4JT and ZC4JU. **A.1376** (Winscombe) says the band sounded like something in a frying pan, but he dug down for BV1US (17.30), VK9s 'BS, 'BW (New Guinea, 12.30), VP6WB and UA9CM—all on phone. **B.R.S.20135** (Newport, I.o.W.) remarked that conditions followed the pattern of the weather—fine one day and poor the next. His list of phone specifies HS1A, '1B (18.00), VS1, '2, '4, '6 (09.00, 17.00), VP8BF (18.30), VPs '4MM, '5CM, '7NB, '9L and lots of VK/ZL. Albert is happy to give the G.M.T. of the DX heard, but says he is a little chary of committing himself as to frequencies! **B.R.S.20317** (Bromley) speaks highly of his "G3FXB" converter. No wonder—since he got it last September, he has collected a mere 157C on fifteen alone, with new ones this month in CP1AF, HK4KG, HI7CB (22.50), PJ2AV, UI8AG, UN1AH, UO5AA, and YN1AA, all using c.w., which also gave him EL1WG, FF8CG, KL7FZ (Aleutians, 22.50), TI5AH, UA0SK and XE2AR, while a new one on A3 was SU1AU.

B.R.S.20249 (Sutton) sorted out four new ones—JZ0PB, VR2BC and VS4JT were on A3 and UJ8AG was on A1—and Malcolm was intrigued to hear G3HLS chatting to the strong VK9HO and '9BW. **B.R.S.6841** (Bristol) heard EP2PA (ET2PA ?), VS2BQ (22.45) and MP4BCC, who is Bob Carragher, well known in years past as MF2AA. **B.R.S.2292** (Hounslow) has just moved and is thinking about aerials now that he is no longer a flat dweller, but meanwhile he finds that 18ft of wire into his S840 still gives him DX such as JA1, '5, '6, '8, UJ8, KG1, ET2 and K6 (all 20.00-20.30), also FB8BX, OA6M (s.s.b. and a.m.), CO8JK and ZL on phone and VQ2EI, 3W8AA on the key. Charles has logged his 10,000th amateur since re-starting in 1955 and recent QSLs include cards from CR5SP, VP5MS and W9AEB. The W9 card seemed familiar and '2294 found he had exactly the same QSL from W9AEB—dated June 1937!

B.R.S.20106 (Petts Wood) found DX at a high level, though the band was prone to change suddenly and fade out in a matter of minutes. He remarks on the

Station GM2DBX owned and operated by James Taylor at Methihill, Leven, led the Scottish entry in the 1956 21/28 Mc/s Telephony Contest.

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

strong South Americans on the night of the lunar eclipse, when ZL4HE also was logged at 23.45 G.M.T. Norman heard a wide variety of DX, including, on c.w., YA1AM (13.00), VS9AI (07.30), ZL5AA (11.30, working JA), VQ6LQ (07.00), KH6AIK/KG6 (17.00), VP8BO, '8BS (18.00), KG4AN, while his phone list includes MP4KDS, ZD4BQ, KW6CA (13.00), CR4AO, HS1A, '1B (18.30), VR2BC (09.50), CP1AK, KV4BI, ZD1FG (17.00), HI7LMQ (08.00), HH2JL (08.00), plus VK, ZL, KR6 and W6GRM/MM (*S.S. Seaborne*), who was off Java and who was S9 on phone at 18.15. Norman has heard 190C so far this year, which is considerable going. **B.R.S.21279** (Oldbury), up to 34Z/135C in '57, added CE3CZ (18.35), W2ZXM/MM (South China Sea) and heard a GW and a ZS exchanging reports in Welsh! G4QL says **VR2BC** would like it known he is on 21.1 Mc/s each day from 9 a.m. onwards beaming north over the Pole and would like contacts.

Twenty Metres

While the band is second in popularity to fifteen for the moment, it still sparkles, especially in the early mornings and evenings, when rare ones continue to pop up as regularly as ever. **G3FPK** (London, E.10) moves towards DXCC with eight new ones on c.w., these being UG6AB, HC7WK (00.00), OA4AR (00.30), UL7HB. PZ1AP, CX and ZS. **G3IFB** (12 Elmsleigh Avenue, Kenton, Harrow) has QSLs from VK9AJ for G3GRL and G3JHZ, who are asked to send s.a.e. Latest on c.w. for G3IFB are TI2PZ, W9KLD/KL7, KL7CDF (09.00) and FM7WR (22.00).

G3IOR worked FM7WQ and CT3AN, new ones on phone, then QSOed ZK4IP (Nikosia) in the biggest pile-up he's ever heard. Well—**ZC4IP** sends some of the best Morse heard on any band, so either a pirate was around or George was having trouble with a new "dotless" bug key! **B.R.S.20317** must have been pleased with KC6SP (Palau Is., '200/14.40) on A3 and with M1H, KH6CV/KW6 (13.00), ZD9AE, UM8KAA, VP8BO and VP8BR on A1, while a new one for **B.R.S.20249** was PZ1AP. **B.R.S.6841** used A3 to hear the intriguing ZB3R (05.30), CO1AF (06.30) and VE3AHU/P (near Gaza!). **B.R.S.2292** prefers twenty c.w., which gave him CE7AA, CR4AH, FG7XC, FY7YF, HH2OT, HK3TH, JA3XX/MM, KC4USH, KR6SS, PJ2ME, VK7UW, VQ5GJ and VP8CC, with MP4KAM on phone. **B.R.S.20106** logged LU7ZC (20.00), W1UBW/VE8, ZS2MI (Marion Is., 18.00), VK0AB (18.00), KR6SS (13.30), '6SC (21.00), ZK1AU (07.00), UA1KAE (15.30), ZD6EF, ZC5AL (19.00), CR7LU and UA0VW on c.w. and he also heard three FO8s—FO8AD, '8AG (at the high end) and '8AM. All three were on c.w. between 06.30/08.30 and FO8AM was heard on phone also. **B.R.S.21279** pulled in HP1JF, ZA1KUN (07.00), OY2A, SV0WN (Crete) on phone and was baffled by JV5ABB, who was RS57, calling "CQ"! KG6NAA was on s.s.b.—a South American would make him H.A.C. on s.s.b. Martin has QSLs from VP1OLY, W9ACC/KL7 and VS1GZ.

Ten Metres

Very little is happening on the band as it passes into the Summer doldrums, but scattered openings produced MP4BBL on c.w. for **G3IFB,** while **G3IOR** worked ZC6UNJ on phone. The ZC6 counts as a separate country and not as 4X4, by the way.

A.1376 heard ZS5 and PJ2CA and **B.R.S.20315** did well with VK2TG, '6MU, '6GU, '6TH, VS1FE (14.00), ZD8SC (10.00), EL1H, HH2W, VP1EE, ET3LF, ZD2FNX and VQ3GH. New ones for **B.R.S.20317** were CE4AD, EA6AF, '8BK, VP8CC and a 5A1 on c.w. and, on phone, CR4AP, ET3LF (12.00) and JZ0PC (13.30).

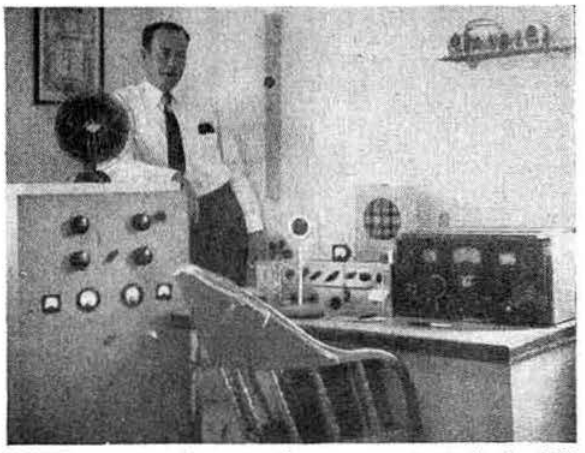
DL4ET of Heidelberg, Germany. The equipment includes a B610 transmitter and AR88 receiver.

B.R.S.2292 adds TG9AD, TI2MS, ZP5 and ZS9G to the phone tally and **B.R.S.20106** lists VS8AG (12.30), '9AI (09.30), CR6AI and VQ3SS on the key.

Forty Metres

Forty is arousing rather more interest of late and the Russian contest—with everyone madly calling "CQ M"—helped to stir things up. **G3FPK** got mixed up in the latter, without knowing quite what it was all about, and had QSOs with lots of Us, including UP2KBE. Other QSOs were with EA9BM, TF3AB, 4X4GV, W6MOJ (03.50, very pleasing, this one) and a ZA3AA, whose Morse was so shocking that his Box No. is still a mystery.

A.1376 heard VE3BBY calling VP8CK at 15.00, when the VP8, somewhat naturally, could not be heard. **B.R.S.20317** logged CR4AH (23.25), OH0NB, VQ4LF (22.30) and ZS2HI (23.40) for good ones on c.w., while **B.R.S.20106** was listening to VP5CP, W6MOJ, '7WCL, PY8YO, K5AUL, KN5ICL on c.w. Norman says the phone band can be surprising in the mornings and in-



VP6WR came second amongst the overseas entrants in the 1956 R.S.G.B. 21/28 Mc/s Telephony Contest. The transmitter runs 75 watts to a pair of 807s modulated by another pair of 807s in zero bias class B. The receiver is an SX28. Aerials include four element arrays for 6 and 10 metres, a three element beam for 15 and a rhombic for 20, 40 and 80 metres.

stances W5ZHR, '5DGB, '5ATV (both on s.s.b.), W3, '4, '8, W6NJP (04.00) and W6QHR/4 who was *portable*, running 700 watts! **B.R.S.2292** got ZL1MG and W7WCL (Wyoming)—who is rare enough on any band!

G3ATU mentions **GM3JUD/A** on the Isle of Tiree for the benefit of those in need of Argyll, which county Tiree represents.

Eighty and One-Sixty Metres

Both bands are rather quiet at this time of the year, but are by no means devoid of interest. **G3GLV** (Liverpool), who is ex-DL2VV, has a QSL from YU1GO for a 160 metre QSO during March. The card is an old YU1AHI one, overprinted with the new call. **G3IV** (Sunderland) also worked a YU on the band, so there is one more country to be had up there. **G3FPK** raised UC2AX on eighty during the "M" Contest, making it "30 on 80", while **G3IOR** says he has never heard as many Us in his life as during said test. "A reliable source" tells him that there are 763,000 radio amateurs in the U.S.S.R. and now he believes it! **B.R.S.20106** heard UC, UQ, UB, UA and Ws on eighty c.w. and just failed to copy the call-sign of a W6 on 75 *phone*. On Top Band, HB9IN came through at 05.20. **B.R.S.6841** heard HB9TK/MM (*M.V. Annunciado*) when he was in the Bristol Channel, *en route* for the Far East. By now he should be real DX on eighty.

News from Overseas

Ray Hargreaves, **AP2RH,** has closed down and will be **G3FNF** once more in July or August. All his gear has been taken over by Les Alexander, who hopes to be active as a newcomer to Amateur Radio as **AP2LA.** His QTH is Rawalli, District Gujranwalla, West Pakistan. Ray has QSL'ed his AP2RH contacts, but strays may be taken care of by writing to his home address: 37 Thursby Road, Northampton.

ZC4II (Nicosia) writes with feeling that after protests by the XYL that she didn't know what was going on, a microphone was purchased! The first "CQ" netted him MP4KAM, followed by UC2AA, ET3HL (Addis Ababa) and SV0WM/AM, 6500ft up, near Crete. Greg also used c.w. and landed 9S4CM, 4S7LJ, PJ2AA and PY. **G2MI** has it that W3JTC now signs **SV0WP** and radiates from Athens on 14 and 21 Mc/s, while **W6ZEN** tells G2MI that FW8AA is available almost daily on 14340 kc/s, c.w. and phone, crystal controlled. CR10AA gets on about twice a week, around 14028 kc/s. Three newcomers at Guantanamo Bay are KG4AA, 'AI and 'AS.

G3INW (Bradford) hears from an East European source that HL1AC, '1AK, '2AK, '2AP, '3AN, '3AS, 4BC, '5AS and five other calls have been issued in Korea. Maximum input there is 30 watts. OK4YI and OK4WA are at sea—OK4 being equivalent to our maritime mobile suffix.

Instructor Sub-Lt. Everett (*H.M.S. Collingwood*) passes the news that L. W. Barclay, ex-G3HTF, is now active as **VP8CR** from Halley Bay, Coates Land.

LeRoy Waite **(F.R.S.243),** New York, has heard 130C/34Z this year and VS4JT is an all-time new one. On twenty phone, he hears the Antarctic s.s.b. users KC4USH, KC4USN and KC4USW (all around 08.00) and KC4USV (11.00), while KC4USB (01.00) came through on fifteen metres.

G2DHV was active over Easter from Belgium with his new call-sign **ON4IE/2** and worked eleven countries on the h.f. bands and heard VK2OI, VQ4GO, VS6DN, 4X4, ZS6 and KA. George is now running a Geloso v.f.o. to two 807s on the band. Fred Carter, Jr. (ex-VK7DN, G3JND, VQ3DN) is now signing **VR2CC** and is active on 14 Mc/s—04.00 to 07.00 G.M.T. Fred uses 100 watts and is completing a 3 element rotary for the band.

R.S.G.B. Contests

To help promote more overseas interest in R.S.G.B. contests members are invited to tell their contacts about forthcoming contests well in advance. The dates of contests and an index to the rules will be found in *Contests Diary* each month.

* * *

And so ends another month's activity. Your reports will be appreciated for the July *M.O.T.A.* especially if posted to arrive not later than **June 18.** And so in the meantime, happy hunting and 73.

Frequency Predictions for July, 1957

PREPARED BY J. DOUGLAS KAY (G3AAE)

BAND	NORTH AMERICA	CENTRAL AMERICA	SOUTH AMERICA	SOUTH AFRICA	NEAR EAST	MIDDLE EAST	FAR EAST	AUSTRALIA	ANT-ARCTICA
M.U.F.	26 Mc/s 2200	30 Mc/s 2000	36 Mc/s 1815	40 Mc/s 1630	33 Mc/s 0800	30 Mc/s 0900	24 Mc/s 1800	28 Mc/s 2200 LP	34 Mc/s 1300
28 Mc/s	2200	1800—2200	1100—2200	0730—2100	0700—1900	0830—1200	1800	2200 LP	1200—1500
21 Mc/s	1000—0200	0800—0300	0930—0330	0600—2300	0400—2330	0800—2200	0800—1900	1000—1300 SP 2200—0000 SP 2200—0830 LP	1030—1730
14 Mc/s	ALL DAY	1730—1130	1730—1000	1430—0200	ALL DAY	1400—0700	1400—0200	0000—0300 LP 1430—2300 SP	1700—0830
7 Mc/s	0400	2300—0730	2300—0700	2000—0400	1800—0700	0000	2000	1800 SP	0000
3.5 Mc/s	0400	0000	0000	0000	0000—0200	0000	2000	1800 SP	0000

These predictions are based on information provided by the Engineer-in-Chief of the Post Office. All times are G.M.T.
Between May and September Sporadic E propagation may result in very short skip conditions on the higher frequency bands.

FOUR METRES... ...AND DOWN

By F. G. LAMBETH (G2AIW)*

ONE of the most encouraging things at the Paris V.h.f. Managers' Conference was the presence of a delegate observer from Poland. This shows a welcome desire for international co-operation in the v.h.f. field which many of us had regretfully decided was not likely in the foreseeable future. The genuinely friendly welcome which was extended by all to SP5FM was like bright sunshine in what was necessarily a very ordinary gathering, although more representative of Region I than for some time past. It is evident that the brotherhood of Amateur Radio still exists and can expand as much in the v.h.f. sphere as in others and we confidently look forward to the day—not very far distant we hope—when the other missing countries will join Region I and make the count complete. We are thinking especially of Czechoslovakia, whose amateurs have made such an impact on v.h.f./u.h.f. in recent years. Although it is unlikely that some of these countries can easily make QSOs with others on the opposite fringe, it is nevertheless very desirable that all should give their experience to the common pool for the ultimate benefit of all. Thus the true spirit of Ham Radio shall again come back to its rightful place, in v.h.f./u.h.f. as elsewhere

The Paris Conference had many points to clear up, and together they led to a great deal of discussion and usually, but not always, to a decision. For instance, the great 1260—1300 Mc/s controversy still remains and seems likely to continue.

We are sorry that up till now we have not received the official Minutes, and we cannot therefore give details of the deliberations, but will do so at the earliest possible time.

International V.h.f./U.h.f. Convention

The Third International V.h.f./U.h.f. Convention, held at the Bonnington Hotel on May 25, was attended by 118 members, guests and visitors, who all had a wonderful time and voted it an outstanding success.

Publishing changes prevent a fuller account, but it will appear next month.

Two Metre Field Day

General opinion on the Two metre Field Day on May 5 is that conditions were not good for DX although the band generally appeared lively enough in the south, but the northern stations were poorly received in the Home Counties. It appears that the Midlands and North did not hear the southern stations very well. Whilst some QSOs of 200 miles are recorded, these were mostly confined to areas north or south of a line across the Midlands with little contact between the two " zones ".

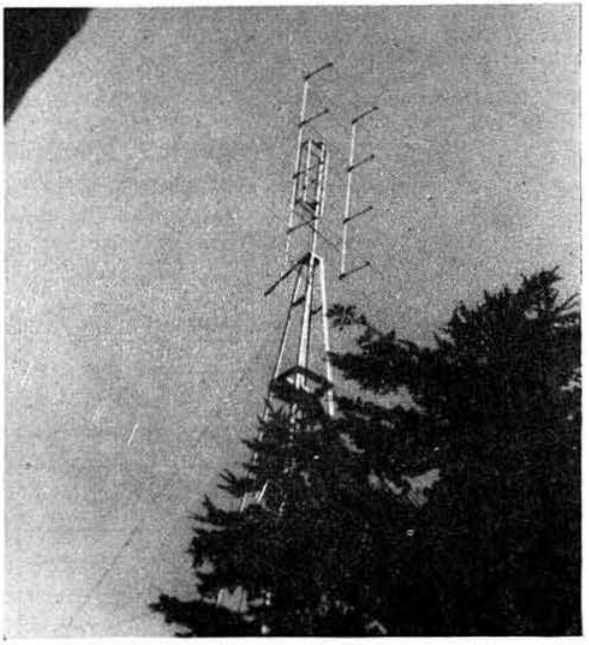
This type of condition has appeared on several occasions recently, and certainly the expected summer liveliness of 2m is still very much hanging fire, with bursts every now and then. Roll on the anti-cyclones!

*21 Bridge Way, Whitton, Twickenham, Middlesex.

Two Metre News—England

A large part of our news comes from B.R.S. members, which gives an idea of the general conditions for the period.

B.R.S.6327 (Earlsfield) came back to " 2 " after sessions on the other bands and finds activity low apart from week-ends and Monday evenings. All the same, the list (for 2 days listening) is not so poor. **B.R.S.15822** (Clapton Park, E.5) has sent two lists, of which one covers Field Day; conditions seemed fairly good, but little was heard from the north. To the south, however, the band was quite lively. The G2UJ r.f. amplifier in front of the converter has made a great improvement. **B.R.S.16075** (Shirley, Southampton) has a short list this month. He also says that activity has not been too good with varied propagation conditions and a few good openings to the Midlands and north but little towards London and the south-east corner. On Field Day, however (at Wyne Green, nr. Shaftesbury), **G3ION/P** noticed very little to either north or south, but quite a lot to the east especially Kent, which is usually very difficult. The few stations heard up north were G3BA/P, '8SB/P, '2HCG and GW3GWA/P. The weather was excellent for the Southampton gang, who were out in strength to various sites. There were five stations in all, quite a record!



The 16 element beams used by G3JGJ for 2 m and 70 cm. The arrays are mounted back to back and are supported on a home built 48 ft steel tower.

B.R.S.20133 (Melton Mowbray) found things somewhat better; the log is bigger, but contains little DX. Local activity seems to increase, but conditions have been rather worse. Conditions on Field Day were poorish, and '20133 went out to look up some of the local /P stations. G2FNW/P had gone off the air early with valve trouble and was not contacted, having probably gone home, but G6XM/P a few miles away was visited and photographed. '20133 asks us to realise how exasperated he was to hear (in 3 minutes) from '6XM's fine location G, GI and GW whereas from home it has taken 13 months to hear G, GC and GW. **B.R.S.20162** (Selsdon) has a curtailed list again, as Sunday morning listening has been impossible for him lately and this reduces the list by the Sunday morning "sked" stations. Conditions have however only been about average or a little below, and apart from Mondays the band appears on many occasions, to have returned to a state of inactivity. With regard to G3EMU's recent comment, '20162 remarks that the location (500ft a.s.l.) and many hours of listening, are the main reason for such success as is attained. The gear consists of a crystal controlled G2IQ converter usually into a BC455B, or when S meter readings are required, into an AR88D. The aerial is a 6-over-6 slot beam at 25/30ft above ground and a 5 element Yagi, 26ft above ground. These aerials may go higher later, when adequate security methods against high winds have been devised. '20162 was at Ditchbury Beacon with G3BFP/P on Field Day and found conditions fair for the first two hours, and then below average until about the last hour or so. There is, however, the point that as parts of the North Downs are about 100ft higher, this *may* have had some bearing on the lack of signals from the north.

B.R.S.21136 (Ruislip) reports conditions poor to average, with bright spots on April 20/21/24, and on May 5 (Field Day) when activity went up with a rush, and 2m transmitters were heard waiting "in a queue" to get QSOs with terrific QRM at times, "a case of survival of the strongest". A few new stations were heard, but perhaps they only come out when there is a contest. A record number of over 80 stations was logged during the period.

G4IB (Pembury, Kent) worked 23 stations during the proceedings. The longest distance was about 61 miles with an output of 1.2 watts, but the car battery was not man enough to stand up to the drain. The impression was gained that the average /P transmitter was very much more efficient than the associated receiver! '4IB's home station has a new p.a. (a pair of 3C24 triodes with parallel bar tuning).

A welcome letter from **G6XM** (Tollerton, Notts) who has not been quite so active lately for various reasons (including some slight treason to h.f. on 10 and 20 metres!) and preparations for 2m Field Day. Nondescript aerials are being used pending permission to erect a tower, but obviously Bill expects to be doing things very soon. During the Field Day 69 stations were worked, the best being GI3GXP at 220 miles, but little was heard from the south. The site was almost 100 per cent ironstone with 270kV lines nearby. No Scottish stations were raised, but '3BW (Whitehaven) gave a welcome QSO. A new transmitter is being built with 150 watts p.a. and the "old blunderbuss" is going into honourable retirement. Provision is being made to drive a 70 cm tripler and '6XM hopes to be active accordingly before long.

G5MR (Hythe, Kent) had a quiet month; results on Field Day (G5MR was fixed) were very disappointing, only 4 portables being worked with two others heard; nothing from the Midlands or North. Several Gs were heard on May 14 working ONs and PAs, but little of these was heard at Hythe. **G3JGJ** (Plympton) is still running his sked with GC2FZC which is now more than a year old. The only other station worked recently is G3KFN. Anyone in Devon or Cornwall who wishes to work while /P or /M has only to send a postcard to '3JGJ or QSO on 40 metres to arrange times for either 2m or 70 cm. '3JGJ is on 2m every evening from 18.00 to 19.00, and also on Sunday mornings at 10.00. **G8LY** (Lee-on-Solent) worked ZC4IP (ex-G8IP) recently on 28 Mc/s, and '4IP asked to be remembered to all v.h.f. friends, including G2XC, '2NH and '6NB and "all the old crowd" on 145 Mc/s. '8LY herself has forsaken v.h.f., which is a shame.

G3CCH (Scunthorpe) has just worked GM3EGW and GI3CWY (Co. Antrim) at good strength. **G3KEQ** and **'3JQN** are going to Wales for a fortnight commencing July 14 and will be on from 8 to 11 p.m. most evenings on 145.46 or possibly 144.6 Mc/s. They hope to be in those rare Welsh counties, so please listen for them. **G2JF** (Wye, Ashford, Kent) usually found it possible to have a QSO, and heard one or two new calls (or old ones returned) such as G3IJB, '2KF, '4WK and '3FPV. Field Day was lively and "Monday Night at 8" is well maintained.

On May 27, G5MA, G5KW and G6NB all worked **GM2FHH** (Aberdeen) at reasonable strength on phone and/or c.w. GM2FHH also worked stations in the Midlands and north. It was the first time for many months that his signals had been audible in the south.

Two Metre News—Scotland

There is, says **GM6WL**, less activity but more construction going on. GM6ZV has contacted three welcome additions to the East Coast fraternity: GM4HR, '3HLH and '3KYI, all in Dundee. Signals were rather weak with QSB but all were readable on the peaks. On April 28, '6KH worked G6XX (Goole) on c.w. about midday, and on the 23rd '6WL was pleased to meet again GI8DV/P (Limavady, Co. Londonderry) with good signals (589) each way. At 11.15 a.m. on May 12 he turned up again on phone and '6WL gave RS56 and received RS58. GI8DV has built a special little rig which fits the instrument panel of his car (output about 7 watts) and hopes to be at the portable location regularly again now that petrol is no longer a problem.

GM3EGW (Dunfermline), now happily wed these two months (congratulations!) is now back on 2m, at a very

G3BA/P during the first 1957 R.S.G.B. Two Metre Field Day. In this picture, G2CVD is on the left and G3HAZ on the right. The station was organized by the Midland Amateur Radio Society.

new QTH 50ft higher than before, with a new mast and 6-over-6 beam. Please look out for Fraser again, you Gs. The Scottish contingent were hampered last Field Day by shortage of personnel and transport and no contacts were made outside Scotland, although G2NY was heard for about an hour on a local contact!

GD3BOC/M (Snaefell, I.o.M.) was worked by GM3DIQ whilst the gang were fiddling with a shorted battery connector! On the evening of May 18 **GM6ZV** heard GM3HLH (Dundee) a lot better than the last time, but no QSO resulted. GM3BBW/P of Edinburgh, out portable at Bathgate, has been contacted by GM3NG (Carluke) and '6ZV. GM3EGW was heard calling the portable station.

We have just heard from GM3HR that the regular 2m population in Dundee comprises GM3HLH, '3KYI and himself. One or all of these are on most evenings. Weak carriers are often heard, presumably from the beams turned elsewhere, so possibly a little beam turning would help. Equipment at '4HR is an SCR522 driving a pair of 6146s to 80 watts into a 4-over-4 slot beam, unfortunately indoors. '3HLH uses an 829B at 70 to 80 watts to a slot aerial. '3KYI has a less ambitious station but a good location which enables him to work well all round with 25 watts to a QQV03/20 and a slot aerial outdoors. These three keen types are looking for QSOs quite regularly and have meantime worked GM6ZV, '3EGW (very strong) and GM2FHH (their "lonely friend in the north").

Two Metre News—Northern Ireland

A late letter from **GI8DV** himself confirms that he has been out portable again at the same QTH—1,100ft a.s.l. about 5 miles north of Limavady—on a few occasions including Field Day. The only contacts recently have been with GI3ADX, '3GXP, GM6WL and GD3BOC/M. The latter was a magnificent signal during the Two Metre Field Day. '8DV has been using the v.h.f. f.m. service (B.B.C.) as a guide to possible good conditions. For example, on April 24 the fm. stations at Pontop Pike, Holme Moss, Blaen Plwy, Sutton Coldfield and Norwich were identified from the home QTH at Limavady which is near sea level. Although this would seem to indicate possible good conditions for 2m, nothing was heard from the hill top and lack of activity is suspected.

Seventy Centimetre News—Scotland

GM3DDE is busy making a better transmitter using a QQV03/20 tripler followed by another QQV03/20 as p.a. A bigger and better aerial is also being planned. **GM2CHN**, who is very badly screened, was pleased to receive good phone from GM6KH. The beam has to be pointed in some astonishing directions which sometimes have no relation to compass bearings of the stations heard. GM6ZV, who has been heard for a long time by GM6NG and '6KH without hearing them, now has a better receiver (crystal controlled) and hears them well. It only goes to show.

Swiss Mountain Station

HB1RG will be on Chasseral, one of the Swiss mountains, from August 25 until September 10 on 144.288 Mc/s. HB1RG is always looking for Gs, and we are sure many Gs will be looking for him!

Polish I.G.Y. Activity

The Polish Society LZK announces that in connection with the I.G.Y. several Polish stations will be maintaining regular skeds from fixed QTHs according to ON4BK's appeal. At least one amateur station in Poland will be emitting regular signals for testing auroral propagation. It is further hoped that special licences will be issued for 50 Mc/s operation during the I.G.Y. period; which would make possible direct tests with Region II and III (I.A.R.U.) and also crossband tests with those countries using 70/72 Mc/s.

Six Metre News

At the same time as the 50 Mc/s records (South Africa/U.S.A.) mentioned last month, ZE2JE worked K0ADM, W0CHI, W0QVZ, W0JOL, W0HEH, and heard W5ZTE (February 19). The opening was confined to northern U.S.A. and more southerly U.S. stations, although known to be on, were not heard. The gear used by ZE2JE was an 807 p.a. at 40 watts, a wide spaced 4 element Yagi and a home-built converter. The W signals were so strong at times that they were audible without an aerial on the converter; as a test, one station was worked on a dipole facing north instead of north-west with no apparent difference in signal strength. (From *Radio ZS.*)

From the same source we learn that LA7Y (Oslo) has permission to operate on 50 Mc/s during the I.G.Y. South African stations are regularly operating on the band from 16.00 G.M.T. We might suggest that when the m.u.f. is very good they might check 70 Mc/s. Otherwise ZS readers please listen on 28 Mc/s for possible replies to CQs on 50 Mc/s.

Russian television (video) has been resolved in this country recently on more than one occasion.

Four Metre News

F3SK reports that F8GH (Beauvais) has a converter with two crystal controlled oscillators for 70 and 72 Mc/s and will be looking out for British stations on 70 Mc/s. Who will be the first?

European 4 metre band allocations are now as follows:—

Finland	70.2 —70.3 Mc/s
France	72.0 —72.8 Mc/s
Ireland (Eire)	70.575—70.775 Mc/s
Yugoslavia	72.0 —72.8 Mc/s
Holland.. ..	70.3 to 70.4 Mc/s (from July 1).

On June 2 **G6NB** heard five French stations on 72 Mc/s, all above S9. Unfortunately, the French appeared to be working each other and did not appear to search the band. Although G6NB and G5KW called repeatedly no cross-Channel contacts were made.

Transatlantic Two Metre Hoax

Towards the end of May G6NB and G3GHO received reports from a W4 station on the alleged reception of their two metre signals during a QSO on May 23. The report tallied with their logs. R.S.G.B. Headquarters immediately asked W1HDQ of A.R.R.L. to investigate.

Ed Tilton quickly discovered that the W4 had indeed heard the two metre signals, but had omitted to mention they had been relayed to him by a British station operating on 21 Mc/s. A letter from the W4 is now on file at Headquarters.

In his reply enclosing the W4's letter, W1HDQ apologises "for a most inconsiderate 'gag' on the part of an American ham. I definitely do not appreciate his brand of humour, and I told him so in no uncertain terms." For our part, we regret that a British station should have been a party to what the W4 describes as a "lark."

* * *

Owing to changes in the BULLETIN production arrangements, the deadline for the next issue will have to be **June 18.** Please note this will have to be *strictly* observed, otherwise material may have to be left over.

Cliffe's Calypso

By W. R. (CLIFFE) METCALFE (G3DQ)

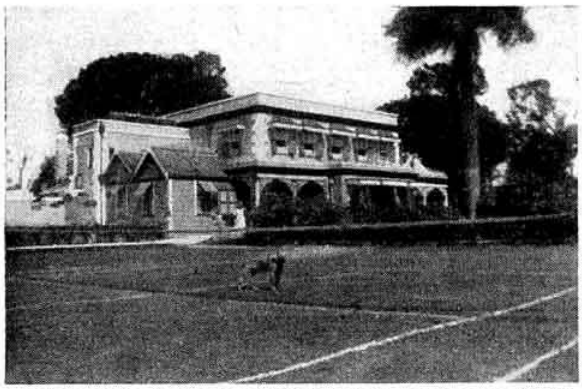
AT the end of February business called me to Bridgetown, Barbados, and I decided to take the XYL along with me. We travelled on the French Line steamer *Antilles*, the very latest type of 23 knotter with very nice accommodation. The first stop was at Vigo, where no Amateur Radio contacts were made. Then on to Puerto Rico, where the Chief of Communications took us round the island. He is not an amateur, but uses the amateur bands for his calls to U.S.A. Next day at Guadeloupe we contacted Andre Latil (FG7XA) of Pan American Airways who wined us freely and was a wonderful host. He came aboard for a farewell drink.

At Martinique the following day reference to the call book picked out Pierre Lameynardie (FM7WQ) who has the Esso station on the Island. A telephone call from the ship was sufficient to bring him aboard in ten minutes. The welcome there was immense. In fact, he put his car and himself at our complete disposal. We went to his house and met his charming wife and children, not forgetting the boxer dog. This was more of a social event rather than a radio one. Pierre uses an 813 modulated by a pair of 807s and a 3 element beam. By this time my wife (who so far had been rather bored with radio) was becoming very impressed with the " freemasonry " amongst hams.

So on to VP6, where we arrived at midnight. We went ashore by the tender, I wearing my R.S.G.B. badge and carrying a speaker for Fred Olton, VP6FO. Fred was there all right: he recognised the wrapper which covered the speaker, and we soon got acquainted. He bullied the baggage men, rushed us through the Customs and bundled us all into his 75 h.p. Chrysler and up to the hotel, arriving at 1.30 a.m.

Then it started, Hospitality with a capital H. Fred and Evie (his XYL) placed their house, car, cellar and station at our complete disposal.

Nightly skeds were kept with G5DJ at 23.00 G.M.T. on 14100 and to my great surprise and pleasure, the Scarborough Club lads, G3GBH, G2YS, G2CP, G3JBR and G5VO all came through to say " How do " and to give me the news from home. It was very exciting and pleasurable.



The home of VP6FO. The beam is just in front of the trees behind the house.

Just below our frequency GD3UB was heard so we called him. He came back straight away remarking that somebody must be pulling his leg with a 20 metre mobile rig on the I.o.M. as that voice came from Flamborough, not VP6! It took quite a while to convince him that I was really on the Island.

My next surprise, not quite unexpected, was the arrival of Louis Varney (G5RV) to whom I had written saying I was coming out. He turned up on the Sunday and we had a grand chinwag, a bit about business, R.S.G.B. matters and others purely personal.

On the Saturday night we went out to the Club Morgan, a fantastic night club in the middle of the Island and it was quite a hamfest, with 6 VP6s all out for the night, together with Fred North (G2CDI) who was returning to the U.K. the next day.

This island is really magic: beautiful sun all day, temperature around 80.

Rum is the drink in punches, with soda, and neat. Sugar cane covers the island and is the main industry. We were lucky in going round one of the most modern sugar mills to see it through from cane to finished product.

Every night we were invited out to wonderful cooking and inspired drinking. Bathing four or five times a day. What memories! Dancing to the Brute force band (the 40 gallon drum kind). Watching Fifi do her exotic dancing and Phylis singing her calypsos. Trying to get time off to sleep and finding it difficult, getting browner and browner. Going about in overshort short trousers and sandals, and of course a big hat. Ties on formal occasions. Windows and doors always wide open. Sleeping with just a sheet over you. Howling dogs at night until you could shoot 'em!

However all good times must end and on the 12th March we re-embarked on a smaller but exceedingly comfortable French liner the *Columbie*. And what a send off! About 20 people with their flowers and gifts, all aboard for a final one. We left Barbados with many regrets.

Our first stop was Dominica at midnight and then on to Martinique again. Pierre was down to meet us and again a wonderful run out to St. Pierre, the earthquake town and back to his home for lunch after calling for his two school children. A lovely meal with rum punch and wine, a half hour on the air but no contact with G, and then with his family back on board for a farewell drink, regretting the loss of the boxer dog which was run over the day before, and so on to Guadeloupe. Andre Latil was unable to come aboard having some trouble with his aircraft.

The trip has left me with some indelible memories:

(1) that the hospitality of Radio Amateurs abroad is wonderful;

(2) that they are pleased to see visiting amateurs, especially on the small islands;

(3) it has convinced my XYL that Amateur Radio is more than a mere hobby;

(4) that to give back some of the hospitality we enjoyed is a duty.

Vidicon Camera Tubes

MR. M. C. W. Barlow (G3CVO) states that the English Electric Valve Company is prepared to sell reject vidicon camera tubes to bona-fide amateurs anywhere in the world outside the U.S.S.R. and satellite countries. This facility should prove of value to Australian and New Zealand amateurs who are interested in Amateur Television.

Radio Amateur Emergency Network

Warning System Alerted

By C. L. FENTON (G3ABB)*

THE East Coast Warning System went into action on March 17 without warning or rehearsal, and before the scheme had been fully explained to members. It clicked into top gear and worked "like a charm"—at once!

During the morning a stiff breeze had stiffened to gale force, and at Bridlington breakers could be seen from shore to horizon. G2ACD was listening to the news put out by G5VO for GB2RS, when the 'phone rang. It was the police issuing an Amber Flood Warning for the afternoon tide at 17.45 at Bridlington. The normal tide is between 13ft and 14ft, and the anticipated tide was 18ft. G2ACD broke in on G5VO on 3600 (R.A.E.N. calling frequency), and G3FVW (the Scarborough E.C.O.) immediately answered and alerted the link. G2ACD then went on Top Band and called G2CJ (Mablethorpe) who answered at once, to be promptly joined by the Lincs. C.C., G3ELZ (Grimsby), G3HRK (Holt E.C.O.) and G4KO (Norwich E.C.O.). In *three minutes* the whole of the East Coast, from Scarborough to four miles south of Lowestoft, was on the alert.

G2ACD says that the way the Lincolnshire boys came in was a very exciting experience. Conditions were good, and 5 and 9 signals were being received from Norfolk, where the links reported for duty with the same efficiency. G3JOH, of Hull, called in soon to be joined by the E.C.O., G2ABR, and G3FVH. G2ACD then called G3ELZ and made skeds for 16.00, 17.00 and 18.00. G2ACD kept in touch with the Harbour Master, who told him that the tide was running fast. At 16.30 the Harbour Master reported that the tide, with over an hour to go, had already reached the "RED" danger level of 18ft, and they were notifying the police. The police then 'phoned G2ACD and issued a "RED" warning.

At 16.45 G3ELZ received the Red Warning from G2ACD, and with the same speed it went on to Hull, Mablethorpe, Holt, Norwich and Lowestoft. As high tide approached Bridlington, the gale subsided and there was a calm sea, but at 17.40 the water was lapping at 19ft.

G2ATS of Grimsby contacted the port authorities, and gave a good report to G3ELZ.

The high tide was followed carefully as it made its way south, but the all-clear was not received by G2ACD until 00.25 on the Monday morning.

The British Red Cross, who were alerted by the E.C.O.s, were most impressed by the speed and efficiency of R.A.E.N., and many letters of appreciation have been received.

As the high water reached and passed the danger level over hundreds of miles of coast line, R.A.E.N. watched it and proved that ours *is* an adequate system of warning. In 1953 the floods found people in their beds. Should floods come again we'll try to prevent that.

Whilst many more stations must have taken part, the following were actually logged by G2ACD:—G3FVW, '5VO, '3ELZ, '2FT, '2ATS, '3JOH, '8GI, '2ABK, '3ARX, '4OF, '3IYT, '4XC, '3HTI, '3HRK, '2CMK, '4KO, '3LKI, '2ABR, '3JNR, '3LFU, '3JMU, '3JYG, '3FVH, '3KTO, '2YS.

**Niarbyl, Gay Bowers Road, Gay Bowers, Danbury, Essex.*

The value of the regular sked was brought out next day, when at 13.20 G2ACD received another Amber Warning from the police. 13.45 is the afternoon sked time for the Lincs. group. G2ACD called, and there they were. The all-clear went at 19.30. Thanks, chaps—F.B.

Red Cross Directors' Conference

The Chairman (G2ACD) and the Hon. Secretary (G3ABB) of the R.A.E.N. Committee, with G3ELZ, recently attended a conference of County Directors of the British Red Cross Society at Guildford, Surrey, when the aims and possibilities of R.A.E.N. were explained to the Directors, and a demonstration of mobile equipment was given. A leaflet has now been issued explaining the agreed method of co-operation between B.R.C.S. and R.A.E.N. This leaflet is now in the possession of all County Directors, and will shortly be distributed to all E.C.O.s.

There is no doubt whatever that in all counties there will shortly be requests for co-operation and joint exercises. The County Directors will be put in touch with Area and County Controllers where such appointments have been made, but many more are still needed in all areas. We have already received enquiries from B.R.C.S. for contacts in Westmorland and Glasgow. Both these areas are at present without Controllers, although we have members in the area. Who is going to volunteer to organise groups in these areas, please? Volunteers are asked to communicate with G3ABB as soon as possible. Help us to make R.A.E.N. really work in all parts of the country, and write now offering to help.

"RAEN" Call Prohibited

Members are reminded that the G.P.O. will not allow the use of the word "RAEN" in calls. All calls, therefore, direct to R.A.E.N. nets, etc., must use the full wording "Radio Amateur Emergency Network." It must not be abbreviated.

Change of Title for E.C.O.s

When the original Emergency Communications Officers were appointed, it was envisaged that such appointments would be on a town basis, with an E.C.O. in each major town. Experience over the past four years is tending to show that this position, whilst very desirable, is not practicable. The R.A.E.N. Committee have decided, therefore, to expand the duties of the E.C.O. to enable him to cover an area larger than his own immediate town of residence. With this object in view, the title of Emergency Communications Officer is being changed to that of Area Controller. As before, the Area Controller remains responsible to the R.A.E.N. Committee, through his County Controller, for the organisation of his group and co-operation with the British Red Cross Society and the St. John Ambulance Brigade.

Area and County Controllers are reminded that the Post Office have only authorized amateur co-operation with the British Red Cross Society and St. John Ambulance Brigade. In emergency, our immediate authority would come from either of these organisations.

R.A.E.N. Nets

We are most anxious to compile records of regular R.A.E.N. nets, and emergency equipment available in each area. Area Controllers are requested to advise the Hon. Secretary of these details as soon as possible.

News from the Groups

Members in **South Shields, Newcastle-on-Tyne,** and **Hebburn,** hold regular practice nets on the first Sunday of each month, at 11.00 around 3600 kc/s.

The **Staffordshire** County Controller and **Birmingham** Area Controller recently met Col. Collins, of the Birmingham branch of B.R.C.S., to arrange co-operation within the city. A joint exercise was held on May 19 at Brownhills, and it is hoped to publish details later.

Stafford hope to conduct an exercise in the near future, with observers from B.R.C.S. Contact is also being established with the S.J.A.B.

Members in the **Worksop** area are working in conjunction with the **Lincolnshire** group, and participating in nets. The distance is proving a handicap at the moment, but discussions are proceeding in an effort to overcome this difficulty.

Cornwall is still without an Area Controller since the resignation of Mr. Wadman last year, but the B.R.C.S. are most anxious to make contact with the local members. Can some member please come forward to act as Controller, and get things moving for the Red Cross ?

Romford members recently gave a successful demonstration to the Romford and Upminster division of B.R.C.S. Main station equipment was installed at the local B.R.C.S. Headquarters by G3IMP, with stand-by equipment from G2BMS. G3GOT acted as Control, with G3KXP and G3JHL as supporting outstations. G3KXE/P and G3KGS/M acted as the "on site" stations.

G2ACD receives Red Cross Appointment

Members will wish to congratulate the R.A.E.N. Committee Chairman, Lt.-Col. A. C. Dunn (G2ACD) on being appointed Communications Adviser to the B.R.C.S. Headquarters in London, and the Essex County Controller, Mr. S. Poole (G3IMP) on being given a similar appointment to the Essex Branch Headquarters of B.R.C.S.

Appointments

The following have been appointed area controllers:

J. Browne (G4XC), 245 Yarborough Road, Grimsby, Lincs.

M. A. Brett (G3HBE), 55 Chesnut Drive, Erdington, Birmingham, 24.

Change of Address

The address of J. E. Whittle (G3EKP) is now 59 Belthorn Road, Belthorn, near Blackburn, Lancs.

Test Transmissions by the International Committee of the Red Cross

The International Committee of the Red Cross will be making a series of test broadcasts on June 25, 27 and 29, 1957, utilizing a frequency of 7210 kc/s.

The transmissions in English will be at 0730, 1300, 1630 and 2200, Central European Time, and will be of ten minutes duration, being preceded by transmissions of similar length in French, German and Italian, and followed by Spanish and Arabic.

The first two transmissions will be with a power of 100 kW and the last two of 25 kW.

Reports and/or tape recordings of these broadcasts would be much appreciated, and may be sent to the Broadcasting Section, International Committee of the Red Cross, Geneva, Switzerland, or to the Hon. Secretary, R.A.E.N. Committee, Niarbyl, Gay Bowers, Danbury, Chelmsford, Essex, for onward transmission.

Special reporting cards are available, on request, from the Hon. Secretary, R.A.E.N. Committee.

The co-operation of all amateurs would be appreciated in reporting these tests.

Contests Diary

1957

June 16	-	420 Mc/s Contest[4]
June 22-23	-	First 70 Mc/s Contest[5]
July 6-7	-	144 Mc/s Open Contest[6]
August 18	-	Second 144 Mc/s Field Day
August 25	-	1250 Mc/s Tests
September 1	-	Low Power Field Day
September 7–8		European V.H.F. Contest[3]
September 7–8		National V.H.F. Contest[3]
September 8	-	D/F National Final
October 5-6	-	Low Power Contest
November 9-10	-	Second Top Band Contest
November 16-17		Second 70 Mc/s Contest
November 23-24		21-28 Mc/s Telephony Contest

[3] Both under Region 1 I.A.R.U. rules. See page 422, R.S.G.B. Bulletin, March, 1957.
[4] For rules, see page 467, R.S.G.B. Bulletin, April, 1957.
[5] See page 374, R.S.G.B. Bulletin, February, 1957.
[6] For rules, see page 468, R.S.G.B. Bulletin, April, 1957.
[5] For rules, see page 421, R.S.G.B. Bulletin, March, 1957.

Radio Amateurs' Examination

THE Society has been advised that the City and Guilds of London Institute is willing to accept entries from candidates resident in any part of the British Commonwealth for the Radio Amateurs' Examination. Those serving with the Armed Forces should apply to their Unit or Command Education Officer before December 31, whilst civilians should apply to the local Director of Education by the same date.

Candidates in the Services can be admitted to the examination no matter in what part of the world they may be serving.

More than a dozen entries for the recent May examination came from overseas. The total entry for that examination was 614.

London Members' Luncheon Club
Record Attendance at May Meeting

THE Chairman, Stanley Vanstone (G2AYC), presided at the May meeting, when John Clarricoats (G6CL) on behalf of the London members present welcomed the visitors, mentioning in particular Vic. Faulkner (ZS6OY), Jim Miller (CX5AF), Dave Marks (W2APF), and Larry Thomas (W3ZPO), all of whom were making their first visit. Others among the 44 who signed the register, and paying return visits, were VK3WZ, VP8BP and W9JDF. Six ladies and several out-of-town members, some of whom will no doubt become regular attenders, were also present.

The Luncheon Club is to start a collection of QSL cards from its visitors. Having "worked" 17 countries last year, it is hoped eventually to "make" DXCC.

Amateurs visiting London are cordially invited to attend meetings of the Club at the Bedford Corner Hotel, Bayley Street, Tottenham Court Road. The Club will next meet at 12.30 p.m. for lunch at 1 p.m. on Friday, June 21. Bookings are requested by the previous midday, either to Ruislip 2763 or to HOLborn 7373.

Here is the chance of a personal QSO with the DX that you have worked over the air !

G2FUX

Council Proceedings

Résumé of the Minutes of the Proceedings at a Meeting of the Council of the Radio Society of Great Britain, held at New Ruskin House, Little Russell Street, London, W.C.1, on Monday, April 15, 1957, at 6 p.m.

Present:—The President (Mr. D. A. Findlay in the Chair), Messrs. W. H. Allen, H. A. Bartlett, C. H. L. Edwards, K. E. S. Ellis, F. Hicks-Arnold, J. H. Hum, W. R. Metcalfe, A. O. Milne, L. E. Newnham, J. Taylor, and John Clarricoats (General Secretary).

Apologies for Absence were submitted on behalf of Messrs. W. H. Matthews (domestic illness) and W. A. Scarr (illness).

Absent

Messrs. R. H. Hammans and H. W. Mitchell.
The Deputy General Secretary was absent due to illness.

* * *

Cash Account

Resolved to receive and adopt the Cash Account for March, 1957, as prepared and submitted by the Secretary.

Council Meetings

The Council gave consideration to a suggestion that meetings of the Governing Body be held once a quarter on Saturdays and that the routine business of the Society be dealt with monthly by a Committee of the Council.

Resolved (i) to ventilate the suggestion through the medium of the Society's Journal; (ii) to draft a Special Resolution for consideration at the August meeting of the Council with a view to giving the membership at large an opportunity of accepting or rejecting the Resolution at an Extraordinary General Meeting to be held on December 13, 1957.

Reports of Committees

R.A.E.N.

Resolved to accept Recommendations of the Committee in respect to the award of R.A.E.N. Rally Trophies and an East Coast Flood Warning System.

Contests

Resolved to accept Recommendations of the Committee in respect to publicity for the 21/28 Mc/s Telephony Contest and the award of the Edgware Trophy to the winners of the Affiliated Societies' Contest, 1957 (Surrey Radio Contact Club).

Report of the General Secretary

Membership

(a) *Resolved* (i) to elect 92 Corporate Members and 14 Associates; (ii) to grant Corporate Membership to 4 Associates who had applied for transfer.

(b) The Secretary reported that of the 622 members whose subscription became due on January 1, 1957, 66 became three months overdue on March 31, 1957. Of this number 17 were London, 36 were Country and 9 were Overseas Corporate Members and 4 were Associates. Of those overdue 11 London, 21 Country and 9 Overseas Members held an Amateur (Sound) Licence.

(c) The Secretary reported that of the 66 members referred to in (b) above, 19 had written to resign. Of this number 6 had given no reason for resigning, 1 had resigned for financial reasons, 4 had lost interest in Amateur Radio, 5 had resigned for personal reasons and 3 had gone or were going abroad.

It was reported that Mr. J. D. Kay (G3AAE) had been responsible for enrolling 55 new members since July, 1956. During that time he had written personally to the operators of 328 stations he had worked and had invited them to join the Society.

The Secretary was instructed to write a suitable letter of appreciation to Mr. Kay.

Applications for Affiliation

Resolved to grant affiliation to Tripolitania Signal Troop Amateur Radio Club and the Newbury & District Amateur Radio Society.

National Convention

Consideration was given to a report from the Nottinghamshire County Representative dealing with the possibility of holding a National Convention within the precincts of Nottingham University during the autumn of 1957.

Resolved to authorize the President and General Secretary to visit Nottingham at an early date to discuss the matter with local R.S.G.B. representatives and the University Authorities.

(It was subsequently discovered that the University authorities could not accommodate the Society on dates likely to result in good support for a convention.—ED.)

Earls Court Radio Show

Consideration was given to an offer made by the Radio Industry Council for the Society to take space at the National Radio Show to be held at Earls Court, London, during August, 1957.

Resolved (i) to accept the offer and to apply for an area of approximately 216 sq. ft; (ii) to limit expenditure to a maximum of £200.

It was reported that the Society now possesses a set of fluorescent tubular strip lighting and six folding tables for use at Exhibitions. Approval had previously been given for the purchase of portable stand furniture.

Expedition to Iceland

Further consideration was given to a suggestion put forward at the previous meeting that the Society should organize an expedition to Iceland to study phenomena relating to v.h.f. propagation under the special conditions associated with auroral manifestations.

After considering views which had been conveyed verbally to the President and Secretary by Dr. Smith-Rose it was:

Resolved to advise the Society's I.G.Y. Co-ordinators that (i) the Council is not able to proceed with the proposal; (ii) in view of Dr. Smith-Rose's confirmation of an earlier suggestion that the Moray Firth area is suitable for auroral observations the Council will give the fullest possible support for the furthering of investigations in that area.

R.S.G.B. Amateur Radio Call Book

The Secretary reported on discussions which had taken place between the *Call Book* Editor and others concerned with the production of the new edition of the *Call Book*. The Secretary stated that because of the very considerable amount of work involved in bringing the register of calls up to date it was not anticipated that the new edition could be published earlier than October, 1957.

R.S.G.B. Bulletin

Consideration was given to (i) a draft contract received from Loxley Bros., Ltd., for printing the R.S.G.B. BULLETIN and (ii) a new production schedule.

It was agreed that the President, Mr. Hum and the Secretary should discuss these matters with representatives of Loxley Bros., Ltd.

Consideration was also given to ways and means of reducing printing and production costs.

Resignation of Mr. R. G. Lane

The President submitted a formal letter of resignation which he had received from Mr. R. G. Lane.

Resolved to accept the resignation of Mr. R. G. Lane from the Governing Body and to advertise the vacancy thus created in the May, 1957, issue of the Society's Journal.

Argentinian and Chilean Stations

The Secretary reported that, arising from publication of a *Letter to the Editor* in the March, 1957, issue of the BULLETIN, several members had written to ask that the Council should instruct the Society's QSL Manager to handle cards from Argentinian and Chilean amateur stations operating in British Antarctica.

The Secretary also reported that the Society's QSL Manager had seen the additional correspondence and had himself written a *Letter to the Editor* for publication in the April issue of the BULLETIN.

The Council, in reaffirming its previous decision on this matter, *Resolved* to confirm Mr. Milne's action in declining to handle cards to or from Argentinian and Chilean stations operating in British Antarctica.

Staff

The Secretary reported that he had advertised extensively without result for a shorthand typist.

I.T.U. Radio Conference

The Secretary reported that he had again written to the G.P.O. to enquire whether the United Kingdom Government had yet set up Planning Committees in preparation for the 1959 I.T.U. Radio Conference.

Council Nominations

A letter was submitted from the Area Representative for Finsbury Park in which he stated that members in his area considered that after serving as President for a year a member should refrain from sitting on the Council for the next 5 years in order to give other eligible members an opportunity of serving on the Governing Body.

The Secretary was instructed to explain to the A.R. for Finsbury Park that (i) the Articles of Association which govern the election of the Council were specially drafted to ensure that the experiences of the Immediate Past-President and the Penultimate Past-President are not lost to the Society immediately they leave the Presidential Chair; (ii) the Articles of Association which govern the nomination of retiring members of the Council are similar to those adopted by other technical societies and institutions.

Mr. S. Woolley, G8RQ

Two letters were submitted from Mr. S. Woolley dealing with the nomination of retiring members of Council by the Governing Body and "the absence of Council Members on the air."

A member of Council agreed to deal with the letters.

Amateur Radio Handbook

An estimate was submitted for binding the whole order for 5,000 copies of the new edition of the *Amateur Radio Handbook* in a stiff board cover and for supplying a paper jacket.

Resolved (i) that the whole order be bound in a stiff board cover; (ii) to fix the cover price tentatively at 27s. 6d.; (iii) to fix the price to members tentatively at 21s.

Headquarters

(a) In order to utilize to greater effect the room at Headquarters it was

Resolved (i) to dispose of all obsolete issues of the BULLETIN prior to June, 1954; all old technical publications (other than those on a short list, which will be retained), all old membership application forms and an old safe.

(ii) To allow members to apply for obsolete issues of the BULLETIN and to supply them free of charge on receipt of stamps to defray the cost of postage.

(b) Consideration was given to a suggestion that in order to overcome some of the difficulties due to the positioning of Headquarters in Central London the Society should purchase a house not more than 40 miles from London out of available funds.

It was agreed to place on record that those present at the meeting were in favour of giving further consideration to the suggestion and to discuss the matter again at a later meeting.

Region 9 Report

A report was submitted from the Region 9 Representative covering the period from January 1 to March 31, 1957.

Resolved to receive the Report.

Slade Radio Society

A letter was submitted from the Slade Radio Society inviting the Secretary and Mrs. Clarricoats to attend the Annual Dinner of that Society on October 19, 1957.

Resolved to authorize the Secretary to accept the invitation extended to him and Mrs. Clarricoats.

Colour Transparencies

Mr. Milne reported that there had been no response (except from one U.S. amateur) to his appeal for colour transparencies.

The meeting terminated at 9 p.m.

R.S.G.B. BULLETIN PRODUCTION

TO enable the R.S.G.B. BULLETIN to be published in time for bulk postings to take place by not later than the 14th day of the month, the closing date for editorial copy, namely the 22nd day of the preceding month, will be strictly adhered to in future.

Feature contributors, Society Representatives and Club Secretaries will greatly assist the Editorial staff by posting copy to reach Headquarters by not later than the 20th of the month whenever possible.

Copy received after the 22nd day of the month will be held over for future use if still topical.

Letters to the Editor . . .

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

Is it Amateur Radio ?

DEAR SIR,—In the May issue of the BULLETIN details are published of the equipment used by the leading stations in the R.S.G.B. Telephony Contest; I notice that each item was commercially built and the best of its kind. There did not appear to be a single item of amateur built equipment.

Is this *really* Amateur Radio? Surely those with the deepest pockets will always be the leaders in any such contest; but I am sure anyone with average operative ability could achieve similar results given the same equipment. If commercial equipment is to be allowed, I think the *real* amateurs who enter a contest with home built apparatus should be given bonus points to cancel out the advantage held by those with commercially built equipment.

Although I have been a member of the Society for more than twenty years, this is the first time I have written to the BULL., but I am sure there must be many members who agree with my point of view.

Yours faithfully,

Malpas, Cheshire. H. EDGE (G6GD).

DEAR SIR,—After reading page 513 of the May issue of the BULLETIN, under the heading " First R.S.G.B. Telephony Contest Results," I would like to congratulate G3HCU on attaining the position of third place. In my opinion, this station should have been given the publicity as, please note, practically all the gear was home built, and therefore can only be accepted within the meaning of Amateur Radio.

With all due respects to the operators of commercially-built stations for their operating skill and technique which, I agree, goes a long way to win a contest, I feel that entrants should be divided into two groups; (i) Amateur Radio station operators, and (ii) Commercial Radio station operators. The present-day trend of complete ready-made stations for the operator, is somewhat similar to the owners of motor cars; their driving is positively faultless, but they have no idea what goes on under the bonnet.

Surely this practice of buying everything ready-made is in complete contrast to the very essence of Amateur Radio. I have now held a licence since 1932, and to this present day, I am the proud " non-possessor " of commercial equipment of any kind. In future, perhaps we could see a little more publicity given to contest leaders who, after all, are genuine Amateur Radio stations.

Yours faithfully,

High Wycombe, Bucks. M. E. TAPSON (G6IF).

Fat Wallets and Deep Pockets

DEAR SIR,—I note with interest the *Current Comment* suggestion, that people with fat wallets and deep pockets should be allowed to create even more QRM on the bands by running 500 watts.

Theoretically at least, an increase from 150 watts to 600 watts would mean an increase of one " S " point at the receiving end but in view of the increased nuisance-value local to the transmitter it is not worth a second thought. I for one am dead against it.

It only requires a little thought to see that it is not watts that are required, it is the call-sign. Give me 25 watts, a dipole, a " rare " call-sign, and in a month I will have collected DXCC, WAC, WAS, Uncle Tom Cobley and all!

Whilst I am writing, please what is DX and does CQ DX mean twice as far?

All the best and good hunting,

Yours faithfully,

Welling, Kent CLIFF J. LEAL (G3ISX), (T.R. for Bexley).

Value for Money

DEAR SIR,—I am very appreciative of the opportunity to become a member of the R.S.G.B. and still cannot understand how the Society can publish the BULLETIN, and give such an excellent QSL Service as it does for so small a subscription. You chaps are doing a very fine job of work and should be congratulated.

Good luck and 73,

A.P.O. 843, New York. ROBERT HALL (ET3RH).

Can You Help ?

- R. Hicklin (B.R.S.20479), 13 Clive Road, Heath Park, Romford, Essex, who wishes to know the base connections of the Telefunken RL12P35 and S.T. & C. 4033L valves?
- G. Lancefield (G3DWQ), 35 Brixton Road, Frenchwood, Preston, Lancs., who requires the circuit diagram and/or manual for the R.A.F. receiver Type 1448 and the handbook for the Signal Corps receiver BC1147A ?
- C. B. Raithby (G8GI), School House, Martin, Lincoln, who requires the circuit of the I.F. Strip Ref. No. 10U/254 ?
- R. F. Stevens (G2BVN), 51 Pettits Lane, Romford, Essex, who wishes to obtain the circuits and/or manuals for the 1147 receiver (part of U.S. SCR 291A Equipment) and the R28 ARC5 receiver covering 100-156 Mc/s?

Silent Keys

S./LDR. GERALD WILLIAM HORTON, D.F.M. (G8QD)

It is with the deepest regret that we report the tragic death of Gerald William Horton (G8QD), of Felixstowe, Suffolk, in a road accident on May 1.

Gerry, a well-known personality on the 3.5 Mc/s band, was a gentleman of the first order. Cheerful, enthusiastic and always ready to help, he made many friends on and off the air. His untimely death at the age of 50 has dealt a great blow to the local hams of Felixstowe.

Gerry retired from the Royal Air Force a few years ago after 28 years' service. His many friends of the R.A.F., particularly the R.A.F.A.R.S., of which he was a member, will be grieved to hear of his passing.

To his wife and three sons we extend our heartfelt sympathies. G3OJ, G3AGN.

WILLIAM JONES (GW6OK)

We record with much sorrow the death of old timer Bill Jones (GW6OK) of Colwyn Bay. Bill had been a member for nearly 25 years and his station was one of the best known in the whole of Wales. He had been in poor health for the past few years but his death as the result of a stroke on May 9, 1957, came as a great shock to his family and friends to whom our sympathies are extended.

JOHN G. McINTOSH (VU2LJ)

It is with very much regret that we record the death as the result of an accident in Assam, of Mr. J. G. McIntosh (VU2LJ). " Mac " was well known on the air and in person to a great many members of the Society and in particular to those who live in the North-east of Scotland. In pre-war days his call was one of the best known on the DX bands, particularly during B.E.R.U. Contests in which events he frequently occupied a high place.

Sympathies are extended to his mother, Mrs. Rothnie, of Stonehaven, near Aberdeen, Scotland, in her sorrow at the passing of her only son. L.H.

J. F. STANLEY (G6SY)

The many friends of Mr. Jabez Stanley, both in this country and abroad, will grieve to learn of his death, after illness, on May 17, 1957.

Licensed before 1930, " SY," as he was affectionately known, operated chiefly on the lower frequencies, although in recent years he was often heard on the DX bands. Of a quiet retiring nature, always to be relied upon to lend a helping hand, his efforts during N.F.D. will specially be remembered while his kindly personality will be sorely missed by those to whom he was known intimately.

To his widow, son and two daughters, we extend our sincere condolences in their bereavement. J.C.F.

F. WISEMAN (G6TM)

Sympathies are extended to Mr. F. L. Wiseman (G3GRY) of Buxton, Derbyshire, on the death of his father, Mr. F. Wiseman (G6TM). Mr. Wiseman first joined the Society in 1931 and rejoined last year. He was in Western Australia on an extended holiday at the time of his death.

Regional & Club News

Aldershot and District Radio Society.—At the A.G.M., S. E. Hume, 25 Kingsway, Aldershot, was elected *Hon. Secretary*. Recent activities have included a Super Junk Sale and the construction of a transmitter for the club station. Classes for younger members and for those wishing to take R.A.E. and the Morse test are held regularly. Meetings take place on alternate Wednesdays at 7.30 p.m. at " The Cannon ".

Bristol.—Nearly 60 members were present at the May meeting to hear an illustrated talk on " The Minibeam " by G. A. Bird (G4ZU). A demonstration and discussion featuring recent transmitting equipment constructed by local members will take place on June 21. Members with suitable equipment are invited to bring it to the meeting. R. M. Sharp (G3GON) has been elected to the local committee in place of Bob Lane (G2BYA) who recently left for U.S.A.

British Two-Call Club.—K. E. S. Ellis (G5KW) and Jack Cooper (G3DPS) have been elected *President* and *Vice-President* respectively for 1957. The *London Chairman* is B. A. M. Herbert (G2WI). The club publishes a quarterly newsletter, *QTC*. Applicants for membership must have held at least one overseas call-sign in addition to their present call. Details may be obtained from the *Hon. Secretary:* G. V. Haylock (G2DHV), 63 Lewisham Hill, London, S.E.13.

Bury Radio Society.—The society took part in Region 1 Field Day on May 5 from a site 800ft a.s.l. but battery troubles prevented a really good score being made. The next meeting at the George Hotel, Kay Gardens, will be at 8 p.m. on July 9 (" Noggin and Natter Night "). A Hamfest is being arranged for September 14. *Hon. Secretary:* L. Robinson, 56 Avondale Avenue, Bury.

Cheltenham.—On April 15 a talk on the Electronic Organ was given by R. and D. G. Martin (G3IER), the latter dealing with the theoretical aspects while his brother gave a resume of the development. The lecture was illustrated with film strips, and ended with a demonstration of the organ owned by Mr. R. Martin.

Crystal Palace and District Radio Club.—A Junk Sale will be held on June 15, the next regular meeting being on July 2 at Windermere House, Westow Street, Crystal Palace, S.E.19, at 7.30 p.m. *Hon. Secretary:* G. M. C. Stone (G3FZL), 10 Liphook Crescent, Forest Hill, London, S.E.23.

Flintshire Radio Society.—On May 6 Mr. Sawbridge, M.B.F.I., showed a number of technical and instructional films loaned by Pye, and Shell-Mex and B.P.

Grafton Radio Society.—The annual field day event will take place at Tumulus Field, Hampstead Heath, on June 15 and 16. G3AFT/P will be operating on 10, 15, 20 and 40 metre c.w. and G2CJN/P on 80 and 160 metre phone and c.w. Contacts will be appreciated. *Hon. Secretary:* A. W. H. Wennell (G2CJN), 145 Uxendon Hill, Wembley Park, Middlesex.

Lancaster and District Amateur Radio Society.—At the A.G.M. new officers were elected. Visitors to the district and prospective members will be very welcome at meetings, which are held on the first Wednesday in each month at the George Hotel, Torrisholme, commencing at 7.30 p.m. *Hon. Secretary:* A. R. Thompson (G2FCL), 51 Princes Crescent, Bare, Morecambe, Lancs.

Mitcham and District Radio Society.—The first Annual Dinner was held at the " White Hart ", Mitcham, on May 11 and was attended by 57 members and friends. The guests of honour were Mr. and Mrs. G. A. Bird (G4ZU). Those present included visitors from the Sutton and Cheam Society, led by Roy Scott (G2CZH). *Hon. Secretary:* A. R. Dyer (G3IDF), 36 Keble Street, Summerstown, London, S.W.17.

Northampton Short Wave Radio Club.—Meetings are now being held on Fridays at 6.30 p.m., at the J-Beam Aerials' Factory (rear of Westonia Garage), Weston Favell, Northampton. It is hoped that the club station, G3GWB/A, will soon be active from the new meeting place, which is experimental for the next few months. *Hon. Secretary:* S. F. Berridge (G3ITW), 20 Ethel Street, Northampton.

Nottingham Amateur Radio Club.—The club meets on Tuesdays at 7.15 p.m. at Woodthorpe House, Mansfield Road. Activities include the building of both transmitters and receivers with expert guidance by licensed members and Slow Morse practice. Prospective members will be most welcome and can obtain full details from the *Hon. Secretary:* F. V. Farnsworth, 32 Harrow Road, West Bridgford, Nottingham (Tel. No.: 85049).

Nottingham and District Amateur Radio Society.—At the A.G.M. the following were elected: *Chairman*, B. Shortland (G3DJL); *Hon. Treasurer*, R. Harding (G3AKW); *Hon. Secretary:* H. H. Pickering (G3DUL), 43 Plains Road, Mapperley, Nottingham; *Committee Members*, K. Spray (G3CMA) and A. Walmsley (G3HIO). Meetings are held on the third Friday in each month at Basford Hall Miners' Welfare, Nuthall Road, Cinderhill, and prospective members are assured of a warm welcome.

Ravensbourne Amateur Radio Club.—A number of members are now interested in Amateur Television including G3LNT/T. The club station, G3HEV and G3HEV/A, is active on the h.f. bands. A course for the R.A.E. will commence in September if there is sufficient support. Meetings are held at 8 p.m. on Wednesdays in the Science Room, Durham Hill School, Downham. *Hon. Secretary:* J. Wilshaw, 4 Station Road, Bromley, Kent.

Radio Society of Harrow.—A Committee has been formed to help members with their TVI problems, the members being R. C. Ray (G2TA), R. G. Wyatt (G3HFJ) and E. P. Parry (G3KOE). Meetings are held every Friday at 8 p.m. in The Science Laboratory, Roxeth Manor Secondary Modern School, Eastcote Lane, South Harrow, the next being on June 21 (Junk Sale). A Brains Trust will be held on July 5. *Hon. Secretary:* S. C. J. Phillips, 131 Belmont Road, Harrow Weald.

Scarborough Amateur Radio Society.—The c.w. Contest with the York Amateur Radio Society was won by the York society. Visitors are always welcome at meetings which are held on Thursdays at 7.30 p.m. at Chapmans Yard, Waterhouse Lane, North Street, Scarborough. *Hon. Secretary:* P. B. Briscombe (G8KU), " Roseacre ", Irton, near Scarborough.

South Shields and District Amateur Radio Club.—The club will again be operating GB3SFS from the South Shields Flower Show from August 23 to 25. It is hoped that the station will consist entirely of equipment built by junior members. Contacts will be appreciated. Visitors from neighbouring towns will be welcome at the meeting at 7.30 p.m. June 26 at Trinity House Social Centre. The Chairman, K. Skethaway, has been elected to the Newcastle City Council. *Hon. Secretary:* W. Dennell, 12 South Frederick Street, South Shields (Tel. No.: St. Hilda 4107).

Stockport Radio Society.—Members took part in Region 1 Field Day using the call-sign G3BY/P and in N.F.D. as G3BY/P and G3AUB/P. Practical lectures are being given by G3AYT. Membership has continued to increase during the last six months and prospective members are always welcome at meetings (see *Forthcoming Events*). *Hon. Secretary:* G. R. Phillips (G3FYE), 7 Germans Buildings, Buxton Road, Stockport.

Torbay Amateur Radio Society.—Frank Wadman (G2GK) was elected *Vice-President* in recognition of his services to the Society at the A.G.M. Others elected were: *Chairman*, Bill Baker (G3JD); *Hon. Secretary*, George Western (G3LFL), 118 Salisbury Avenue, Barton, Torquay; *Assistant Hon. Secretary*, B. E. Symonds (G3LKJ) *Contests Manager*, L. H. Webber (G3GDW); *Hon. Auditor*, Reg. Luscombe;

Experimental Manager, L. G. Mays (G2CWR). The June meeting will be held on the 15th but as from July meetings will be on the *second* Saturday in the month.

Worthing and District Amateur Radio Club.—The Worthing Bucket and Spade Party will be held on July 14 commencing at 11 a.m. at the West Kiosk, near Beach House and Denton Gardens. It will be an informal family seaside gathering, with no raffles or other fund raisers. G3GVM will be active on Top Band, 80 and 2 metres to guide visitors. Meetings at the Adult Education Centre are arranged for June 17 (V.H.F. Converters), July 8 (Visit to Fire Station) and September 9 (A.G.M.). There will be no meeting in August.

Representation

THE following is an alteration to the list of Town Representatives published in the December, 1955, issue:—

Region 7—London South-West

Guildford-Woking Area

A. W. Warner (G3FZC), "Sunnyside," Manor Road, Send Marsh, Ripley, Woking, Surrey.

* * *

Change of Address

The address of Mr. C. G. Rich, B.R.S.18644 (Representative for Chester) is now 90 Becketts Lane.

New Books

BRITISH STANDARD SAFETY REQUIREMENTS FOR ELECTRIC MAINS SUPPLIED RADIO OR OTHER ELECTRONIC APPARATUS FOR ACOUSTIC OR VISUAL REPRODUCTION.

This Standard is a revision of BS415 which was first issued in 1931. Section 2 lays down the principles in broad outline whilst Sections 4, 5 and 6 give the detailed requirements for safety from shock, fire risks, and danger from flying glass. Section 4 gives the general conditions of test, under "normal" and "fault" conditions. The introduction of fault condition tests is an innovation in British Standards. Copies of the Standard can be obtained from British Standards House, 2 Park Street, London, W.1, price 6/-.

* * *

GRAPHICAL SYMBOLS FOR TELECOMMUNICATIONS Supplement (No. 4 (1956) to British Standard 530: 1948). Price 3/6 from British Standards House, Park Street, London, W.1.

This Supplement contains guiding principles for the preparation of circuit diagrams (which are additional to those on pages 5 to 15 of B.S.530) and some new and modified symbols. Symbols for transistors and allied devices, keeping pace with recent developments, form an important part of the Supplement.

* * *

A BIBLIOGRAPHY OF COLOUR TELEVISION

The Second Supplement to *A Bibliography of Colour Television*, issued in January 1957 by The Television Society, is based on information compiled by Mrs. K. Bourton of Ultra Electric Ltd., for the use of the radio industry. The Supplement carries the number of references from 417 to 650. Copies of the original Bibliography and the First Supplement can be obtained from the offices of The Television Society, 164 Shaftesbury Avenue, London, W.C.2, price 2/6 each post paid.

* * *

WIRELESS AND ELECTRICAL TRADER YEAR BOOK: Radio, Television and Electrical Appliances 1957. 28th Edition. Published (with a reduction to subscribers to *Wireless and Electrical Trader*) by Trader Publishing Co. Ltd. Size 8½ in. x 5¾ in. 360 pages. Bound Linson. Price 12/6.

Wireless and Electrical Trader Year Book, first published in 1925, is the standard guide for all connected with sales or services. Features of the 1957 edition include condensed specifications of 250 current commercial television receivers and information on valve and cathode ray tube base connections, with some 300 valve base diagrams.

A new feature is a section giving brief details of domestic electrical appliances which have been reviewed recently in *Wireless and Electrical Trader*. A special section gives both alphabetical and territorial lists of radio and electrical wholesalers. There is also a comprehensive table of television tuning frequencies of superhet receivers and sideband characteristics of superhet and t.r.f. models. The list of i.f. values of commercial radio receivers marketed during the past nine years has been revised and extended. Other data include specifications of current radio receivers covering nearly 400 models, a B.B.C. and I.T.A. station guide, legal and licensing information and a directory of trade associations.

Worked and Heard on V.H.F.

Two Metres

B.R.S.6327 (Earlsfield) April 22 and May 13, 1957.
Heard: G2AHP, 2AIH, 2AJS, 2ANT, 2AUD, 2DVD, 2HDJ, 2MV, 2TP, 2UJ, 2YB, 3AIM, 3ANB, 3BFP/A, 3CO, 3CZY, 3DF, 3EIW, 3ELA, 3EOH, 3EVV, 3EYV, 3FCQ, 3FF, 3FQS, 3FVG, 3GDR, 3GFN, 3GHI, 3GKF/A, 3GTH, 3HBW, 3HRH, 3IIT, 3IRS, 3IUL, 3JN, 3JR, 3KEQ, 3KEQ/P, 3LHA, 3LOA, 3MI, 3XC/M, 4DC, 4HQ, 4PS, 5BD, 5KW, 5LK, 5MA, 5NF, 5US, 5WW, 5YH, 6AG, 6LL, 6SM/P, 6YP, 8KW, 8LN, 8SC, 8SK.

B.R.S.15822 (Clapton Park)
Heard: G2AHL/P, 2ANT/P, 3BFP/P, 3DVQ/P, 3FD/P, 3IAM/P, 3IWA/P, 3JHM/P, 3JZW/P, 3KBS/P, 3KEQ/P, 4PS/P, 5LK/P, 6OX/P, 8KW/P (All May 5 Field Day); G2AHP, 2AIH, 2AJS, 2AK/P (High Beech), 2ANT, 2BZ, 2CD, 2CIW, 2CPX, 2DDD, 2FJR, 2FMJ, 2HCG, 2HDY, 2JF, 2RD, 2UJ, 2WJ, 2XV, 3ANB, 3BFP/A, 3BLP, 3CNF, 3CO, 3CZY, 3DF, 3DLU, 3DOR, 3DVQ, 3ECA, 3EIW, 3EOH, 3EVV, 3EYV, 3FCQ, 3FD, 3FP, 3FVG, 3GDR, 3GFN, 3GHI, 3GKF/A, 3GOZ, 3GTH, 3HBW, 3HCU, 3HRH, 3IAM, 3IDD, 3IIT, 3IJB, 3IRW, 3JNI, 3JQN, 3JR, 3JWQ, 3KCQ, 3KEQ, 3KEQ/F (Well Hill), 3KFX, 3KLI, 3KPJ, 3KQC, 3LCK/A (Crowborough), 3LOA, 3LOK, 3MI, 3PV, 4AU, 4DC, 4HQ, 4KD, 4OT, 5BD, 5KG, 5KW, 5MA, 5NF, 5UM, 6AG, 6JI, 6JK, 6LL, 6NB, 6NF, 6OX/P (nr. Biggin Hill), 6YP, 8AL, 8KW, 8LN, 8RW, 8SC, 8SK.

B.R.S.16075 (Shirley, Southampton) April 17–May 18.
Heard: G2HCG, 2NM, 2YB, 3HBW, 5BD, 5HN, 5MA, 6NB, GW8UH.

B.R.S.20133 (Melton Mowbray) April 10–May 16, 1957.
Heard: G2BVW, 2CDB, 2CRL, 2DSF, 2FMO, 2FNW, 2FNW/P, 3BA, 3BA/P, 3BU, 3DLU, 3EEO, 3FDF, 3GFW, 3FUR, 3GHO, 3GSO, 3HAN/P, 3HZK/M, 3IEA, 3IVF, 3JWQ, 3JWQ/P, 3KQF, 3OZ, 4MK, 5BD, 5BD/M, 6XM, 6XM/P, 8CZ, 8SB/P.

B.R.S.20162 (Selsdon, Surrey) April 14–May 13, 1957.
Heard: G2AHL, 2AHP, 2AHY, 2AIH, 2ANT, 2AUD, 2BDP, 2BZ, 2CD, 2CIW, 2DDD, 2DVD, 2FCA, 3FMI, 2FSY, 2HCG, 2HDJ, 2HDY, 2JF, 2MV, 2QY, 2RD, 2UJ, 2WJ, 2XV, 2YB, 3AEX, 3ALC, 3ANB, 3CGQ, 3CNF, 3CO, 3CZY, 3DF, 3DOR, 3DVQ, 3EIW, 3EOH, 3EVV, 3EYV, 3FAN, 3FCQ, 3FD, 3FMP, 3FP, 3FPV, 3FQS, 3FVG, 3GFN, 3GHI, 3GHO, 3GKF/A, 3GOZ, 3GTH, 3HBW, 3HRH, 3HTC, 3HWJ, 3HXS, 3IAM, 3IIT, 3IPB, 3IRA, 3IRW, 3IUL, 3IGY/M, 3IN, 3JR, 3JWQ, 3JXN/A, 3JZW/P, 3KEQ/P, 3KFX, 3KHA, 3KLI, 3KPJ, 3KQC, 3LCH/A, 3LHA, 3LIA, 3LOA, 3LOK, 3PV, 3VI, 4AU, 4DC, 4HQ, 4KD, 4OT, 5BC, 5BD, 5DF, 5DT, 5HN, 5KG, 5KW, 5LK., 5LL, 5MA, 5NF, 5OX, 5RD, 5UM, 5WW, 5YH, 5YV, 6AG, 6JI, 6JK, 6JP, 6LL, 6NB, 6OX, 6OX/M, 6OX/P, 6RH, 6XM, 6YP, 8KW, 8KW/M, 8LN, 8RW, 8SC, 8SK, 8UQ, 8VZ.

Heard: (May 5 Field Day at Ditchling Beacon): G2AHLP, 2AHP, 2AIH, 2ANT/P, 2BDP, 2CD, 2DD, 2DDD, 2DSW/P, 2DVD, 2FMJ, 2HDJ, 2JF, 2QY/P, 2RD, 2XV, 2YB, 3ANB, 3BA, 3CNF, 3CO, 3CZY, 3DF, 3DVQ/P, 3EVV, 3EVV/M, 3FCQ, 3FD/P, 3FEX, 3FVG, 3GGR/P, 3GHI, 3GOZ, 3HBW, 3IAM/P, 3IJB, 3ION/P, 3IRW, 3IWA/P, 3JFR/P, 3JHM/P, 3JN, 3JR, 3JXN/P, 3JZW/P, 3KBS/P, 3KEQ/P, 3KFT/P, 3KLI, 3KQC, 3KSR/P, 3LIA, 3LOA, 3PV, 3XC, 4HQ, 4IB/M, 4KD, 4PS/P, 5BC, 5CM, 5KG, 5LK/P, 5MA, 5MR, 5NF, 5OB/P, 5WW, 8AL, 8KW/P, 8LN, 8RK, 8RW, 8UQ/P, 8VZ, GW8UH/P.

B.R.S.21136 (Ruislip) April 16 to May 16.
Heard: G2AHP, 2AIH, 2AJS, 2ANT, 2ANT/P, 2BDP, 2CPX, 2DDD, 2DVD, 2FCA, 2GG, 2HDJ, 2HDY, 2JF, 2LK/P, 2MV, 2NR, 2QY/P, 2XV, 2YB, 3BFP/A, 3CNF, 3CO, 3CZY, 3DVQ, 3EVV, 3EVV/P, 3FCO, 3FD, 3FMP, 3FP, 3FQS, 3GFK/A, 3GFN, 3GHI, 3GHO, 3GOZ, 3GTH, 3HBW, 3HDG, 3HRH, 3SWJ, 3HXS, 3IAM, 3IAM/P, 3IUL, 3IWA/P, 3JN, 3JR, 3KEQ/P, 3KFX, 3LCK/A, 3LIA, 3LOA, 3MI, 3PV, 4DC, 4HQ, 4KD, 4PS/P, 5BC, 5KG, 5KW, 5LK/P, 5MA, 5NF, 5RD, 6YH, 6JP, 6NB, 6NF, 6OX, 6OX/P, 6YP, 8AL, 8KW, 8LN, 8RW, 8SK, 8UQ/P.

G6JF (Wye, Ashford, Kent) April 18–May 19, 1957.
Worked: G2DPK, 2FMJ, 2HDJ, 2KF, 2XV, 3BFP/P, 3CGQ, 3FAN, 3FUR, 3GHO, 3GOZ, 3GTH, 3HCU, 3HRH, 3IAM/P, 3ION/P, 3IRA, 3IUL, 3IWA/P, 3JGY/M, 3KEQ, 3KFX, 3LOA, 3LOK, 4HQ, 5BQ, 5LL, 5NF, 5YV, 6AG, 6NB, 6OX/P, 8SC.

Forthcoming Events

REGION 1

Blackpool (B. & F.A.R.S.). — Wednesdays, Gadsby Street Hall, off Nelson Road.
Bury (B.R.S.).—July 9, 8 p.m., George Hotel, Kay Gardens.
Chester (C. & D.A.R.S.).—Tuesdays, 7.45 p.m., Tarran Hut, Y.M.C.A.
Crosby. — Tuesdays, 8 p.m., over Gordon's Sweetshop, St. John's Road, Waterloo.
Lancaster (L. & D.A.R.S.).—July 3, 7.30 p.m., George Hotel, Torrisholme.
Liverpool (L. & D.A.R.S.).—Tuesdays, 8 p.m., Room "A," Wavertree Community Centre, Penny Lane, Liverpool, 18.
Manchester (M. & D.R.S.).—July 1, 7.30 p.m., Brunswick Hotel, Piccadilly.
Manchester (S.M.R.C.).—Fridays, 7.45 p.m., Ladybarn House, Mauldeth Road, Manchester, 20.
Preston (P.A.R.S.).—Wednesdays, 7.45 p.m., 48 High Street, off Lancaster Road.
Southport.—Thursdays, 8 p.m., Sea Cadets' Camp, Esplanade.
Stockport (S.R.S.).—June 19, July 3, 17, 8 p.m., The Blossoms Hotel, Buxton Road.
Warrington (W. & D.R.S.).—June 20, July 4, 18, 7.30 p.m., Royal Oak Hotel, Bridge Street.
Wirral (W.A.R.S.).—June 19, July 3, 17, 7.45 p.m., Y.M.C.A., Whetstone Lane, Birkenhead.

REGION 2

Barnsley (B. & D.A.R.C.).—June 28, July 12, 7.30 p.m., King George Hotel, Peel Street.
Bradford.—July 16, 7.30 p.m., 66 Little Horton Lane.
Doncaster.—July 2, 7.30 p.m., Lord Nelson Hotel, Cleveland Street.
Hull.—Second and last Tuesdays, 7.30 p.m., "Royal Oak" (Tony's).
Leeds.—Wednesdays, 7.30 p.m., 4 Woodhouse Square.
Pontefract.—June 20, July 4, 8 p.m., Queen's Hotel, Tanshelf.
Rotherham.—Wednesdays, 7 p.m., "Cutler's Arms," Westgate.
Scarborough.—Thursdays, 7.30 p.m., Chapman's Yard, North Street, Scarborough.
Sheffield (S.A.R.C.).—June 26, "Dog & Partridge"; July 10, Albreda Works.
Slaithwaite.—Fridays, 7.30 p.m., 3 Dartmouth Street.
South Shields (S.S. & D.R.C.). — June 26, 7 p.m., Trinity House Social Centre.
Spen Valley.—June 26, July 10, 7.30 p.m. Temperance Hall, Cleckheaton.
York.—Thursdays, 7.30 p.m., Club Rooms, Y.A.R.S., Fetter Lane.

REGION 3

Birmingham (M.A.R.S.).—June 18 (film "Cathode Ray Tubes"), 7 p.m., Midland Institute, Paradise Street. **(Slade.)**—June 21 ("R.F. Coil Design"), 7.45 p.m., The Church House, High Street, Erdington. **(South and Bournville.)**—Tuesdays, 7.30 p.m., No. 4 Committee Room, Cadbury Bros., Bournville.
Coventry (C.A.R.S.).—June 17, July 1, 15, 7.30 p.m., 9 Queens Road. **(Courtaulds.)**—Wednesdays, Courtaulds, Ltd., Foleshill Road.
Solihull.—June 24, July 1, 15, 7.30 p.m., Civil Defence Headquarters, Sutton Lodge, Blossomfield Road.
Stourbridge.—June 21, "White Horse," Amblecote, July 2, King Edward VI School, Stourbridge, 8 p.m.
Wolverhampton.—June 17, 24 (visits to B.B.C. and I.T.A.), July 1, 15 (A.G.M.), 8 p.m., Nechells Cottage, Tittenhall.

REGION 4

Alvaston. — Tuesdays, Thursdays, 7.30 p.m.; Sundays, 10.30 a.m., Boulton Lane, Alvaston, Derbyshire.
Chesterfield. — Tuesdays, 7.30 p.m., Bradbury Hall, Chatsworth Road.
Derby (D & D.A.R.S.). — Wednesdays, 7.30 p.m., Room 4, 119 Green Lane, Derby.
Ilkeston (I. & D.A.R.S.). — July 4, 7 p.m., Room 5, Ilkeston College of Further Education, Field Road.
Leicester (L.R.S.).—June 17, July 1, 15, 7.30 p.m., Leicester.
Lincoln (L.S.W.C.).—July 3, 7.30 p.m., Technical College, Cathedral Street.
Newark (N. & D.A.R.S.). — July 7, 7 p.m., Northgate House, Northgate, Newark.
Northampton (N.S.W.C.).—Fridays, 6.30 p.m., I-Beam Aerials' Factory, Weston Favell, Northampton.
Nottingham. — June 21, July 19, 7.30 p.m., Basford Hall Miners' Welfare, Nuthall Road, Cinderhill.
Peterborough.—July 3, 7.30 p.m., 21 Hankey Street.
Scunthorpe (S.A.R.S.).—June 18, July 4, 16, 7.30 p.m., Talbot Hotel, Earl Street.
Retford & Worksop. — June 17, 7.45 p.m., Lincolnshire Road Car Social Club, Grove Street, Retford.

REGION 5

Chelmsford. — July 2, 7.30 p.m., Marconi College, Arbour Lane, Chelmsford.
Norwich. — Fridays, 7.30 p.m., The Golden Lion, St. John's, Maddermarket.

REGION 6

Cheltenham.—July 4, 8 p.m., Great Western Hotel, Clarence Street.
Cheltenham (A.R.S.). — Wednesdays, 8 p.m., Club Room, St. Mark's Community Centre, Brooklyn Road.
Gloucester (G.R.C.). — Thursdays, 7.30 p.m., The Cedars, 83 Hucclecote Road.
Oxford (O. & D.A.R.S.).—June 26, July 10, 7.30 p.m., Club Room, Cherwell Hotel, Water Eaton Road, Oxford.
Portsmouth. — Tuesdays, 7.30 p.m., British Legion Club, Queen's Crescent, Southsea.
Southampton.—July 6, 7 p.m., 1 Prospect Place, Above Bar, Southampton.
Stroud.—Wednesdays, 7.30 p.m., Subscription Rooms.

REGION 7

London (L.M.L.C.).—June 21, July 19, August 16, 12.30 p.m., Bedford Corner Hotel, Bayley Street, Tottenham Court Road, W.C.1.
London (U.H.F. Group).—July 4, 7.30 p.m., Bedford Corner Hotel, W.C.1.
Acton, Brentford & Chiswick.—June 18, July 16, A.E.U. Rooms, 66 High Road, Chiswick, W.4.
Bexleyheath (N.K.R.S.). — Second and fourth Thursday, 7.30 p.m., Congregational Hall, Chapel Road, Bexleyheath.
Chingford.—For date and venue phone: Wanstead 2321 or Silverthorne 1740.
Croydon (S.R.C.C.). — July 9, 7.30 p.m., "Blacksmiths' Arms," 1 South End, Croydon.
Ealing.—Sundays, 11 a.m., ABC Restaurant, Ealing Broadway, W.5.
East Molesey (T.V.A.R.T.S.).—July 3, 8 p.m., Carnarvon Castle Hotel, Hampton Court. (Lecture by F. Hicks-Arnold (G6MB)).
Harlow & District.—Tuesdays, 7.30 p.m., rear of G. E. Read (G3ERN), 6 High Street, Harlow, Essex.
Holloway (G.R.S.).—Mondays (R.A.E.), Fridays (Club), 7 p.m., Grafton School, Eburn Road, Holloway, N.7.
Ilford.—Thursdays, 8 p.m., G2BRH, 579 High Road, Ilford.
Norwood & South London.—June 21 (Junk Sale), July 19 ("Design and Construction of Power Packs"), 8 p.m., Windermere House, Westow Street, Crystal Palace.
Slough. — July 2, QTH from G2HOX, 13 Quaves Road, or G3YD, 5 Parklands Avenue, Slough.
Welwyn Garden City.—Tuesday, July 2, Service Training School, Murphy Radio, Ltd., Bessemer Road; July 11 (visit to electronic blockmaking plant of *Hertfordshire Mercury*. Assemble at *Mercury* office, Fore Street, Hertford, 8 p.m.).

REGION 9

Bath.—June 17, July 15, 7.30 p.m., 12 James Street West.
Bristol.—June 21, July 19, 7.15 p.m., Carwardine's Restaurant, Baldwin Street.
Exeter. — July 11, 7.30 p.m. (Details from G3FLK, 43 Prospect Park.)
Falmouth.—First Wednesday in each month, 7.30 p.m., Y.M.C.A., Bar Road, Falmouth.
North Devon (Bideford).—July 4, 7.30 p.m., G2FKO, 38 Clovelly Road, Bideford.
Plymouth. — Alternate Tuesdays, 7.30 p.m., Virginia House, Settlement, Barbican.
Torquay.—Third Saturday in each month, 7.30 p.m., Y.M.C.A., Castle Road.
Weston-super-Mare. — Second Wednesday in each month, 7.30 p.m., Albert Hotel, Sea Front.
Yeovil.—Wednesdays, 7.30 p.m., Grove House, Preston Road, Yeovil.

REGION 10

Cardiff. — July 8, 7.30 p.m., "The British Volunteer," The Hayes, Cardiff.
Neath and Port Talbot.—July 2, 7.30 p.m., Royal Dock Hotel, Briton Ferry.
Pontypool. — Tuesdays, 7 p.m., Educational Settlement, Rockhill Road.

REGION 11

Prestatyn.—July 1, 7.30 p.m. (Visit to Prestatyn Telephone Exchange. Meet at Railway Hotel, Prestatyn.)

REGION 14

Glasgow.—June 28, 7.15 p.m., Christian Institute, 70 Bothwell Street, Glasgow, C.2. ("N.F.D. Post-mortem.")

FORTHCOMING O.R.Ms.
SATURDAY, SEPTEMBER 21:
REGION 10—CARDIFF
SUNDAY, SEPTEMBER 29:
REGION 11—PRESTATYN

Forthcoming Mobile Rallies

* * *

June 16 - New Forest Mobile Rally (see page 493, May, 1957, issue).
September 15 West Kent Amateur Radio Society

* * *

In order to avoid clashes of dates, organisers of rallies are invited to submit details for inclusion in this space as far in advance as possible.

LONDON MEMBERS' LUNCHEON CLUB
will meet at the Bedford Corner Hotel, Bayley Street, Tottenham Court Road,
at 12.30 p.m. on Fridays, June 21, July 19 and August 16, 1957,
Telephone table reservations to HOL 7373 prior to day of luncheon. Visiting amateurs especially welcome.

LONDON U.H.F. GROUP
will meet at the Bedford Corner Hotel,
at 7.30 p.m., July 4, 1957.
All u.h.f. enthusiasts welcome.

New Members

THE following were elected to Membership at the May, 1957, Meeting of the Council:—

Corporate Members, Home (Licensed)

G2BKZ †B. K. GEORGE, 22 Station Road, Studley, Warwicks.
G2CWL †C. K. HASWELL, 114 The Hillway, Portchester, Fareham, Hants.
G3CZY †P. B. WEST, 115 Cloudesley Road, London, N.1.
G3DDK †E. J. HARTLEY, Byways, Mutford, nr. Beccles, Suffolk.
G3DZS H. FUDGE, 53 Buckland Way, Worcester Park, Surrey.
G3EZX †S. WOOD, 70 Derwent Road, Warrington, Lancs.
G3HVO †J. D. LOADER, 19 Waverley Park, Great Shelford, Cambs.
G3HYH S. P. HAY, 118 Gilda Brook Road, Eccles, Lancs.
G3JGB †D. W. LAVERACK, 137 Mary Street, Scunthorpe, Lincs.
G3JGY T. WOOD, 208 Worcester Road, Malvern Link, Malvern, Worcs.
G3JTF †F. W. BLAKE, 34 Whomerley Road, Monkswood, Stevenage, Herts.
G3KEC J. M. GARNER, 28 Donsby Road, Aintree, Liverpool, 9, Lancs.
G3KPP J. W. GREEN, Aspendale, Bicton, Shrewsbury, Shropshire.
G3KWD P. G. ALLOTT, 117 Baddow Road, Chelmsford, Essex.
G3LDY R. D. TAYLOR, 4 Oldfallings Crescent, Low Hill, Wolverhampton, Staffs.
G3LGW D. GORDON SPENCER, 34 Harrison Road, Erdington, Birmingham, 24.
G3LHN R. D. MUIR, 1 Cedar Hill, Newport, Isle of Wight.
G3LLM C. A. COLES, 106 Lower Oldfield Park, Bath, Somerset.
G3LMU N. G. NANDA, 12 Gladstone Road, Watford, Herts.
G3LMW M. HOLLINGWORTH, 21 Ashbeach Road, Ramsey St. Marys, Hunts.
G3LND G. R. HAMILTON-WALKER, "The Timbers," Camden Park, Chislehurst, Kent.
G3LOE W. ROBERTS, 23 Mytton View, Clitheroe, Lancs.
G3LOG A. E. GRACE, 44 Cedar Avenue, Ripley, Derbys.
G3LOJ A. A. BLYTHE, 27 Tedder Road, Acomb, York.
G3LOL K. S. LIVERMORE, 32 Chestnut Avenue, R.A.F. Topcliffe, Thirsk, Yorks.
G3LOX †B. M. JOHNSON, 4 Orchard Drive, Chorley Wood, Rickmansworth, Herts.
G3LPX E. J. KIRBY, Bailiffs Cottage, Langley Park Farm, Langley, Maidstone, Kent.
G3LRN H. CLARK, "Rose-Ellen," King Richard Road, Hinckley, Leics.
G3LRP P. N. ACKLEY, 89 Mulberry Place, Ryhill, nr. Wakefield, Yorks.
G3LRQ *M. J. HUMPHRIES, 158 Abbotts Drive, North Wembley, Middx.
G3LSG C. A. J. COTTON, 10 Buci Crescent, Shoreham-by-Sea, Sussex.
G3LSN G. F. ROFFEY, 311 Milkwood Road, Herne Hill, London, S.E.24.
G4GN †LIEUT.-CDR. W. FLETCHER-COOPER, R.N., "The Naight House," Minsterworth, Gloucester.
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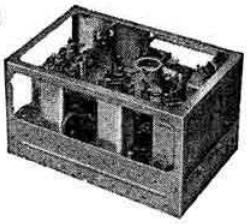

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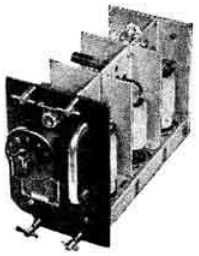

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3A5 ...	5	6	0Z4 ...	5	0	6SN7 ...	6	6
6V6M ...	8	6	6AC7 ...	6	0	954 ...	1	9
VR56 ...	5	0	VR54 ...	2	0	12Y4 ...	1	0
VT501 ...	2	6	6H6 ...	2	0	VR91 ...	5	0
12H6 ...	2	0	12SH7 ...	2	9	(EF50)		
6L7 ...	5	6	VT52 ...	2	6	VR136 ...	5	0
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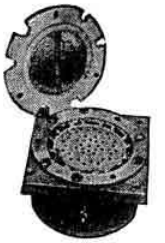

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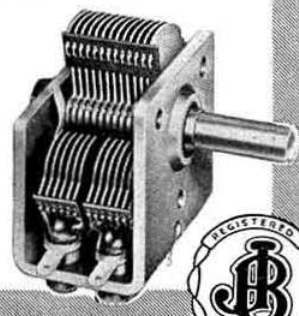

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ADVERTISEMENT RATES. Members' Private Advertisements 3d. per word minimum charge 5s. Trade Advertisements 9d. per word, minimum charge 12s. (All capitals 1/- per word, minimum charge 18/-). Write clearly. No responsibility accepted for errors. Use of Box number 1s. 6d. extra. Send copy and remittance to National Publicity Co., Ltd., 36-37 Upper Thames Street, London, E.C.4, by 22nd of month preceding date of issue.

ALL types of Valves required for cash. State quantity and condition. Radio Facilities Ltd., 38 Chalcot Road, N.W.1 (PRImrose 9090). (236

A.R.88.D. with 'S' meter. Excellent condition. Sensitivity figures available, £50. Geloso, G207/DR, latest batch including latest modifications, £80. Beginners morse course up to 12 w.p.m. on long playing records with instructions, pass G.P.O. test easily, only 45/- complete. 10-metre 3-element commercially-built beam, excellent DX (buyer collect, dismantled). Q5er, good condition, not used or tested, 50/-. S.a.e. G3HSC, 45 Green Lane, Purley (Uplands 2896). (350

AR88D, mint condition. Offers over £55. New valves, mostly boxed: At 35/-, 813(2); 20/-, TZ40(2); 832(4), 832A; 10/-, 6AG7; 7/6, KT8C(3); 5/-, 6X5(3), 6J6(2), FW4/500(2). Pair 1 milliamp. m.c. meters, new, unused, 15/- each. Pair 1 amp R.F. ammeters 7/6 each. Eddystone 598 dial (unused) 17/6. Please add postage. Many other valves, meters, etc. Stamp for list. "Bulletins" since 1937. "S.W. Magazines" 1946-53, offers G3HJ, 168 Dalston Road, Carlisle. (354

BC 221, BC 342, with Auto transformer and speaker R109 and R1132a, all in mint or first class condition. Best offer over £44, or would let individual items go to attractive offers. BRS19701, 4 Dunston Street, London, E.8. (351

BC342 improved RF stages, S Meter, internal p.u., Inst. Manual, £15. Buyer collects. T35s (Eimac), PT15s; cheap. G2ATD, 5 Sussex Road, Erith, Kent. (364

CLASS 'D' Wavemeter a.c. £5: R.C. Bridge £4: grid dip inductance meter £4: new neons, panel indicators, switches, wire pots, mains bridge, etc., 1/- each; power packs, transformers, chokes and ex-Govt. units to clear; lots of new and used radio and T.V. valves and components. State interests, 6 Kings Road, Shaw, Oldham, Lancs. (349

CR100 with manual, good condition, cabinet recrackled, some new valves. Theobald (G3EQM), St. Nicholas Hospital, London, S.E.18. WOO. 1441. (338

CRYSTALS. In holders, standard ½" pin spacing; 3509, 3537, 3557, 3560, 3563, 3570, 3581, 3590, 3596, 7087, 7147, 7177 (kc/s); 12s. 6d. each; B2 Receiver, headphones, circuit, excellent condition, £3; Eddystone speaker, grey crackle, as new, £1. 10s. G8UA, 406 High Brunshaw, Burnley, Lancs.

EXCEPTIONAL opportunity. Ham QRT and moving QTH, must clear all equipment. Panda PR120V Transmitter, £60; AR88D Receiver, £40; Universal Avometer Model 7, £9; Hunt's R.C. Bridge, £5; Panda a.t.u., £4; Panda low pass filter, £2; All in first class condition and perfect working order. Also Q-Max GDO (slight fault), 37/6; Woden UM1, 20/-; Eddystone bug key, 17/6; QQVO3-20 with base, 17/6. Price for lot £110. Discount for collection. Offers considered. Box 361, The National Publicity Co. Ltd., 36/37 Upper Thames Street, London, E.C.4. (361

EXCHANGE CR100 coil pack, top condition, i.f.s., crystal, handbook for genuine Vibroplex key. G3FCT, 125 Kingsnorth Road, Faversham, Kent. Fav. 2902. (345

FOR SALE Bendix RA-1B with mains supply £10. Bendix TA.12.C. 160-20 Mc/s £4. ZC1, Mk. 2 unmodified, with battery, microphone and phones, £8. 22 set unmodified £5. Test set 241 (valve voltmeter) £4. Wavemeter Class 'C' Mk. II, £3. TA.12.C. modulator, £3. Phone Emberbrook 3924 after June 15th. (352

FOR SALE E.D.C. Rotary Converter 230V d.c. in, 230V a.c. out, 250 watts. Perfect condition, hardly used, with cabinet. Offers, Collett (G3KI), South Lodge, Eastgate, Lewes. (343

FOR SALE Electronic key with circuit and instructions £2.10. L. Gittins, 8 Norbreck Avenue, Manchester 21.

(continued on page 580)

EXCHANGE AND MART SECTION (Cont.)

FOR SALE 160, 10 watt transmitter with power pack 3-stage, 807 p.a., Pi output, no mod., £5, half carriage. Box 141, The National Publicity Co. Ltd., 36/37 Upper Thames Street, London, E.C.4. (341

G3CGD QSL's Fixed and Mobile samples on request, Printing enquiries welcomed. 30 St. Luke's Road, Cheltenham. (303

HALLICRAFTERS V.H.F. A.M./F.M. receiver type S27, 28 to 143 Mc/s, 110/230V a.c. £25 o.n.o. G3KRJ, 41 St. John's Avenue, Chelmsford, Essex. (340

METALWORK.—All types cabinets, chassis, racks, etc., to your own specifications, Philpott's Metalworks, Ltd. (G4BI), Chapman Street, Loughborough. (99

QSL cards, G.P.O. approved. Log books, cheapest, best, prompt delivery. Samples—Atkinson Bros., Printers, Looe, Cornwall. (206

RADIO ELECTRONICS. U.S. journal with particular appeal to all interested in Electronic development, High-Fidelity, etc. 3/- monthly at all newsagents or 38/- annual subscription from Atlas Publishing & Distributing Co. Ltd., 18 Bride Lane, London, E.C.4. (357

R.C.A. AR88D in beautiful condition, tuning meter, tools, £60: Wanted urgently: Collins 75A 1/2/3; also 10-metre mobile gear. Lancs. Box 142, The National Publicity Co. Ltd., 36/37 Upper Thames Street, London, E.C.4. (342

R.C.A. crystal calibrated wavemeter type TE149 1.5 to 20 Mc/s by fundamental and harmonics. Contains 3 valves and 1 Mc/s crystal complete with Instruction Manual and wood box containing new spare valves and components; uses 1½V and 90V batteries. Size 7 x 8 x 9 inches. Ideal for portable operation. £7 10s. plus carriage. G3IEE, 96 Latchmere Road, Kingston-on-Thames. (363

R.1471 receiver for sale, 3-30 Mc/s in 5 turret ranges, two-width twin crystal gate plus audio filter, two-speed a.v.c. release, bandspread, fully metered, reg. power supplies. Circuit diagrams and instructions. Perfect working order, for quick sale £10. Wanted HRO coil 28 Mc/s B.S. Tel. G3KQP. Molesey 6573. (347

IMPORTANT NOTICE

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THE NATIONAL PUBLICITY CO., LTD.

36-37 Upper Thames Street, London, E.C.4.

The Society and its Advertisement Manager cannot intercede in any matters arising from advertisements appearing in this section.

SALE: Radiovision Hambander, excellent condition £12.10.0 o.n.o. 30 foot aerial tower, two sections, strong wood lattice construction £4.0.0 o.n.o. Buyer(s) collects. Evenings or week-ends: R. Mercer, High Weald, Smallhythe Road, Tenterden, Kent. (339

TRANSMITTER Type Sender 12, 1.2-17.5 Mc/s. 230V a.c., complete microphone and key, etc., spare set valves. Handbook, perfect order £17.10.0 o.n.o. Would consider 35 m.m. camera exchange, cash adjustment either way. Biggs, Winterborne, Abbas, Dorchester, Dorset. (348

WANTED: All types of communications receivers, test equipment, tape recorders, amplifiers, etc. Prompt cash payment. Details to R. T. & I. Service, 254 Grove Green Road, Leytonstone, London, E.11 (LEYton 4986). (241

WANTED crystal unit for Class 'D' Wavemeter 100/1000 kc/s. G6GA, Grove House, Dunnocksfold Road, Alsager, Cheshire. (355

WANTED BC610 Hallicrafters, E.T.4336 transmitters, BC312 Receivers, BC221 Frequency Meters and spare parts for all above. Best cash prices. P.C.A. Radio, Beavor Lane, Hammersmith, W.6. (266

WANTED, in really good condition, communication receiver, ex-service or otherwise. All offers acknowledged. R. Wall, 1 Maxwell Road, Littlehampton, Sussex. (346

WANTED 2kV power pack output approximately 200 mA; also type 1131 transmitter. College Engineer, Wye College, Near Ashford, Kent. (353

WODEN Modulation Transformer U.M.3. New £3. QQVO 3/20A new £1. S.T.C. m.c. microphone £4. Write B.M./TRZA, London, W.C.1. (337

2 METRES, BC624A and BC625 (SCR 522). Full complement of valves, relays and transformers. Including crystal and two spare 832s with bases, conversion manual for above equipment, also covering BC221, BC348, BC453 as "Q5 er" etc. £7 carriage paid. G3IEP, 18 Sherdley Street, Liverpool, 7. (344

21/28 Mc/s CONVERTERS £2.5.0 s.a.e. details. Semi-air-spaced co-axial 70 ohm, 7½d. yard. G3FXB, 86 Cross Road, Southwick, Sussex. (356

50 WATT transmitter (or exciter) crystal control; 807 output; two Ferranti meters; two power packs 350 and 600 volts on same chassis, £8; p.a. with 100TH and fil. trans; two meters; Labgear coils and condenser £4.10; h.v. power pack 1250 volts 250 mA £5; also Avo Signal Generator (battery); Pullen Multimeter; CR100 coil pack; offers. Wanted CR100 chassis. Edge, G6GD, Stamford Cottage, Malpas (Ches.). (358

1131 150 watt modulator with UM3 multimatch transformer, control unit and power supply, £10. H.R.O. Senior with 3 g.c. coils 3.5-30 Mc/s, rebuilt B7G valves, working but needs attention, £5. Send s.a.e. for list valves, transformers, chokes, etc. G3IUQ, 37 Vale Road, Bushey, Herts. (362

APPOINTMENTS SECTION

Situations Vacant

VACANCIES will occur in Bournemouth, July/August, for two keen, young Radio Technicians; to work mainly on construction of new type Ham Transmitters. Must be adaptable, and willing to carry out all operations of small batch production. Possibility of Bonus earnings when proficient. State fully, experience, when available, and wages required. Box 365, The National Publicity Co. Ltd., 36/37 Upper Thames Street, London, E.C.4. (365

For other appointments see page 579

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