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R.S.G.B. BULLETIN

CONTENTS

57 **Current Comment**

58 **Technical Topics.** By Pat Hawker (G3VA)

61 **Letraset Instant Lettering**

61 **Special Event Station**

62 **A G.D.O. Plus.** By George W. McDonald (G2OX)

64 **Lamps as R.F. Output Loads.** By G. R. Jessop (G6JP)

65 **Single Sideband.** By G. R. B. Thornley (G2DAF)

67 **Beacon Station GB3GEC.** By G. M. C. Stone (G3FZL)

68 **Mobile Column.** By C. R. Plant (G5CP)

71 **The Month on the Air.** By R. F. Stevens (G2BVN)

74 **Contests Diary**

75 **Four Metres and Down.** By F. G. Lambeth (G2AIW)

78 **Project Oscar.** By W. H. Allen, M.B.E. (G2UJ)

79 **The QRA Locator in Reverse.** By R. G. Flavell (G3LTP)

80 **Society News**

81 **Silent Keys**

83 **Council Proceedings**

84 **Representation**

85 **Contest News**

86 **Courses of Instruction for the R.A.E.**

87 **R.S.G.B. Slow Morse Practice Transmissions**

88 **Affiliated Societies and Clubs**

90 **Forthcoming Events**

91 **Regional and Club News**

94 **Index to Advertisers**

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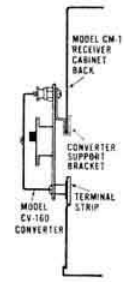

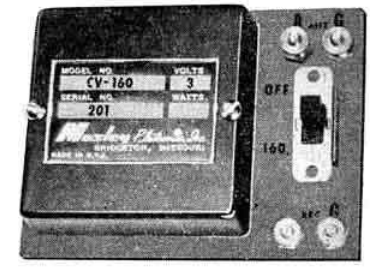

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Current Comment

discusses topics of the day

Project Telstar

THE successful transmission of television images and multiple telephone conversations between Europe and the United States during the second week of July 1962 by means of the Telstar satellite aroused widespread interest on both sides of the Atlantic.

It was natural that the general public should be impressed with the scientific developments that had made possible the reception in one's own home of events currently taking place many thousands of miles away, but it was the technicians, and in particular the radio engineers and radio amateurs with a special interest in u.h.f. communication problems, who shared with those at Goonhilly Downs and Andover, Maine, the *real* thrills, because they knew—or could at least comprehend—what had been achieved. The fact that frequencies of 6390 Mc/s are being used in the direction of the satellite and 4170 Mc/s from the satellite to earth provides some indication of the tremendous technical strides that have taken place within the past few years.

The interest shown by radio amateurs in artificial earth satellites, beginning with the first Russian Sputnik and continuing up to Ariel, has been recognized by scientific bodies throughout the world but it was not until last month that the British Post Office agreed to authorize the reception of signals from earth satellites operating on frequencies outside the amateur bands. Official recognition that amateurs may be able to make a useful contribution to the space programme now going into orbit could not have come at a more timely moment. Poldhu-Goonhilly-Moon!

J. C.

Reciprocal Licences

FREQUENTLY the Society is asked why a United Kingdom amateur who goes abroad on holiday or business for a short time is not allowed to operate his portable or mobile equipment *en route* to and at his final destination. The answer is quite simple—the Postmaster General is not, at present, prepared to allow a foreign amateur on a visit to the U.K. to hold an Amateur (Sound) Licence and as a consequence the majority of foreign Administrations decline to grant a licence to a U.K. amateur when he visits their country.

Readers of *QST* and other U.S. Amateur Radio magazines will have read that a Bill to amend certain sections of the Communications Act of 1934 was presented to the Senate of the United States on August 1, 1961. The purpose of the Bill is to provide that the Federal Communications Commission may, if it finds that the national security would not be endangered, issue a licence for the operation of an amateur station to certain aliens for any temporary period not in excess of three years. The Bill was read twice and was then referred to the Committee on Commerce. Amateurs interested in its passage were invited to write promptly to their Congressional representatives to urge affirmative action but, as so often happens, the Bill was eventually put aside to await further consideration at the next session of the U.S. Senate. However, there is little doubt that it will become law in due time *provided the State Department is satisfied that national security would not be endangered.* There, in our opinion, lies the crux of the whole matter—national security. But why national security should come into the picture today is a question that only Colonel Blimp and his U.S. counterpart can answer.

Recently all I.A.R.U. Member Societies in Europe were invited to reply to the question " Are reciprocal licences issued in your country on a permanent or temporary basis?" The replies that have come to hand make interesting reading. Whereas the Italian, Norwegian and Swedish Governments, in addition to the Government of the United Kingdom, do not issue temporary or permanent licences to foreign amateurs the questionnaire revealed that in the Federal German Republic (for example) the Amateur Radio regulations contain no citizenship clause, which means that a permanent Amateur Radio licence is available to any qualified person resident in the Republic or in West Berlin. Temporary licences are also issued on a reciprocal basis, agreements having been reached with Austria, Belgium, France and Luxembourg. In some cases limited licences have been granted by the West German authorities to visiting amateurs whose home administration does not grant licences to foreign amateurs.

The Netherlands Government will issue a licence to any qualified radio amateur whose stay in that country will not be less than a year. The principle of reciprocity has been abandoned by the Dutch authorities, which means that, for example, an amateur from the United States—where Dutch amateurs cannot obtain a licence —may obtain a licence in the Netherlands.

The Governments of Austria, Finland, France and Luxembourg will issue a licence to any foreign amateur from any country where a reciprocal arrangement operates or would operate whilst the Yugoslav Government will issue a temporary licence to a foreign amateur after consulting the National I.A.R.U. Society (S.R.J.).

It is abundantly clear from an examination of the replies to the questionnaire that European administrations hold widely different views on the question of reciprocal licensing. The majority do not seem to be

(Continued on page 82)

TECHNICAL TOPICS By PAT HAWKER (G3VA)

TVI Check List — The Pi-L Tank Circuit — DL7AB Multiband Aerial — Gigacycle Transistors — Stenode Reception — Frequency-modulator — Fundamental/overtone C.O. — More on Cross-modulation — Audio Compressor — Electronic Keyer

SOME years ago we went on record as stating that " the major problem that has faced amateurs in the post-war period has been the operation of transmitters in close proximity to domestic television receivers." It is perhaps an indication of the extent to which this problem has receded that relatively few new ideas are now appearing on this subject. Admittedly, some of us have licked (we hope) the problem by the simple (?) expedient of moving QTH to within sight of a main television transmitter; there is in fact still nothing like a really strong television signal to mask those remaining harmonics. Then again the almost universal adoption by television receiver manufacturers in recent years of the B.R.E.M.A. recommended intermediate frequencies of 38·15 Mc/s sound and 34·65 Mc/s vision carrier has greatly reduced interference from i.f. breakthrough.

But for those amateurs in the remaining television fringe areas, the problem is still a tough one that keeps many an operator out of his shack during viewing hours. The most successful methods of tackling amateur TVI are now well established and can be found in any of the usual handbooks. But a fresh outlook is always welcome. It was therefore with considerable anticipation that we came across—in *I.R.E. Transactions on Radio Frequency Interference* (May, 1961) (yes, there is a professional journal devoted exclusively to this and allied subjects)—a cogent summary of the most important precautions to be taken in the design of interference-free r.f. power generating equipment. This list was drawn up by E. W. Chaplin who, as Chief of the Laboratory Division of the American F.C.C., has been responsible for tackling interference problems in hundreds of varied types of equipment. The following points have been extracted from his article as being of most interest to amateurs. Although most of them are not new, nevertheless they represent an authoritative and useful check list.

Do not use power greatly in excess of that needed. (This should, but seldom does, go without saying in amateur practice; we might add that an amplifier idling along well within its design ratings is likely to produce far less harmonic output than one in which every stage is hard driven—compare audio hi-fi practice.)

The unnecessary use of high-transconductance (high slope) valves should be avoided as these tend to cause spurious emissions. (Amateur rigs which do, of course, often use such valves should be carefully checked for parasitics.)

The unnecessary use of valves having much better h.f. characteristics than required should be avoided. (This is a rather surprising viewpoint since one would expect a valve with good v.h.f. characteristics to be particularly stable on h.f.)

Beware of the old concept of " one-point " earthing which may be satisfactory for d.c. but which results in long leads and poor bypassing and spurious frequency responses. (This also may make some of us think a bit.)

In screening, consider both the magnetic and electric fields (screening the magnetic field is generally the more difficult); preferably use several stages of screening (e.g. put tank circuits in a screened compartment within the main enclosure); avoid openings or ports and cover any necessary ventilating openings with mesh; use plenty of screws to secure screens; scrape paint from contact edges and avoid insulating washers.

Do not place tank circuits near joints in a cabinet (joints may offer poor screening for the magnetic field); keep tank circuits well within their screens and use small components (since most fields fall off inversely with the cube of the distance, even a little separation can be a great help).

Arrange internal leads and components to avoid induction of high level signals in places where such signals are not required—for example keep the power input cable away from the tank circuit.

Beware of metering and control leads and mechanical components emerging from the main screened enclosure. Earth all screened cables at the point of exit from the enclosure and do not rely on pigtail and similar earthing. Co-axial feed-through fittings are useful in this connection. Bypassed leads emerging from the cabinet should have their filtering near the point of exit with short heavy earth leads, preferably to the cabinet itself.

In coupling out the desired r.f. power, think of the higher harmonics as well as the lower ones. Screened links and Faraday screens can be useful, but the higher harmonics can

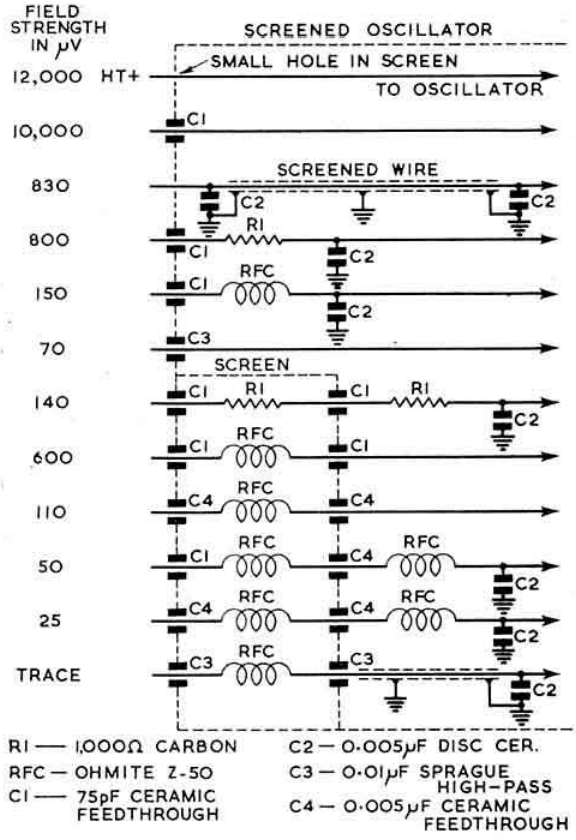

Fig. 1. Comparison of the effectiveness at 80 Mc/s of various methods of bypassing leads emerging from a screened cabinet. Results of tests made some years ago by WIDBM.

still be inductively coupled out unless further filters are fitted.

Chaplin stresses that whenever possible, the full burden of suppression should not be placed on a single screen or single filter. Rudimentary bypassing, screening and filtering before the main filter is worth while. Mains filters are helped by power transformers having an effective screen between windings. Feedthrough capacitors can be very effective.

One final point is worth quoting in full: " Do not meticulously design the major part of the equipment, and then thoughtlessly add some minor auxiliary apparatus capable of far more interference."

In the vitally important matter of bypassing odd leads emerging from a screened enclosure, results of a very useful quantitative investigation were published some years ago by W1DBM but these may be new to some members. The investigations were carried out by placing a small 80 Mc/s oscillator in a screened box and measuring the field strength on an emerging lead subjected to various forms of simple filters. A selection of the results is shown in Fig. 1.

The Pi-L Tank Circuit

The pi-tank circuit has long been the mainstay of anti-TVI output stages (though it is sometimes forgotten that its effective harmonic suppression is not always realized, particularly when feeding a reactive load). A good pi output circuit will suppress second harmonic by about 30-40db, with greater suppression of higher order harmonics. Considerably improved harmonic suppression—to the extent of some 10-15db for second harmonic and more for higher harmonics—is possible by adding an extra *L*-network on the end to form what is becoming known as the pi-*L* circuit. This configuration has been used, for example, in the Collins KWS-1. Now W6KEV comes up with a good deal of design data in " The Pi-L Plate Circuit in Kilowatt Amplifiers " (*QST*, July, 1962). Fig. 2 shows the relevant part of his circuit, though it should be appreciated that for correct operation one needs to gen up on the design philosophy. One reason for using this circuit is to permit a transmitter to be loaded straight into a multiband aerial without qualms; this brings us naturally to our next topic.

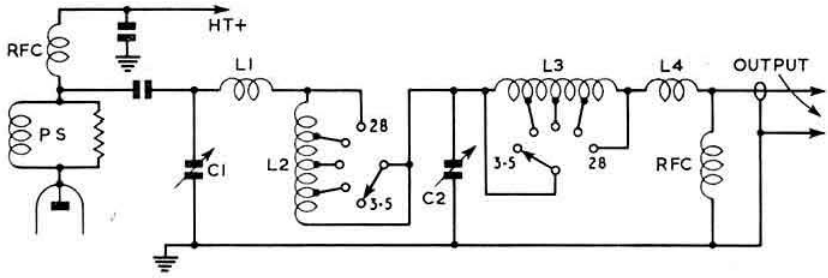

Fig. 2. Practical form of the Pi-L output network as used in W6KEV's high power rig. Typical values C1 250 pF, C2 0·001 μF. P.S. parasitic suppressor.

DL7AB Multiband Aerial

Multiband aerials are sometimes, by their very nature, susceptible to harmonic radiation; but to judge by the number of stations we work who give " G5RV," " W3DZZ " and " G8KW " as the aerial in use, they meet a real need. A simple all-band aerial which is not very well known in the U.K. is the DL7AB multiband; this is a modified form of Zepp aerial with electrical loading to bring a single 40-metre length of wire into resonance on all bands from 3·5 to 28 Mc/s. The loading, with varying effects on the different bands, uses a technique which is similar to that of G4ZU's FB5 but with a loading coil instead of ferrite beads. Fig. 3 shows the end-fed version with the coil placed two metres along the top. The coil consists of five turns of wire to a diameter of 50 mm. If space is available for two 40-metre spans, a centre-fed version can be made by connecting a duplicate aerial to the other Zepp feeder.

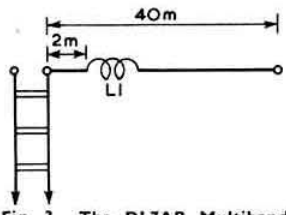

Fig. 3. The DL7AB Multiband aerial for 3·5 to 28 Mc/s. L1 is 5 turns, 50 mm. diameter.

Gigacycle Transistors

Recently, at the Mullard Research Laboratories, near Redhill, we were able to watch demonstrations of u.h.f. transistors working comfortably at around 1 Gc/s (1000 Mc/s) in an experimental transmitter-receiver link. It was stated that investigations have shown that the alloy diffusion technique as used in the OC171, AF117 and similar transistors is readily adaptable to u.h.f.

At 1 Gc/s an alloy diffusion transistor can give a gain of 10-15db at a noise figure of only 6db. We also saw these transistors fitted to u.h.f. television tuners for Bands IV and V (adapted from valve tuners originally using the PC88, PC86 combination); the transistor version was stated to have a noise figure at least 4db better than the valve tuner.

But for those who want really low noise reception, there is nothing quite like the low temperature travelling wave masers, also under development at the Laboratories, which get down to a noise temperature of 10°K. One of these masers is being used at Goonhilly in the transatlantic TV receiving equipment.

Stenode Reception

Most of our normal domestic broadcast receivers have i.f. transformers which, in order to provide sufficient selectivity, are designed to give considerable sideband cutting on the higher audio frequencies. The fall-off in treble response is made good (at least to some extent) by providing treble-rise tone correction in the a.f. circuits. This in essence was the principle of the " stenode " circuits for broadcast reception first introduced by Dr. J. Robinson in 1929. But he went a lot further than the ordinary i.f. transformer, and in order to achieve very high i.f. selectivity introduced the quartz resonator — the forerunner of the modern crystal filter. In *Wireless World* (July, 1962), G6XN shows how the original stenode principle can still be made excellent use of in amateur communications receivers fitted with the popular type of i.f. filter using a single crystal. The bandwidth of signals passing through this type of filter—about 200 c/s for 6db down—is generally considered as much too narrow for satisfactory telephony reception unless damped down by a high impedance output. But the slope of such a filter is by no means the ideal vertical and G6XN states that a very simple tone-correction filter inserted between the normal linear

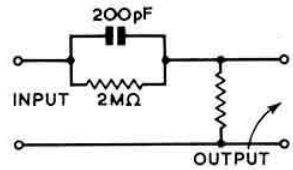

Fig. 4. G6XN's tone-correction network for "stenode" reception through a crystal filter.

detector and first a.f. amplifier is sufficient to permit good reception of a.m. and s.s.b. signals, and even allows acceptable musical reproduction. Ideally, the treble-rise characteristics should exactly match the treble loss due to the slope of the selectivity curve, but the constants shown in Fig. 4 are said to be generally applicable. G6XN's article should be consulted for a very full account of the principles involved.

Simple Frequency-modulator for V.H.F.

G8WV and others have recently reminded us of the advantages of n.b.f.m., and this is a mode of transmission which should not be overlooked. Several simple methods of frequency-modulating crystal oscillators have been developed in recent years. One of the most attractive depends on the voltage/capacitance characteristics of crystal diodes. Fig. 5 shows details of a simple modulator by PA0LOD (*Electron*, April, 1962) providing sufficient deviation for a 6 or 8 Mc/s crystal when multiplied up. The modulating diode (CR3) is a junction type OA201 although there is a suggestion that the more readily available germanium point contact type OA85 can sometimes be used. The special "varicap" diodes would be ideal. Clipper diodes CR1, CR2 are stated to be identical silicon diodes but no type numbers are specified.

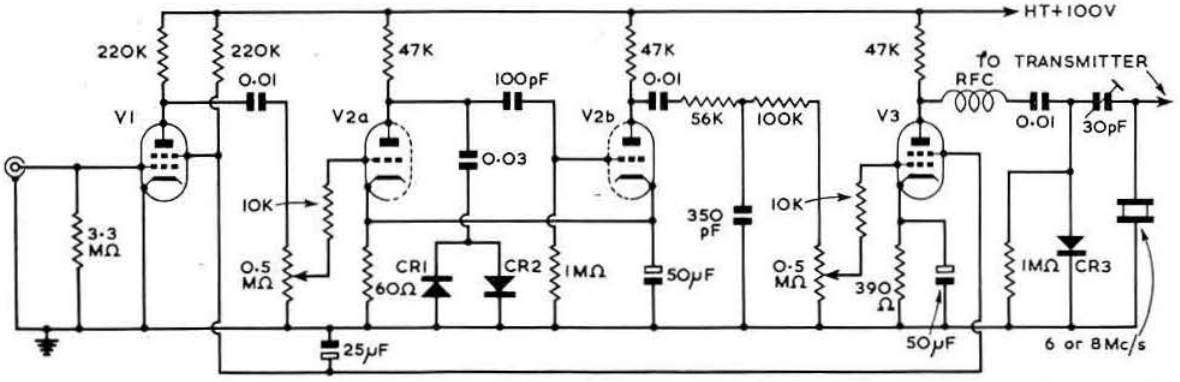

Fig. 5. PA0LOD's frequency-modulator for v.h.f. and u.h.f. operation. V1 6AH6, EF91 or EF80; V2 6J6, ECC91 or ECC82; V3 6AU6, EF93 or 6BA6.

Fundamental/Overtone Crystal Oscillator

A simple oscillator using FT243-type crystals which can be made to oscillate readily both on fundamentals and on odd harmonics is described by W4GEB in *QST* (July, 1962): see Fig. 6. When the tuned anode circuit is resonated to odd harmonics (third, sometimes fifth and occasionally seventh, depending on the characteristics of the particular crystal), it oscillates in the overtone mode. At other settings of the capacitor it reverts to fundamental oscillation (provided there is a high L/C ratio); it will also oscillate at the fundamental by tuning the circuit to the fundamental. An occasional crystal may tend to oscillate in both modes at the same time, causing modulation to appear on the signal. For sluggish crystals, C2 should be reduced in value but this may stop the crystal oscillating on its fundamental when tuned between harmonics. By switching crystals and anode circuits a wide range of frequencies can be covered.

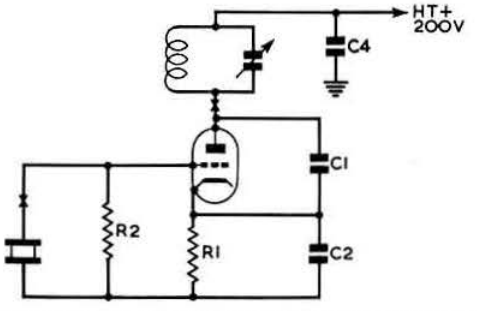

Fig. 6. W4GEB's combination fundamental and overtone crystal oscillator. C1, 27 pF (S.M.); C2, 180 to 500 pF (S.M.); C4 0·005 μF (ceramic); L1/C3 as required; R1, 470 to 2200 ohms, ½W.; R2, 68K ohms, ½W. The valve in the original circuit was the triode section of a 6CX8 but other types are probably suitable. Switches may be inserted at points X for frequency changing. A simple converter for 7, 14 and 21 Mc/s using a single 3·5 Mc/s crystal with this arrangement appears in QST, August 1962.

More on Cross-Modulation

Have you noticed that just as soon as one receiver design problem is solved another comes along to take its place? Back in the 'thirties we used to worry about sensitivity and signal-to-noise ratios; today even the average domestic TV tuner has a better noise figure on Band I (5-7db) than we could use on the h.f. bands. Then in the early 'fifties the accent was on better selectivity—now the techniques (cascaded bandpass filters or mechanical filters) are well enough known even if financial or other considerations prevent us from utilising them (incidentally, it is said that 300 c/s mechanical filters are now selling in the United States for as little as $10—£3 10s.). Then came the search for better stability bringing a happy smile to those who had stocked up with surplus crystals. Nowadays the number one slot seems to be firmly occupied by the problem of reducing cross-modulation and blocking, to allow our receivers to cope better with the chap down the road and the terrific signals which come in on short skip. Compulsory reading, for those who want to keep abreast of what is being done in this field, is an article by W0DAN of Collins in *QST* (June, 1962) which provides a great deal of solid information on the relative susceptibility to cross-modulation effects of various front-ends. He shows that two recent trends—the bandpass-tuned front-end and transistor front-ends—both incur considerable penalties in this respect unless additional precautions are taken. Of the front-ends investigated, that using a low-noise triode r.f. amplifier (type 6386 with vari-mu characteristics) followed by a triode mixer (6U8A triode section) came out best. In fact the 6386 can be used in a bandpass front-end without greatly impairing cross-modulation characteristics. The triode is actually operated with a voltage "gain" of 0·8, overall stage gain of four coming from the coupling transformer step-up ratio of 1 : 5. Because the 6386 anode impedance is only 200 ohms and because there is no voltage gain, neutralization is unneces-

sary. An i.f. trap is inserted in the oscillator injection lead to reduce the effects of white noise.

W0DAN considers that while it is now easy to obtain excellent sensitivity with transistors there is much greater risk of cross-modulation than with valves: several methods of minimizing these effects are suggested including the provision of a 20db attenuator pad in the aerial lead which can be switched into circuit in the presence of strong signals.

Back in 1945 it so happened that we made a good deal of use of a Philips commercial communications receiver in its home town of Eindhoven. Since then we have always had a high regard for these receivers, though their price tags are not written with amateurs in view. One of the latest of this line of receivers—the 8RO501—is described at length in *Philips Telecommunications Review* (March, 1962), and here again one finds a good deal of emphasis placed on the importance of cross-modulation and how it can be minimized. This receiver uses an EF85-EF85 -ECH81 (to 2455 kc/s)—ECH81 (to 455 kc/s) front end. With two pentode r.f. amplifiers it is particularly important that the pattern of gain in these stages is kept under careful control.

A receiver design for relatively simple home-construction which incorporates a number of forward-looking ideas is described by G3BDQ in *Short Wave Magazine* (June, 1962). A crystal controlled h.f. oscillator is used in conjunction with a Nuvistor 6CW4 triode mixer and no r.f. amplifier is used. The tunable i.f. is 1·5 to 2 Mc/s and other stages include two EF183 i.f. amplifiers (one stage with twin top-coupled i.f. transformers), a 6CW4 *Q*-multiplier and a 7360 product detector.

Signal Powered Audio Compressor

Audio compression—as distinct from audio clipping—has been mentioned several times in *T.T.* (see for example June, 1961). This technique has a number of applications in both communications and in home recording. One example—combining both these fields—is in the recording of amateur signals off the air. Details of a simple compression unit (Fig. 7), which is entirely powered by the audio input

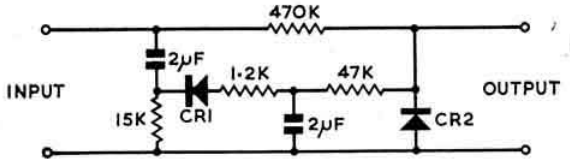

Fig. 7. Signal powered audio compressor. CR1 and CR2 were IN64 in original but OA70 could be used.

signal, were given in *Electronics World* (March, 1960) and turn up again in *Electron* (February, 1962). This device will hold audio output steady to within about 1db for input changes of the order of 20db, provided that you do not mind losing a maximum of about 60db in the process (this loss can be made good in a subsequent amplifier, though no separate amplifier would be needed if, for example, the device was inserted between the output of a receiver and the input to a domestic tape recorder). The audio input can be from about 0·2 volt to 6 volts; the output remains constant at just under 5 mV. In the example shown, the attack time is 2·8 milliseconds and release time 0·1 second. Such a unit would also

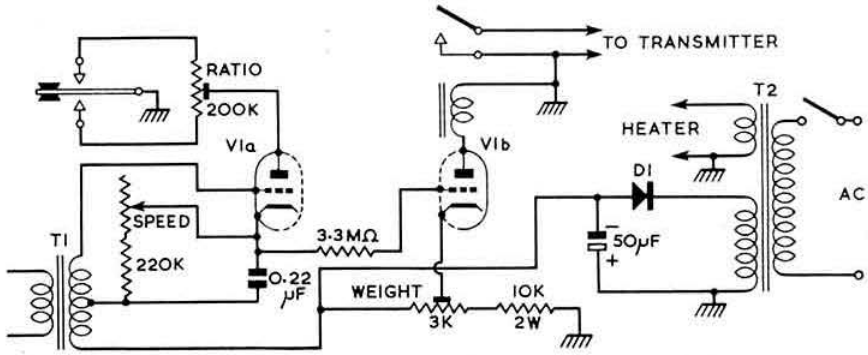

Fig. 8. K3KMO's electronic keyer. Note that the positive side of the power supply is connected to the chassis. T1 is a centre-tapped push-pull output transformer (secondary not used). T2/D1 to provide output of about 120 volts at 20 mA, and 6·3 volts at 0·3A.

of course be most attractive for public address work where the microphone output is liable to vary much more than in normal amateur close talking techniques. It might also prove suitable in a receiver as an a.g.c. system for s.s.b. reception.

Simple Electronic Keyer

Valve electronic keyers have varied from the simple to the ultra complex. The circuit shown in Fig. 8 is W4UWA/K3KMO's version of an old favourite (from *73 Magazine* June, 1962). It uses a twin triode (6SN7, 12AT7, 12AU7 are all said to be suitable). Basically V1a is a saw-tooth oscillator; V1b is a limiter to provide a roughly square-wave output. The only "rare" component is the high impedance (5000 ohm or above) high-speed relay pulling in at about 3 mA.

Letraset Instant Lettering

LETRASET Instant Lettering is a system primarily designed for use in the preparation of copy for printing processes, but it has been found to give excellent results when used on metal panels having a smooth finish. The system functions on the principle of the instantaneous dry transfer of letters from the type sheet to a smooth surface by pressure only. In the case of the 10 pt. lettering which is suitable for use on small front panels this pressure can be readily applied by a ball point pen. If desired the lettering can be varnished to give greater durability where markings may undergo considerable handling.

The lettering is available in black, white, red, blue and yellow in numerous type faces, the complete series comprising some 160 different sheets varying in letter size from 1½ in to 8 pt. The contents of the various sheets are arranged to provide more of the letters in frequent use. In the example mentioned, approximately one-third of a sheet purchased for 7s. 6d. was used to complete the panel lettering.

Letraset Instant Lettering is available from the larger stationers and in London may be obtained from T. H. Nicol Ltd., 172 Bishopsgate, E.C.2, and from the Clover Press, 66 Great Russell Street, W.C.1.

Special Event Station

DURING the weekend September 14-16, 1962, Lymington and District Amateur Radio Society will be operating **GB3LY** at the Hordle Church Fete at Everton Road, Hordle, Lymington, Hants. Equipment will include a DX100 transmitter with SB10 adapter and a Mosley TA33 Jr aerial. Operation will be principally on 7, 14 and 21 Mc/s using a.m., c.w. and s.s.b. Special QSLs will be used to confirm contacts. Cards for GB3LY may be sent direct to G3JAF or via the R.S.G.B. QSL Bureau.

A G.D.O. Plus

By GEORGE W. McDONALD (G2OX)*

WHEN planning the complete re-construction of the writer's amateur station an opportunity was taken to consider the disadvantages of a much used grid dip oscillator originally built in 1952. The instrument was mains operated using a separate power supply and this required the use of a long trailing power lead. Modernization suggested the use of transistors, but it was thought that some danger of damage would be likely if the unit was subject to heavy r.f. fields, an almost inevitable possibility in the shack. The wide frequency coverage, 200 kc/s

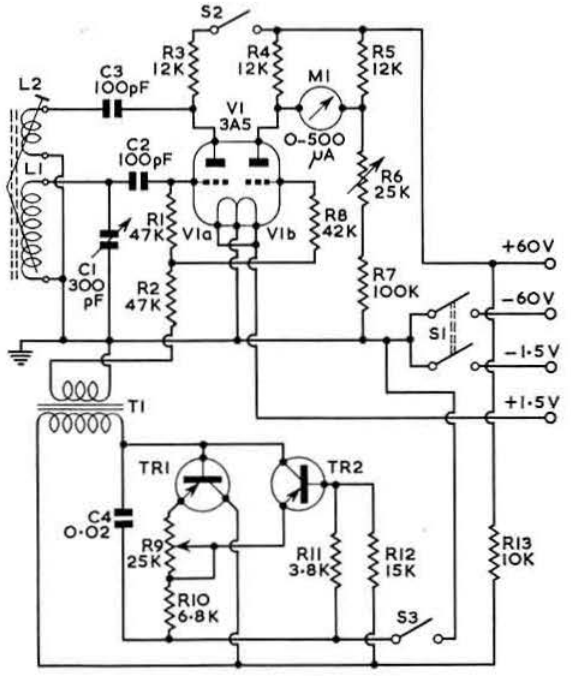

Fig. 1. Circuit diagram of the battery-operated g.d.o. described in the text.
C1, 300 pF variable; C2, 3, 100 pF silvered mica; C4, 0·02 μF paper tubular; M1, 0-500 μA m.c. meter, 500 ohms resistance; S1, double pole on/off toggle switch; S2, 3, single pole on/off toggle switch; T1, see text; TR1, 2, " red spot " transistors, see text; V1, type 3A5. All resistors ¼ watt rating. L.T. is supplied by a single U2 cell and h.t. by two Ever-Ready type B123 (30 volt) batteries in series. Details of L1 and L2 are given in the Coil Table.

to around 30 Mc/s, also introduced complications with transistor circuits.

The main consideration, apart from light weight, power economy, and small size was sensitivity, and thought was given to the possibility of using battery operated valves. Experiments showed that the grid current of a small battery triode varied from 75 μA to 150 μA over the tuning range of 1·7 to 6 Mc/s. As this current would have required a very delicate meter as an indicator of resonance, the possibility of using a d.c. amplifier was investigated. The circuit finally took the form of an oscillator and a d.c. amplifier using a single double triode valve.

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Circuit

A double triode valve type 3A5 was selected as the basis of the instrument. This is an American type but appears on the list of most valve suppliers at low cost. One section of the valve operates as a conventional tuned grid oscillator while the other section is used as a d.c. amplifier. This amplifies the voltage developed across the oscillator grid leak and is connected to form a bridge circuit with a 0-500 μA meter as an indicator. This type of meter is obtainable on the surplus market at a reasonable price and will stand quite rough usage without damage to the movement. Thus having one valve to do two jobs and an inexpensive meter goes a long way towards keeping the cost low. Power consumption is also low. The h.t. drain is about 2-3 mA with 60 volts h.t. supplied by a couple of hearing aid batteries connected in series. The valve heater is centre tapped for use on a 1·5 volt or 3·0 volt supply. The writer uses 1·5 volts from a U2 torch cell which supplies the required current of 0·22 amp with no sign of strain even if used continuously for long periods. The batteries are small and can be fitted almost anywhere in the cabinet. During testing the l.t. cell lasted about two months and the h.t. cells showed 48 volts when tested after six months' use. Oscillation began to get erratic on the higher frequencies when the h.t. fell to about 35 volts.

The sensitivity is such that when the g.d.o. was operated near a 1 Mc/s crystal oscillator the meter showed a distinct " kick " on the 16th harmonic of the oscillator output.

The d.c. amplifier, not being a common circuit, is perhaps worth detailed description. R5 with variable R6 and R8 form the top two arms of the bridge. R4 and V1b form the lower two arms. In operation, with V1a oscillating, V1b passes current due to its grid being connected to V1a grid leak. By adjusting R6, the current through the bridge balance indicating meter M1 can be made to read somewhere about centre scale. Any variation in the amplitude of oscillation of V1a will change the d.c. voltage applied to V1b grid. This changes the current through the valve and causes the reading on the meter to change. A change of a few microamps in the grid current of V1a causes a much larger change in the reading on the meter. Incidentally it matters little which way the meter deflects so long as the deflection is large enough.

An added facility, that of a sensitive absorption wavemeter, is provided by breaking the h.t. supply to the oscillator. The grid/filament circuit of the valve now acts as a rectifier and indication is as before, due to the grid current through the grid leak of V1a applying a voltage to the grid of V1b. This facility allows the instrument to be used to check a circuit which is generating r.f. such as an oscillator or amplifier of a transmitter.

Having reached this stage of development it was thought

COIL TABLE

Range	L1	L2
2·8-5 Mc/s	Inductance 18 μH—commercial receiver oscillator coil mounted inside an octal valve base.	
5-11 Mc/s	Inductance 3·9 μH 8 turns 20 s.w.g. enam. wire close wound.	5 turns 36 s.w.g. enam. wire close wound and spaced ⅛ in. from L1.
9-18 Mc/s	Inductance 1·2 μH 3 turns 20 s.w.g. enam. wire spaced ⅛ in. between turns.	3 turns 36 s.w.g. enam. interwound with L1.
18-28 Mc/s	Inductance 0·8 μH 2 turns 20 s.w.g. enam. wire spaced ⅛ in. between turns.	2 turns 36 s.w.g. enam. interwound with L1.

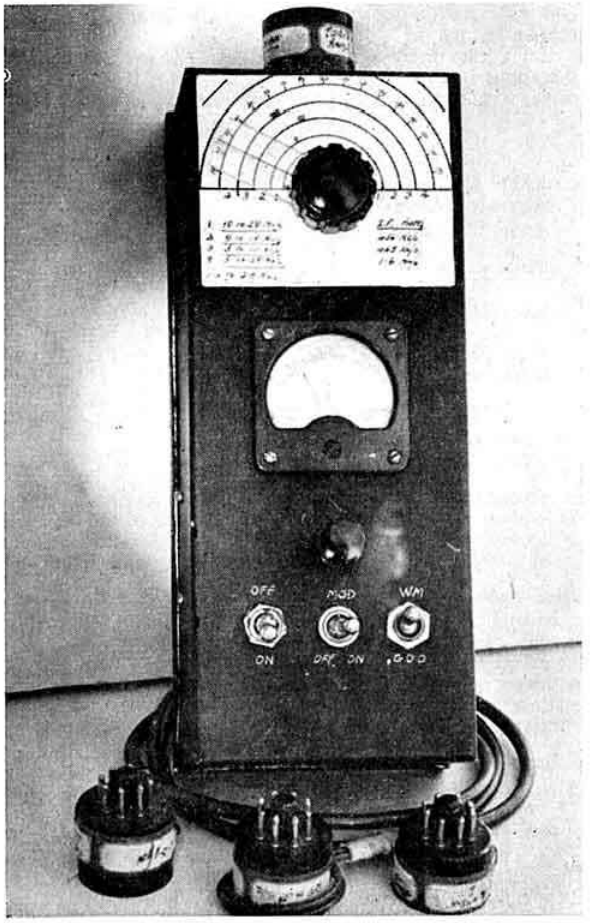
All h.f. range coils are wound on octal valve bases. Coils for lower frequency ranges down to 200 kc/s are made from commercially available coils mounted inside octal valve bases. Should any coil fail to oscillate, the connections to L2 should be reversed.

that if the oscillator could be modulated its usefulness could be even further increased. It was in this respect that the transistor was considered to come into its own. Another valve would have caused excessive battery drain and larger batteries would have defeated the object of this design.

The modulator is a variation of a two transistor negative resistance oscillator which recently appeared in the *Technical Topics* feature in the BULLETIN. It is one of the more simple circuits of its type and the component values are not at all critical. The frequency of oscillation is largely controlled by the inductance of the transformer winding. The transformer serves the dual purpose of fixing the modulator tone frequency and coupling the modulator to the oscillator. The transistors employed are manufacturers' surplus " red spot " type but any similar transistor such as the OC70 or OC71 may be used. T1 may be any small transformer which is available in the junk box. The one used by the writer had a primary inductance of 18H.

Construction

The layout used by the writer is made clear in the photograph, the main point to bear in mind being that a g.d.o. must be capable of being held in the hand. The cabinet, if it can be called such, measures 10 in. in length, 4 in. in width, and 3 in. in depth. It takes the form of a chassis with a lid, and can be obtained from any of the firms dealing in such metalwork. The use of 16 gauge aluminium makes cutting of the holes easy with the tools available in the average shack. The job is given a commercial looking finish by using black crackle lacquer. It is the writer's firm belief that the amateur could do a great deal more than he does in obtaining a good finish to home-made equipment. If a piece of equipment is worth the time spent in building it, it is surely worth the short time required to give it a good finish.



The g.d.o. described by G2OX with some of the coils wound on octal valve bases.

The wiring is simple since all components are mounted on a small tag board, but the tuned circuit calls for short wiring if good results are to be achieved at the higher frequencies.

By using commercial coils the constructor will save the trouble of having to wind his own, but as some amateurs like such exercises details have been given in the Coil Table which will save some time and calculation. A copy of a current edition of *Wireless World Radio Data Charts* will give all the details required to wind the coils on the bases of discarded international octal valves.

The only point likely to give a little trouble is the values of the bridge circuit resistors if the meter used departs much from the internal resistance of the one specified. In such a case, the best plan is to experiment with various values of R4, R5 and R8 until the meter can be set to centre scale at a point about the mid-travel on variable resistor R6.

Calibration of the frequency is made by reference to a calibrated receiver.

Operation

As a g.d.o. the instrument operates conventionally, and its uses are so familiar that they will not be described here but details are given in the Measurements Chapter of *The Amateur Radio Handbook*.

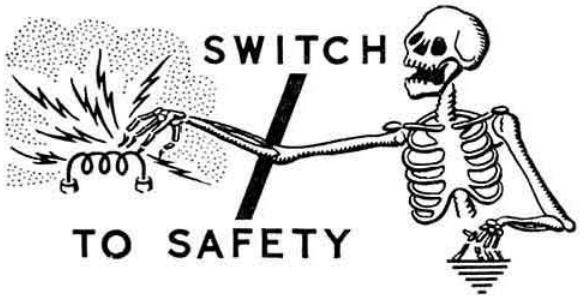
Its use in adjusting aerials to resonance is not quite so well known. Here it is a case of coupling the oscillator to the aerial very loosely and tuning the oscillator until a dip is observed on the meter. The resonant frequency of the aerial is then read from the oscillator dial.

The modulation facility, although not an essential one, will be found useful when re-aligning the tuned circuits of a receiver. It was for this purpose that the coil covering 465 kc/s was provided. Anyone who has tried to re-align a receiver with an unmodulated oscillator and no S meter will understand how useful a modulated r.f. source can be.

The other feature, that of an absorption wavemeter, is useful when measuring circuits which are generating r.f. power. The ambiguity of fundamental or harmonic does not arise using the absorption circuit since it only reacts to fundamental frequency. The instrument operates in this manner when the h.t. to the oscillator V1a is broken. The sensitivity is not so great as when using the instrument as a g.d.o. but is still good for most purposes.

If a capacity bridge can be borrowed, the tuning capacitor can be calibrated in pF. A calibrated capacitor is always useful.

The result is a multi-purpose instrument, a g.d.o. with several additional facilities, all of which should find a place in the work of the amateur.



Lamps as R.F. Output Loads

By G. R. JESSOP, A.M.BRIT.I.R.E., ASSOC.I.E.E. (G6JP)*

FROM time to time most amateurs wish to know the actual power output from a transmitter to ensure that it is operating at its correct efficiency. Setting up a valve as an r.f. oscillator or power amplifier according to a published design or the information in the manufacturers' data and

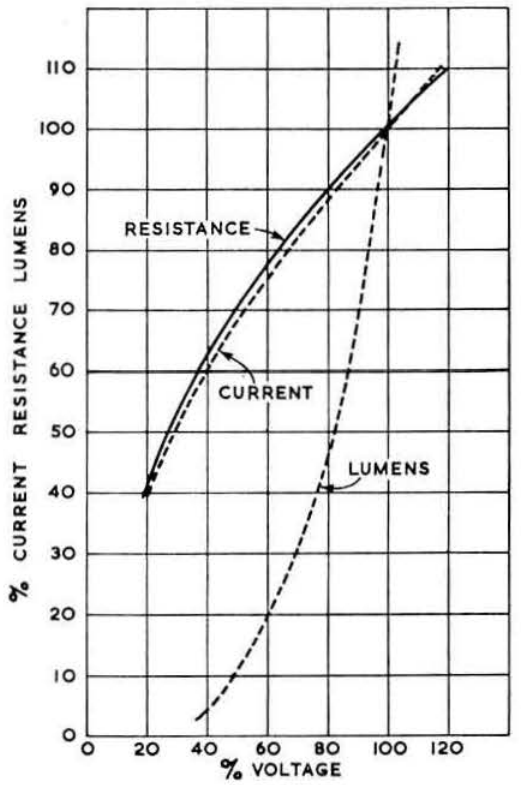


Fig. 1. Characteristics of gas filled lamps.

assuming that the stated power output will be automatically achieved is not sufficient.

Probably the most practical and inexpensive method of measuring r.f. power output is to use a two lamp comparative method, where one lamp is connected to the equipment and the other to a variable source of power. It is essential that both the lamps should be of the same type and power rating and it is desirable that before use the consumption data is recorded for both lamps so that allowances may be made for any differences. The actual difference between two lamps of the same type and rating is unlikely to be sufficient to make calibration essential for practical purposes but is necessary for those who wish to be as accurate as possible.

As may be seen from the typical curves shown in Fig. 1 the light output from a lamp varies rapidly with changes of voltage or current and it is important therefore that direct

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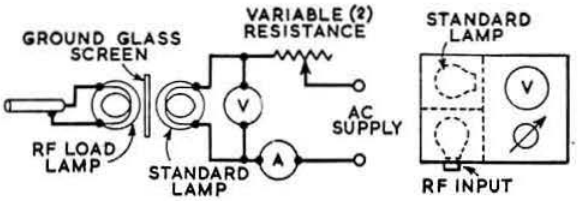

Fig. 2. (a) Circuit arrangement of the two lamps. (b) Suggested layout. An effective " ground glass " screen may be made by using a sheet of Perspex, one side of which has been roughened with a household abrasive such as Vim. Suitable rotary variable resistors are available from P.X. Fox, Curtis and Berco.

comparison of the output is made. This is best arranged by fitting the two lamps side by side into a box having a ground glass screen over the lamps and with a dividing panel between the two lamps. The two lamps will then each illuminate the two separate halves of the ground glass screen.

Matching is easier using a ground glass screen instead of viewing the lamps directly and this is particularly true at the higher filament temperatures. When the lamps are enclosed in the box there is also much less interference by stray room lighting. A suitable arrangement is shown in Fig. 2. A variable power supply for the standard lamp is required and either a voltmeter and ammeter or a voltmeter and a calibration curve of the lamp is necessary for making measurements.

If a Variac or other iron-cored device is used to control the applied a.c. voltage instead of a resistor it will be necessary to take account of wave-form error by using a moving

TABLE I

LAMP CLASS	Volts	Watts	Amp	R (ohms)
Aircraft (General)	24	6	0·25	96
" "	28	18	0·645	43·5 (*a*)
" "	24	10	0·415	58
Trolley Bus	35	15	0·43	81·5
" "	35	36	1·0	36 (*b*)
Car Side	24	12	0·5	48
" "	16	6	0·375	43
Small Projector	50	25	0·5	100
Indicator	16	3	0·188	85
"	12	2·2	0·183	65·5

(*a*) Two in series for 36 watts at 87 ohms
(*b*) Two in series for 72 watts at 72 ohms

iron voltmeter and ammeter which read true r.m.s. values. This point may be a trifle academic in view of the inherent inaccuracies of this form of power measurement, but it may be of interest to those seeking the highest possible accuracy.

Alternative Single Lamp Method

In this case the lamp is supplied with power either from the equipment or a measured source, the light output being observed by means of a selenium photo cell and microammeter or a photographic exposure meter. The procedure is then as follows:

(i) First supply r.f. power to the lamp from the transmitter.
(ii) Take a reading of the light output using the indicator (selenium photo cell and microammeter or exposure meter) at a suitable and measured distance.
(iii) Next, supply the lamp with a measured source of power, with the indicator at the same distance as before, increasing the light output until the indicator reads the same as in step (ii). The actual power output can then be computed from the calibration data of the lamp being used.

(*Continued on page 78*)

Single Sideband

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

OVER the last two or three years there has been a marked increase in the number of amateurs using the single sideband method of transmission and reception. In some cases the equipment is commercially manufactured, in others home constructed to designs that have been published in various Amateur Radio magazines.

In the main, the former c.w. and a.m. operators have succeeded in grasping the new s.s.b. techniques in regard to the correct setting up and control of their new equipment and in transmitting clean single sideband signals with acceptable sideband and carrier suppression. This does not imply, however, that all s.s.b. operators are fully conversant and completely "at home" with the function and mode of operation of each basic section of the transmitter they are operating. This applies particularly when the technique is something unfamiliar that is peculiar to suppressed carrier working.

The generation of an r.f. single sideband signal is inherently a frequency translation process in which the voice frequencies are heterodyned, either with the v.f.o. or a crystal controlled oscillator (or a combination of both methods) and the output taken from the frequency changer stage—more commonly referred to as the mixer—prior to final amplification with class A or class B valves operating over the most linear part of their characteristics. This circuit function is more readily understood because a heterodyning or mixing process has been used by all amateurs for many years in their super-heterodyne receivers.

In regard to the more specialized mixing process in which the initial carrier frequency is modulated with the audio output to produce an a.m. double sideband signal, together with suppression of the carrier, there is no familiar background and the function and correct operating conditions are not so easily understood.

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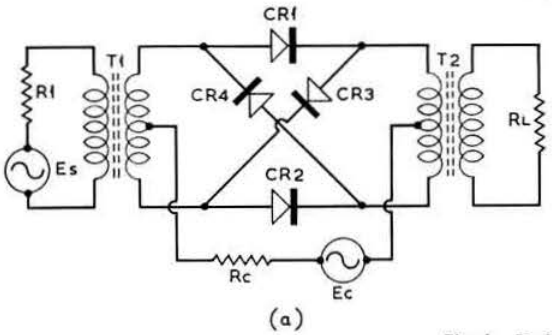
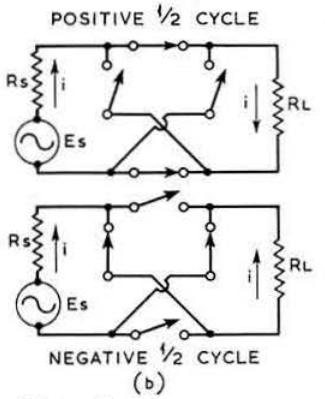




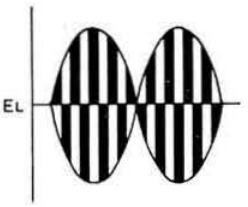


Fig. 1. Basic ring modulator circuit.

Single Sideband Balanced Modulators

The r.f. sideband is obtained by combining the voice signal amplified in the audio stages with an r.f. carrier wave in an amplitude modulator. Modulators may take a number of forms but can be grouped under two main divisions:

(i) those in which the modulation is dependent on the polarity of the modulating signal;

(ii) those where the modulation is dependent on the instantaneous waveform of the modulating signal.

For practical purposes it is more convenient to group modulator circuits in three categories, based on the circuit components. These are

(i) rectifier modulators;

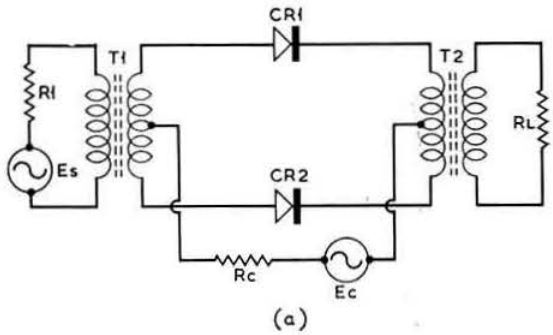
(ii) multielectrode thermionic valve modulators;

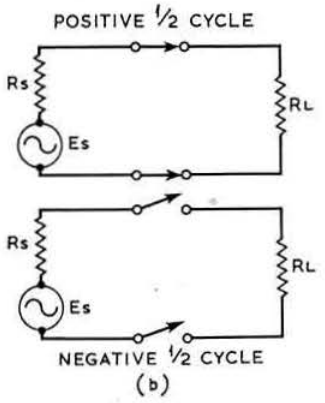
(iii) non-linear reactance modulators.

Each group has its advantages and disadvantages and these control the extent of their use. Because one of the characteristics of a modulator is frequency changing or frequency translating, this type of modulator is used in the frequency changing portion of a single sideband exciter.

Rectifier Modulators

Rectifier modulators have several advantages which make them particularly useful for single sideband generation. Their great advantage is high stability in comparison with





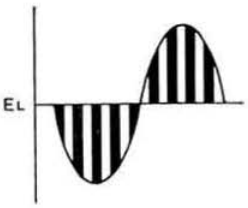


Fig. 2. Basic series modulator circuit.

thermionic valve modulators. They require no heating elements and therefore no power is required and no heat has to be dissipated. They can be made quite compact, have long life, and require little maintenance.

Rectifier modulators may be one of three general types: ring, series, or shunt. These type names refer to the manner in which the diodes are connected in circuit. In all circuits the rectifiers are made to work like switches by using a large r.f. switching signal which greatly exceeds the audio signal level. These modulators are almost invariably connected as balanced modulators so that as nearly as possible there is no output of the r.f. switching voltage in the modulator output circuit.

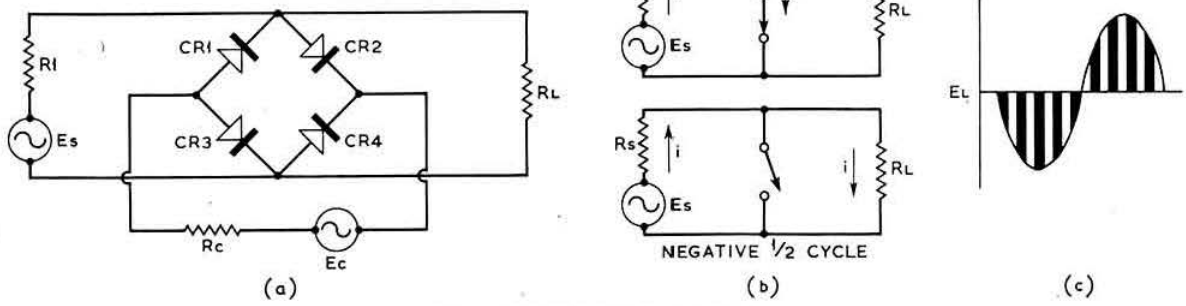


Fig. 3. Basic shunt modulator circuit.

The basic circuits of the ring, series and shunt modulators are shown in Figs. 1(*a*), 2(*a*), and 3(*a*). It is assumed that the rectifiers are capable of switching at zero voltage from an infinite back resistance to a zero forward resistance and back again; the circuits may then be represented by the equivalents shown in Figs. 1(*b*), 2(*b*), and 3(*b*). These equivalent signal circuits are shown for any half-cycle of the carrier voltage, with switches shown in place of the rectifiers. Practical rectifiers are not ideal, but have a finite forward and backward resistance. If it is assumed that the carrier frequency is several times that of the input signal, the resulting output waveforms are as shown in Fig. 1(*c*), 2(*c*), and 3(*c*). The output of these modulators consists of a series of pulses whose polarity and repetition frequency are determined by the switching or carrier voltage, and whose amplitude is controlled by the input audio signal. A spectrum analysis of these output signals reveals the presence of an upper sideband and a lower sideband displaced about the switching or carrier frequency. A similar set of sidebands is placed about the second harmonic of the carrier frequency and some other undesired products higher in frequency.

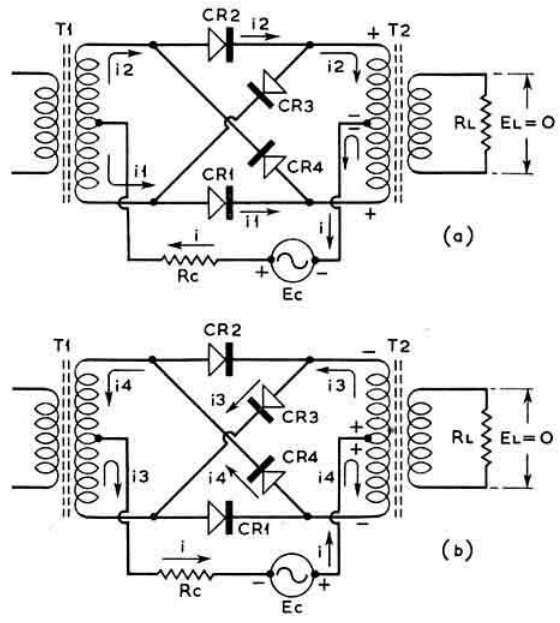


Fig. 4. Ring modulator carrier current paths.

The ring modulator has the highest efficiency, being capable of twice as much output voltage as the shunt or series modulator. Where carrier balance is important, a split ring modulator may be used in which it is possible to balance independently the two sets of diodes. The shunt modulator has the unique ability of being able to handle input and output terminations of the unbalanced, one-side-grounded type.

Rectifier balanced modulators are capable of high performance, but if they are to retain this performance for long periods of time, they must be carefully made of good quality accurately matched components. Initial carrier balance exceeding 40db may be readily obtained, and the level of third order intermodulation products can be held to 50db below the desired sideband output signal.

The equivalent circuits shown in Figs. 1, 2 and 3 do not show the carrier balancing action of the modulators. This action may be analysed from the basic circuits shown in Figs. 1(*a*), 2(*a*), and 3(*a*). Using the ring modulator as an example, the carrier currents may be as shown in Figs.4 (*a*) and 4(*b*). Assume that the carrier generator voltage is such that CR1 and CR2 conduct. The current flow will be through R_c, T1, CR1 and CR2, T2 and back to the generator. The current through the two windings of the output transformer T2 are out of phase and will cancel. On the next carrier half cycle, CR3 and CR4 conduct and the phases of all currents are changed by 180°. The output currents are again out of phase. Therefore, no carrier voltage appears across the output load, R_L. Carrier currents may be similarly traced in the shunt and series circuits to show the balancing action of the carrier currents.

The carrier frequency can be suppressed or nearly eliminated by the use of a balanced modulator. The basic principle in any balanced modulator is to introduce the carrier in such a manner that current at the carrier frequency in the output circuit cancels out. It is the property of all modulators that the output consists of a pair of sidebands symmetrically disposed on either side of the carrier frequency. Since the

(*Continued on page 70*)

Beacon Station GB3GEC

An account of the first results achieved by the experimental Beacon Station operating on 431·5 Mc/s

By G. M. C. STONE, A.M.I.E.E. (G3FZL)*

IN the November 1961 R.S.G.B. BULLETIN details were given of the beacon station operating from the M-O Valve Co. Works at Brook Green, Hammersmith. As a reminder, this beacon is operating on 431·5 Mc/s with an effective radiated power of 5 kW beamed on to The Hague in Holland where a receiver is recording the signal automatically. Experimental transmissions commenced on January 1, 1962 as planned and since then, as explained by Mr. Gibson (B.R.S.1224) at the 1962 International V.H.F./U.H.F. Convention in London, the transmitter has proved to be very reliable except for the ingress of soot in the air-cooling system which caused the 4X250B valveholders to track over.

Details of the first results have been received from the Physics Laboratory of the National Defence Research Council covering the period February–April 1962. The receiving equipment at present consists of a crystal controlled

Average signal-level at receiver-input in μV	Percentage of the observation time		
	February	March	April
0·1	94·0	98·6	95·1
0·2	64·3	81·4	76·9
0·3	23·0	39·3	35·3
0·4	3·5	9·6	13·4
0·5	0·16	3·2	7·4
1	0·0	0·0	4·2
3	0·0	0·0	2·9
5	0·0	0·0	0·3

GB3GEC Transmitter 431·5 Mc/s: Percentage of observation-time the signal was above the level indicated in left-hand column. Supplied by Physics Laboratory of the National Defence Research Council, The Hague.

low-noise converter (output on 150 Mc/s) followed by a low-noise tunable triple superhet. An i.f. bandwidth of 4 kc/s is normally used. A chart recorder is connected to the amplified a.g.c. voltage and the various circuits are so designed as to give an approximately logarithmic response of the recorder. The lowest signal level which can be reliably recorded is slightly under 0·1 μV at the receiver input. The mains supply for all receiving gear is obtained from an electronically stabilized mains power supply unit which keeps the mains voltage within approximately 0·1 per cent of the nominal value independent of slow or transient amplitude variations and/or frequency changes on the input side. So far there has been no need to use automatic frequency control because the overall frequency stability has proved to be somewhat better than 1^1 in 10^6 over 24 hours. The aerial is a half-wave dipole with a disc reflector located at the focus of a 25 ft. steerable paraboloid which has a gain of 27·5db above isotropic. No parametric r.f. amplifier is in use yet although this will be added later.

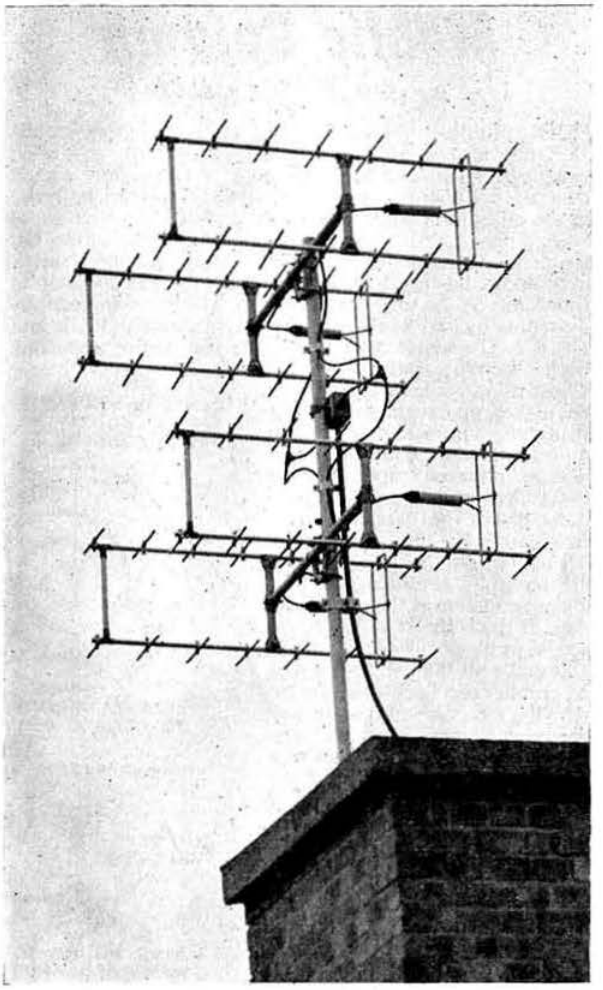
The basic purpose of the transmission is to determine how the signal strength varies with time and to express the result in terms of the signal level exceeded for specified percentages of the total recording time. The total signal loss between the transmitter and receiver can be related to the free space transmission loss for an equal distance, which can be calculated from the following formula:

$$L_{fs} = 36{\cdot}6 + 20\ log_{10}\ fmc + 20\ log_{10}\ ^{d}miles$$

This enables an inter-comparison of data from various systems employing different aerial gains and different frequencies to be made. In this particular case the free space loss over 190 miles is approximately 135db. This figure is greatly increased in practice because of the curvature of the earth but under exceptional tropospheric conditions the signal level may approach the free space level.

An analysis of the signal strengths recorded to date shows that the attenuation has been fairly large; the average signal attenuation for 50 per cent of the time amounting to nearly 80 db in addition to the free space attenuation (assuming an e.r.p. of 5 kW, the calculated free space input signal level is approximately 2,000 μV). For very short intervals (in particular during some night hours) the signal rose to approximately 5 μV which is still some 50 db below free-space level. So far there has not been the slightest chance of the signal

(*Continued on page 86*)



The J-Beam aerial array located above the factory of M-O Valve Co. Ltd., Hammersmith, for the beacon station GB3GEC.
(Photo by courtesy of M-O Valve Co. Ltd.)

*Chairman, Scientific Studies Committee. This article is based upon a communication from the Deputy Director of the Dutch Physics Laboratory of the National Defence Research Council.

Mobile Column

By C. R. PLANT (G5CP)*

THE problem of keeping a log whilst operating mobile has always presented a serious problem and often results in a mass of scribbled notes which require a great deal of deciphering before a correct entry can be made in the official log book. The situation has often been eased when a passenger has been pressed into service as scribe, but frequently unfamiliarity with G.M.T., call-signs and amateur expressions has again made it difficult for the operator to translate. These troubles appear to have been successfully overcome by two well-known mobile operators, G6GR and G8CK. The writer recently had the pleasure of inspecting both mobile stations which, whilst using equipment of different makes, operate in an identical manner. Immediately before a transmission takes place a battery powered tape machine is switched on and an announcement giving the date, time and frequency to be used is recorded. Thereafter all the transmissions are faithfully recorded and it is a simple matter at the end of the day, in the comfort of the home shack, to play back the recording and make up the log. No doubt it would be fairly simple to wire the recorder into the operating relay system so that the tape machine comes into service a few seconds before a transmission is made—a timer relay would do this, and in this way the chance of operating without the record being taken would be avoided.

One of the units seen was completely transistorized and powered by one U2 cell and a 9 volt battery; in kit form the tape recorder, including microphone, costs less than £7—it would appear to be a worthwhile investment. Some people may feel that this form of "log keeping" may not conform exactly to official requirements—possibly it does not do so, but there is no reason why it should not be used as an adjunct to the scribbled notes.

Suppressing Static

Static interference in a mobile receiver often originates in the region of the tyres, brakes and associated parts. Although the writer has been fortunate in never having experienced this form of interference, many people have had great difficulty in clearing it. A recent letter from G3IXO (Bristol) explained the method used by himself, G3LYW (Chippenham, Wilts.) and a number of other local mobile operators, to overcome this problem; this is shown in Fig. 1 and is reasonably self explanatory.

The front end of the car is cured by fitting spiral springs (pressing on to the axle from the hub caps) which may be obtained from the larger garages as a standard fitment. The rear wheels are dealt with without major dismantling; all that is necessary is to obtain four nuts and washers to add to the rear axle " U " type spring holding down bolts, two for either side. Clean the projecting threads of the " U " bolt with a stiff wire brush, take two lengths of galvanized wire about 12 in. long and, at one end of each, crimp on about 2 in. of steel curtain runner. Start at the brake drum where the steel spring is made to press firmly down on the revolving rim and then wrap the supporting wire round two of the " U " bolts, add the washers and bolt up solidly. Any spare wire may then be cut off, making a neat job. After a winter season with its attendant snow and ice, together with the salt which local councils sprinkle on the roads, these rear wheel additions will probably require to be replaced, but the job is such a simple one that most people will take it in their stride.

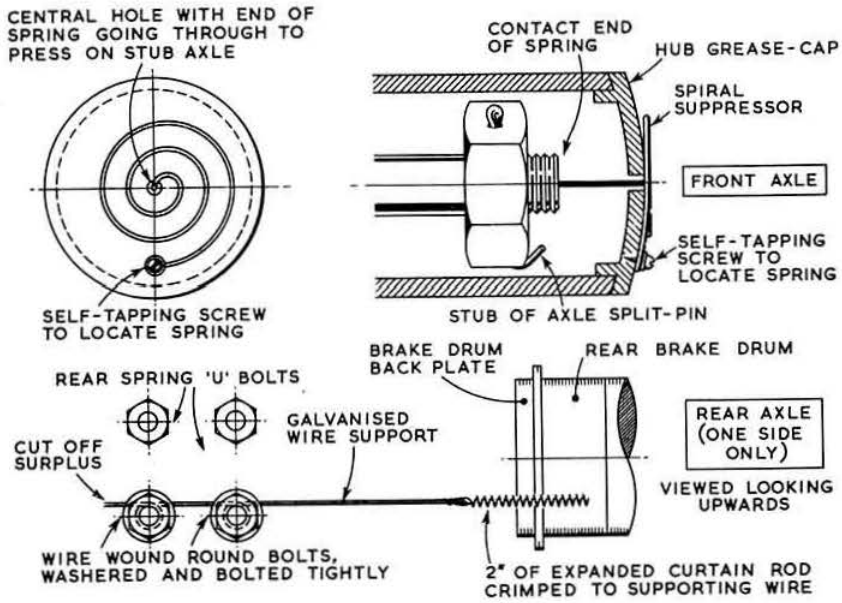


Fig. 1. Methods of suppressing static in a motor vehicle.

Rally Reports

The **A.R.M.S. Mobile Rally** held at Barford St. John, Oxfordshire, on June 24 was preceded by a Barbecue Supper the previous evening when 40 people who stayed overnight at the station enjoyed the hospitality of the U.S. Air Force.

The following day the 144 Mc/s and Top Band stations, G3NMR/A and G3NMS/A, directed a large number of mobiles to the site and in addition an s.s.b. station (G8KW/A) operated mainly on 14 Mc/s. A tombola session took the place of the usual raffle, the two major prizes being a twin-tub washing machine and a C.D.R. rotor. The Mobile Measurements trophy was won by G3LGZ/M who measured the frequency of the Top Band talk-in station " spot on " whilst en route to the rally. The Victor Trophy was awarded to S. Barwick for his series of articles on auto electrics which were published in *Mobile News*. G3BMN/M won the prize for the safest and neatest installation and G3MSS/M a certificate of merit as runner-up. A Cake Weight Guessing contest, a Hat Design Competition (the hats to have an electronic theme), games for the children, demonstrations by the British Red Cross Society of the " kiss of life " resuscitation method and a host of other interesting activities kept everyone entertained during the day. Over 500 cars were counted, about half of these being fitted with mobile equipment. Visitors included Lieut. Colonel James R. Martin (W5UO),

* "*Lynton*," *12 Nottingham Drive, Wingerworth, Chesterfield, Derbyshire.*

A feature of the East Yorkshire Coast Mobile Rally was an excellent exhibition of equipment and metalwork by a number of radio firms. *(Photo by G3HKO)*

Commander Third Communications Group, U.S.A.F.E. The weather remained fine all day with a gusty wind to keep everyone from getting too hot! Congratulations to all concerned for a most successful event.

The **East Yorkshire Coast Mobile Rally** sponsored by the Bridlington and District Radio Society took place on June 24 at the Spa Royal Hall, Bridlington. Of the 120 cars present, 40 with mobile equipment were all fitted with Top Band equipment, one having in addition 144 Mc/s gear—all stations were worked by the " talk-in " station G3GBH/A. Over 400 visitors attended and saw excellent displays of equipment and cabinets put on by radio firms. The Mobile Radio Ramble, which did not attract many entries, was won by G3ESP/M (Doncaster) with a score of 98 points. The prize for the best fitted mobile, judged on appearance, accessibility, safety and bands covered was won by G3JQC (Heckmondwike) driving a beautifully equipped Mini-Morris Minor. In the final check up he was just in front of G2ATS, due to a small fire extinguisher fitted in an accessible spot; another instance of a small item making the difference between first and second placings. A special prize donated by G5GX (Hornsea) for the person most likely to benefit from it—an R.S.G.B. *Amateur Radio Handbook*—was presented to the amateur with the latest call-sign, G3PYB (Filey). Notable visitors included the Regional Representative, G4JW (Sheffield), G2ACD (Bridlington), Council Member G2YS (Rickmansworth), G2VO (Blackpool) and G5VO (Bridlington). The prize for the farthest travelled visitor went to VQ2WR from Rhodesia. The lecture on " Vehicle Interference and its Suppression " by G3GBH was received by an attentive audience. In all a very successful rally.

The **South Shields and District Amateur Mobile Rally** was held at Bents Park Recreation Ground on July 8. The weather was fair but overcast and cool for the time of year but 300 people attended in 65 cars, 29 being fitted with mobile equipment. The control station G3DDI worked 18 mobile stations en route to the Rally. The following competitions were held:

Worked All Mobiles—G3JFH (Cheltenham, Glos.) who worked 15 stations.
Complete Mobile Station—G3DSA/M (York) who gained 32½ points.
Driving Competition—G3OKG (Whitby, Yorks).
Frequency " Spot " Test—G3LIV/M (Newcastle on Tyne).
Parking Contest—G3OHL (Middlesbrough, Yorks).

Visitors from places as far away as Cambridge, Hull, Bradford, Cheltenham and London came to join in the fun and games—one of the more difficult, requiring a steady hand, was the passing of a small copper ring along a pipe without it making contact—a Klaxon announced any deviation.

Once again the **Longleat Mobile Rally** was favoured with a warm sunny day and this, combined with the delightful setting, made it a day to be remembered by all who made the journey. The Marquis of Bath made a short speech of welcome in which he expressed the hope that the Rally would be a success. The attendance of 450 was satisfactory, there being just over 50 radio equipped cars. The activity of the talk-in stations may be judged by the log returns which show that G3CHW/A on Top Band worked 31 mobile stations and G3GYQ/A six on 144 Mc/s.

The competition winners were:
Longest Distance Travelled to and from the Rally—G3PRT/M (Orpington, Kent).
Concours d'Elegance—G3OUK/M (Bristol).
Longest Mobile Contact—144 Mc/s—G3JXN/M from near Andover, Hants.
Top Band—G3MFO/M.

Trouble was experienced with the petrol driven generator and this prevented the Top Band rally station commencing operations until noon—G3INZ kindly took over the duty using his mobile rig attached to the balloon-suspended vertical aerial until G3CHW/A could take over, but this caused some confusion and an incorrect announcement gave G5PP/M and G3OMH/M a tie for first place in the longest distance contest on Top Band. Subsequently it was discovered that G3MFO/M had worked the temporary control station G3INZ from a much greater distance. It was a pity that the 144 Mc/s station did not have better success; this was not the fault of the team concerned for they erected four stacked halos on top of a 50 ft. mast on a local hill. It would seem that 2m activity was not very high, the greater number of stations being equipped for Top Band only.

A DX balloon contest took place during the afternoon—the result will be announced later when the cards returned have been sorted. All the helpers and organizers received a vote of thanks but special mention should perhaps be made of the work carried out by Mrs. Chapman, XYL of G2HDR, who organized and ran the Ladies' Raffle. The prizes came from members of the Group, no manufacturers having been approached for donations this year. It is clear that the Rally was a great success—heartiest congratulations to all concerned.

In the caption to the photograph on page 21 of the July issue, the second call-sign in line two should have read G3MZP/M.

MOBILE RALLIES
1962

August 19	Derby Radio Societies Mobile Rally, Rykneld School, Derby.
August 25	Houghton and District Radio Club, Hetton and District Trade Society, Hetton, Co. Durham.
August 26	Stockport Radio Society Mobile Rally, Pavilion Gardens, Buxton.
Sept. 2	Northern Mobile Rally at Harewood House, near Harrogate.
Sept. 2	Thames Valley Amateur Radio Transmitters' Society Mobile Rally.
Sept. 9	R.S.G.B. National Mobile Rally, Woburn Abbey, Beds.
Sept. 16	Lincoln Radio Society Mobile Rally, North Kesteven Grammar School, North Hykeham, Lincoln.
Sept. 22	Region 9 Mobile Rally at Weston-super-Mare.

Forthcoming Events

The **Thames Valley Amateur Radio Society** are holding their Mobile Rally at Polesden Lacy (National Trust), Surrey, on Sunday, September 2. The site is located 3 miles north-west of Dorking, the approach being by A246 from Leatherhead to Great Bookham, then by a road to the south which is clearly marked. The venue is in the heart of beautiful country with free access to over 900 acres of grounds and gardens. The famous house, for which there is an admission charge of 2/6, contains works of art and other items of general interest. Teas and light refreshments may be obtained during the day. Competitions have been arranged with suitable prizes for the winners and there will also be a Grand Raffle. Talk-in stations operating from 11 a.m. onwards will be G3AIU/A on Top Band and G3JIP/A on 144 Mc/s. The Organizing Secretary is G3AIU to whom any enquiries should be addressed.

The **National Mobile Rally at Woburn Abbey,** under the auspices of the R.S.G.B. Mobile Committee, will take place on Sunday, September 9. Woburn is located 43 miles north of London and may be approached by taking the A5 to Hockcliffe where a right hand turn is made into A50. Talk-in stations on Top Band and 144 Mc/s will be operating but at the time of going to press the call-signs had not been decided.

Certificates signed by the President of the Society will be awarded for (i) Best Home Constructed H.F. Mobile Station; (ii) Best Commercially-built H.F. Mobile Station; (iii) Best Home Constructed V.H.F. Mobile Station; (iv) Best Commercially Built V.H.F. Station; (v) Safest Mobile Equipment in any of the above categories.

The Abbey will be open to visitors at a small charge and children will be catered for—there is a fun fair in the gardens. The usual raffles will be organized with useful prizes for the lucky winners. Your support will be appreciated—a hearty welcome is extended to all.

The **Lincoln Short Wave Hamfest and Mobile Rally** will take place on Sunday, September 16, at North Kesteven Grammar School, North Hykeham, Lincoln. The school is situated on the Lincoln-Newark road (A46), three miles south west of Lincoln, on the left of the road when travelling south. The talk-in stations opening at 11 a.m. will be G3MUL on 3·5 Mc/s and G3MZB on Top Band.

A Fancy Dress competition for the juniors with the theme " Amateur Radio " should prove to be a highlight of the proceedings. In addition to various raffles, a photographic quiz contest showing radio components taken from unusual angles, and a massive sale of surplus components promise a full and interesting day for all. Refreshments will be available continuously until the close of proceedings. In the event of bad weather plenty of under cover accommodation will be available in the new and modern school building. Enquiries may be addressed to G3ESR, " Rochmount," Sturton Road, Saxilby, Lincs. Why not make a special effort to attend this popular rally?

R.S.G.B. NATIONAL MOBILE RALLY

Woburn Abbey, Bletchley, Buckinghamshire

(by permission of His Grace the Duke of Bedford)

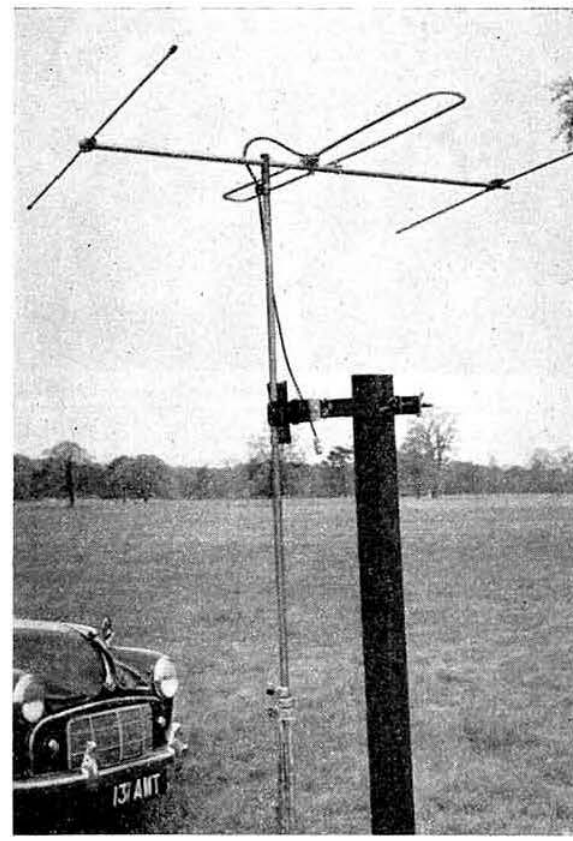
SUNDAY, SEPTEMBER 9, 1962

* Park opens 12.30 p.m.
* State Apartments open.
* Park of more than 3,000 acres and 2,000 animals.
* Children's Playground, Pets' Corner and Boating Lake.
* Restaurants and Snack Bars.
* Specially reserved rally car parks.

TALK-IN STATION

GB3RS on 2 and 160 metres

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



G3KEF's portable three element Yagi with tubular mast extending to 20 ft. Note the special clamp which enables a convenient gate post to be used as a support.

(Photo by G5CP)

Operating News

G3KEF (Coventry) is a very active 144 Mc/s mobile operator who also uses his equipment as a /P station with a specially designed, quick erection aerial with a clamp to fix it to a field gate or other suitable object. The transmitter has a QQV03-10 p.a. with an input of 10 watts while the receiver is an R.C.A. AVR2OB. The whole rig is run from a transistorized power supply. G3KEF has worked eight countries /M using this equipment.

A postcard received from G5PP, operating as GM5PP/M in the Mull of Kintyre area, Argyllshire, tells of Top Band operation up North. On July 8 at noon whilst mobile he worked GW8ML/M at St. Davids, Pembroke, and GI3CKC/M, Whitehead, Belfast, signals being between RS55-9 with all three stations using whip aerials. Is this a record for that hour of the day?

Single Sideband (Continued from page 66)

objective is to transmit only one sideband, a means must be found to select the desired sideband and suppress the undesired sideband. This may be accomplished through the use of one of two techniques; that of frequency descrimination (filtering) or the technique of phase discrimination (phase shift).†

† The "third method" uses a combination of both techniques.

THE MONTH ON THE AIR

A CHRONICLE OF EVENTS ON THE HF AMATEUR BANDS

By R. F. STEVENS (G2BVN)*

BULLETIN No. 604 transmitted on July 5, 1962, from A.R.R.L. Headquarters station W1AW has caused considerable and world-wide discussion amongst the DX fraternity. In view of the incorrect quotations which have been heard, the text of this bulletin is given in full and reads: "For many years there has been support among member societies of I.A.R.U. of the principle that the bottom 100 kc/s of the 14 Mc/s band be used exclusively for telegraphy. The European Band Plan embracing this feature has been respected and observed in most countries, even including those where 'phone operation between 14,000 and 14,100 kc/s is not contrary to regulations. A.R.R.L. believes this is an excellent plan and will continue to use its efforts to keep it in effect. Therefore, A.R.R.L. announces that effective 00.01 G.M.T. on July 13, 1962, DXCC credit will not be given for contacts where either station is operating by telephony, using frequencies between 14,000 and 14,100 kc/s."

The reactions to this announcement have been many and varied and it is not the intention to devote space in reproducing them in their entirety. Suffice to say that amongst the comments heard have been (*a*) an excellent idea and it will stop s.s.b. stations calling W0MLY below 14,100 kc/s; (*b*) agreement in principle but it is felt that the method of implementation of a voluntary band plan has been harsh and unreasonable, and that the treatment meted out to W0MLY is shabby in the extreme; (*c*) the A.R.R.L. has absolutely no right to attempt to interfere with or dominate the licence regulations of another country, (*d*) presumably the A.R.R.L. will now cease to recognize all contacts above 14,100 kc/s where c.w. was used by either station?

The DX Century Club is a domestic award of the A.R.R.L. who can make what changes they wish in the rules applying thereto, but these will obviously have repercussions all over the world on operators who use the DXCC listing as a yardstick of their achievements in this particular sphere of Amateur Radio. One point which has not yet been satisfactorily explained is the method whereby a check on the frequencies used is to be made when QSLs are submitted for DXCC credit.

Another talking point is a petition, RM-341 to the F.C.C. made by W2BIB, which asks that the lower edge of the U.S. 'phone sub-band be extended down to 14,150 kc/s. A number of the statements made in the petition do not apply to conditions in Europe and there is unfortunately nothing in the petition which suggests that U.S. stations should be subject to a 150 watt power limitation. It has now been learnt that the petition has been denied by the F.C.C.

News from Overseas

JZ0ML writing from Pirimapoen, about 250 miles from Merauke in Netherlands New Guinea, will be returning to the U.K. on leave in October of this year. In the meantime, activity continues on 14 Mc/s c.w. using 30 watts from an 807 feeding a half-wave dipole, the receiver being a CR100. Operation takes place most days between 08.00 and 14.00, and the best time for the U.K. is generally around 13.00-14.00. In 66 days of operation 802 QSOs have been made with stations in 72 countries and 33 zones. JZ0ML has been worked by a number of U.K. stations at the times mentioned above. W2CTN continues to handle the despatch of QSLs.

A note in *M.O.T.A.* last month, which originated from a Cyprus station, stated that the **5B4 QSL Bureau** had changed, and a new address was given in *QTH Corner*. Later news from 5B4CZ suggests that this is incorrect and that the Bureau still functions from Box 219 in Limassol, and definite information is awaited. 5B4CZ will be returning to Cyprus in September and hopes to be active on c.w. and s.s.b., possibly on 1·8 Mc/s later in the year.

G5KW recently created great interest when operating /YI and /JY from Baghdad and Amman respectively. From both these locations operation was with the permission of the authorities concerned and the station was installed in the Ministry of Defence building in Baghdad. Unfortunately operation from this QTH was most difficult owing to a local teleprinter system working on a nearby frequency. QSLs are being despatched, both for QSO's and listener reports, and these should go direct to G5KW or through the Bureau.

It is hoped that there may be further activity from Iraq under the call YI1A who may be heard on s.s.b. on 14,325 kc/s over the week-end periods. During his trip, which was for business purposes and not a DXpedition, G5KW visited HZ1AB and mentions that this station is temporarily out of QSL cards, but the backlog will be dealt with when the new supply arrives. Part of the 1961 HZ1AB log is also missing at the present time.

MP4TAO will be closing down during this month and does not anticipate returning to Abu Dhabi for at least two years. DJ1BZ will continue to fulfil his QSL obligations, and as there is no post office in Abu Dhabi any QSLs sent there will probably end up as wall decoration in the local bazaar.

JZ0ML in his station at Pirimapoen.

* *Please send all reports to R.S.G.B. Headquarters to arrive not later than August 20.*

UI8AG, seen here in his shack, was one of the operators of the roving Russian s.s.b. transmitter when it was in Tashkent, Uzbek Republic, Central Asia.

The **Panamanian QSL Manager** has advised G2MI that he is receiving cards for **HP9** stations which unfortunately cannot be delivered as there are no legally operated stations with that prefix. The republic is divided into seven districts with the prefixes of HP1 to HP7 only.

At the July meeting of the London Members' Luncheon Club **HI8DGC** was the source of some up-to-date information on affairs in the **Dominican Republic.** Dealing with the poor QSL returns from that country HI8DGC mentioned that this could be partly accounted for by the present absence of some amateurs who left the country during the recent unrest. It also appears that the QSL Bureau has changed hands and operators waiting for a card from HI are advised to send a further QSL through G2MI.

MP4QBB (ex-5A5TA and W5LAK) is now active from **Qatar** on s.s.b. and c.w. using the Collins S line and a TH4 beam. Usual operating frequencies are 14,070-14,080 kc/s for c.w. and around 14,120 kc/s for s.s.b. 21 Mc/s is also used when conditions are suitable. MP4QBB hopes to operate shortly from Muscat and Oman under the call MP4MAO. QSL destinations are given in *QTH Corner*.

ZD8RN is QRT from **Ascension Island,** from where activity is now in the hands of **ZD8JP.** Until recently operation was mainly on c.w., with occasional excursions on to a.m., but recently John Packer was able to borrow s.s.b. equipment and made an unexpected appearance on the high end of 14 Mc/s. ZD8JP will be on the Island until August, 1963, and may usually be heard on Thursdays after 17.00. The transmitter used for c.w. is a modified B2 set.

DXpeditions

The current African sortie by **W0MLY** will probably have ended during the opening days of August according to present plans. Dick McKercher has done a splendid job in removing many of the rare African countries from " wanted" lists despite the various obstacles he has encountered. It would be interesting to know just how **W0MLY** managed to obtain permission to operate from so many of the countries where others had failed. The QSO score so far known reads: **TR8,** 2615; **TL8,** 2300; **TN8,** 1950; and **TT8,** 2100. QSLs are being speedily dealt with by **KV4AA** who will be pleased to receive any donations to help defray the expenses of the operation. Just before this issue closed for press it was learnt that all W0MLY's equipment was destroyed by fire while in Mali.

W4BPD continued his trip with operation from the Cosmoledo group and Assumption Island, and it is understood that the former counts with Seychelles and the latter with Aldabra. It is believed that the next stop will be in the VQ8 area if the necessary permission to operate can be obtained. W4ECI continues to deal with the QSL chores and Aldabra QSLs are current in the U.K. Late news was that operations from Chagos should have commenced August 1.

It is understood that all QSLs for the **YJ1MA** and **VR1M** operation of G3JFF should now go to **W1HGT.** Operators who have sent cards to other destinations without success are advised to contact W1HGT who promises swift attention.

The crystal frequencies of the new **HB9TL portable s.s.b. transmitter** are 14,098, '108, '121 and '127 kc/s. Plans are afoot for a trip covering Rwanda and Burundi.

UA1CK plans to operate /**UH8** for a period of at least 14 days from August 7, and s.s.b. will be the *modus operandi*.

DXCC News

Two additions have been made to the A.R.R.L. Countries List in (*a*) **Rwanda** and (*b*) **Burundi,** and one deletion in Ruanda-Urundi. Confirmations for credit with either Rwanda or Burundi must be dated July 1, 1962, or after, and deletion of Ruanda-Urundi is w.e.f. June 30, 1962. DXCC credit claims for either of the two new countries will not be acceptable until November 1, 1962.

A further addition to the Countries List has been made in the shape of **Guam** which is counted separately from the other islands of the Marianas Group, e.g. **Saipan, Tinian** and **Rota.** Confirmations for credit with Guam must be dated November 15, 1945 or after and DXCC credit claims will not be acceptable until November 1, 1962.

Operating information on these new countries is that 9U5s JH, BB and DS are active on 21 Mc/s from Burundi, whilst 9U5PC has been heard from Rwanda. Identification of the stations operating from the Marianas other than Guam can be made by the first letter after the prefix, e.g. KG6S. Saipan, KG6R. Rota and KG6T. Tinian. Both KG6RC and KG6SF are known to have been active.

Contests

August 25/26 covers the period of operation of the **All**

QTH Corner

CN2AV	Box 2057, Tangier.
DL4FC/DL8	via W4OPM
FO8AG	via K9ECE
W4JEZ/FA7	W. J. Porter, 612 S. Adams St., Arlington, Va., U.S.A.
FG7XT	Box 185, Pointe-a-Pitre, Guadeloupe.
HI8XAG	U.S. Embassy, Santo Domingo, Dominican Republic.
IS1KL	via I1KL
KC6BK	Page Comm. Engrs. Radio Club, Ponape, E. Caroline Is.
KM6CE	U.S. Naval Security Group, Navy 3080, Box 23, FPO, San Francisco, Calif., U.S.A.
KL7DBG/KS6	JTF8, APO 953, c/o P.M., San Francisco, Calif., U.S.A.
K5KOR/KS6	via K5SEK.
K7USA	Seattle World Fair, Alaska Exhibit, P.O. Box 6273, Seattle, Wash., U.S.A.
LX3MA	via DL4FZ
LX3DX and **LX3QX**	via ON4QX
MP4QBB	Ray Geophysics Ltd., T-567, c/o Q.P.C., Umm Said, Qatar, Arabian Gulf, or via K4JTL.
SU1AC	via W2CTN
TA4RZ	via K4WIS
TT8AJ	via K2UYG
TF2WGX	F. Myers, 932 ACW Sqdn., Keflavik, Iceland.
PY4RT/7	via PY4CK
VP2AP	via W5NOP
VR5AA	Box 36, Nukualofa, Tonga.
VP9CP and **W5JDX/VP9**	P.O. Box 275, Hamilton, Bermuda.
W2SLC/MM	USS *Cambria*, APO 36, FPO, N.Y., U.S.A.
ZS3DP	P.O. Box 418, Walvis Bay, S.W. Africa.
5A3CR	W. J. Atkins, Signals Section, R.A.F. B.F.P.O. 56.
5B4WS	W. A. Sawyer, R.A.F. Ayios Nikolaos, B.F.P.O. 53, Cyprus.
9U5PC	P.O. Box 18, Ruhengeri, Rwanda.

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

Asian DX Contest, and a leaflet giving the full rules and the countries list applicable can be obtained from G2BVN by sending a s.a.e.

The **Scandinavian Activity Contest** will take place during the following periods: *c.w.*—15.00 September 15 to 18.00 September 16; '*phone*—15.00 September 22 to 18.00 September 23. All bands from 3·5 to 28 Mc/s can be used. The object of the contest is for stations outside Scandinavia to work as many Scandinavian stations as possible. The same station may be worked once per band during the contest. The prefixes classed as Scandinavia are: LA (Norway); LA/Ps (Jan Mayen, Svalbard and Bear Island); OH (Finland); OH0 (Aaland Is.); OX (Greenland); OY (Faeroes Is.); OZ (Denmark) and SM/SL (Sweden). The serial exchange consists of a six digit (c.w.) or five digit ('phone) number. Every contestant must start from 001. Each completed QSO counts one point and there is a maximum multiplier of eight per band. LA/Ps are counted as one and the same multiplier. The final score consists of the sum of complete QSOs on each band multiplied by the sum of the multipliers on each band. Log information required is: date; time (GMT); station worked; number sent; number received; band; note of new multiplier. Separate logs for each band are not required, but a summary sheet for each band is necessary. Separate logs for 'phone and c.w. are required and the operating class (e.g. multi or single) should be stated. The signature of the contestant that he or she agrees to abide by the rules should appear on the logs which should be sent not later than October 15, 1962, to the Traffic Dept., E.D.R., P.O. Box 335, Aalborg, Denmark.

Around the Bands

Pacific Activity. Following the recent upsurge in the numbers of stations heard from this area, a summary of current activity may be useful: **Christmas Island:** VR3L, VR3V and VR3S, all on c.w., the latter on s.s.b. also: **Palmyra Island:** W0ANJ/KP6, s.s.b.; the station KH6DRM/KP6 was located on Christmas Island! From **Johnston Island** there is KJ6BZ, K3GAD/KJ6, W4APS/KJ6 and W5VWU/KJ6, the latter on c.w. with the remainder on s.s.b. **Canton Island** stations recently worked are: KB6CL (on daily on s.s.b.), KB6BZ, K1UFY/KB6 and K0MDU/KB6. From the **E. Carolines** KC6BK radiates a good c.w. signal, and **Midway** operators KM6CE and KM6CG have been worked on s.s.b. and c.w. respectively. A lone wolf is VR1G active on c.w. and d.s.b. on 14,170 kc/s with low power, whilst VR5AA provides the only signals now heard from **Tonga,** the modes used being c.w. and s.s.b. Concerning **American Samoa G3FPK** comments that it is virtually impossible to work K6CQV/KS6 as he is always involved in 'phone patch traffic. His score in this direction during one week was 160 with over 40 patches in one day. KL7DBG/KS6 was active most mornings between 07.00 and 09.00 and at first responded to ordinary QSOs, but now emits the oft heard cry of "CQ California with 'phone patch traffic," thus depriving our despairing correspondent of a s.s.b. QSO with Samoa. Other stations that have been heard from this spot include K5KOR/KS6, K5FOQ/KS6, K6SKU/KS6, and WA2YBL/KS6. Why is it that a station working 'phone patch traffic is invariably S9? Presumably another manifestation of Murphy's law.

A flash from **W1BB** gives news of summer activity involving VP8GQ and N. American stations on **1·8 Mc/s.** Amongst those who contacted Signy Island were W2KQT, W3GQF, VE3GP and VE3QU. W1BB, who also worked VP8GQ, reports that signal strengths averaged S7 for W/VE and S4/8 for VP8GQ. It is hoped that this augurs well for the coming winter season.

The **3·5 Mc/s** band has occasioned no comment except from **B.R.S. 20317** (Bromley) who reports that no DX stations except W/K have been logged. The best time for these appears to be between 00.30 and 01.30 when W1, 2 and 3 and VE1 were S7/8, with the strongest signals from K2GNC and VE1AGG.

Little attention has been attracted by **7 Mc/s** but the DX is undoubtedly there even if it is necessary to dig down through the first two layers. **G3LPS** (Blackburn) has achieved 100 countries on this band and recent catches include PY1CB, PY5EO, PY7LY, VP8GQ, VP9AK and VQ9A/7. **B.R.S. 20317** reports a general lessening of the noise from the jammers together with a fair sprinkling of DX including HI3PC (23.40) calling CQ Europe with no replies, KP4ANJ, LU1HBS, TI2LA, VP9AK and YV5BLZ, all during the evening hours. The mornings seem best around 06.00-07.00 and produced EA6AF, HK4JC, YV5BLP and ZL1AV, all with reasonable signals. July 14 produced the first Australian signal heard this summer in the shape of VK3KE calling CQ at 22.30; VQ4IN was also logged. **G3JAG** (Rochdale) contacted the following between 05.00 and 06.30: HI8XAG, KP4UW, PY2, PY4, VK3ZR, YV5 and ZL2AWX, together with VP9AK at 00.45. G3JAG reports that the HI8 has been heard at S6/7 on a number of mornings and working Europeans.

G3ALI (Watford) was pleased to contact KW6CP at 06.25 when the signals from Wake Island were 569. Using a rhombic and also a full size quad 60 ft. above ground KW6CP continued to call CQ Europe after 07.00.

That **14 Mc/s** c.w. continues to provide worth-while DX is proved by **G3HDA** (Stratford-on-Avon) with AP5HQ (18.45), CP5EQ (21.52), HH2FA (22.25), HZ1AB (18.12), LA2NG/P (18.52), MP4QBB (18.37), TA2BK (20.25), W0MLY/TT8. (07.33), TY2MY (17.45), VP8GV (19.30), VQ9A (18.10), ZD8RN (20.42) and 6O1ND (21.32), whilst heard were CR8AB (15.00), FW8BH (07.45), VK2VC/2 (07.58) (these last two being on s.s.b.), VR3L (11.30) and VR3S (07.15). **G3AAE** (Loughton) offers confirmation of current conditions with AP5AH (16.43), AP5SS (17.48), JZ0ML (17.10), MP4QBB (20.27). TA4RZ (21.17), TY2MY (17.00), VQ1FU (21.00), VR2DK (07.25), XE1OK (08.05), 5V4MY (18.18), 6O1ND (21.20), and 9U5CZ (19.48) **G2FFO** (Burnley) weighs in with CT3AB (19.00), HI3PC (23.00), G3JFF/MM (16.35, off Singapore), TG1CC (22.00), TY2MY (19.50), VP7NQ (19.20), VQ9A/7 (18.28), VQ9A/AN (18.35), 5V4MY (07.12) and 9M2GJ (16.07). G2FFO would like any information on TG1CC who said QSL via Bureau. **G8PL** (London N.W.3) offers this composite list of heard/worked: *04.00-05.00* HK1AAF, HK7YC, JA8AH, KV4AQ, ST2AR, UA9s, UW9s, VE7, W7, VQ4IV, VQ9A/7, VQ9C and ZE2KN. *05.00-06.00* EP2BN, HK1QQ, KH6OJI, KP4BBN, KZ5MQ, MP4BAF, OX3KC, SU1IM, TG9AD, UA9s, UA0s, VQ2EW, VR3S, VS9APB, XE1DDT, YV1AD, ZS5CI and 5A3CR. *06.00-07.00* CN2BK, KL7DTY, KP4APR, OY7ML, TF2WGN, TT8AJ, UI8s, UL7s, VU2BK, YV1AD, ZB2I,

The Rev. Lawrence A. Purdy (VP4NC) of San Fernando, Trinidad is a prominent member of the Antilles Emergency Weather Net.

5A3BC and 5N2DCP. *07.00-08.00* UA9s, UH8, UI8, UL7, UM8, VE6, VE8AM, VR3S and VS9AGV. **G3OLH** (Whitton) continues the c.w. listing with K6PAK (16.50), LU8BAJ (21.25), HH2LDC (21.30), HZ1AB (17.50), LA2PH/MM (18.25 in Zone 27), UA0AZ (22.55), UH8, UI8, UL7, UD6, 4X4WF (19.13) and 5A3CJ (22.40). **G6XL** (Leeds) heard CR8AB (13.00), FO8AB (13.35), K2DQC/KG6 (17.30), W6VUN/KW6 (08.20), K5FOQ/KS6 (06.18) and KX6AZ (05.35). Despite a change of QTH **G3PSY** (Thorpe Bay) found time to exchange reports with CE3UT (22.18), CR6CA (22.56), EA8DO (08.30), KR6NG (17.24), KV4AA (22.50), IT1TAI (23.00), SU1IM (23.11), SV0WU (06.34), UM8AJ (06.20), W4WQQ/VP9 (22.30), ZE1BE (06.18) and 5B4GT (06.45). A.m. brought a 5 and 9 QSO with VE1IE at the entrance to the Bay of Lundy.

Turning now to the carrierless mode **G6XL** exchanged reports with FG7XH (22.14), HH2PW (08.00), FW8BH (07.25), VP7NS (22.45), VQ1CJ (18.00), VR3L (07.15), VR3S (07.10), and ZS3DP (18.35), in addition to W0MLY at the various spots from which he has so far operated. VR5AA was heard at 06.18 and G6XL mentions W0ANJ/KP6 (06.35) as the only station now active from Palmyra Is., and who has an efficient QSL manager in W4DKP. **G3FPK** (Leyton) lists BV1US (17.00), CO8CO (22.40L), CR7CI (16.30), CX2CO (21.40L), HK3RB (22.20L). G5KW/JY (06.00), KG4AO (23.30L), PY4RT/7 (18.20 on Fern. de Noronha), TG8GZ (00.01L), TI2WR (00.10L), W0MLY at TJ8, TT8 and TY2, VP7BP (23.40L), VQ9A (17.10), VR3S (08.30L), VS1JH (16.00), VU2RX (16.50), ZS3DP (17.00), 4U1ITU (16.50), 5B4PC (17.00) and 5V4MY (16.50L). The letter L following the time indicates operation at the low end of the band; unmarked stations were worked in the 14,300 kc/s region. A first report from R.S.G.B. member **OE1ME** (Vienna) lists almost all the worth-while DX heard on this mode: BV1US (17.35), FG7XH (21.25L), FG7XT (08.27), FO8AC (05.35L), HL9KN (16.28), K0MDU/KB6 (14.58), W4UAF/KH6 (07.13), KC6BK (13.35), KH6DRM/KP6 (07.07 Christmas Island), W0ANJ/KP6 (07.13), K6CQV/KS6 (07.54), K6FKU/KS6 (06.30), KG4AO (22.33L), LA1LG/P (07.35), MP4TAO (18.53), PY8AT (20.18), TY2MY (17.30) UM8FZ (15.58), UA0LA (15.13), VP4TI (20.58L), VP7BP (22.15L), VP9DC (21.42L), VQ1CJ (17.40), VQ9A (19.15), VQ9C (18.10), VR3S (07.38L), VS6EK (16.55), VU2NR (15.36), G5KW/YI (07.47), ZS3DP (17.55) and 9M2CR (15.37). **A.2404** (Manchester) lists many of the calls that are given above and HP1JF (05.25), K5MFR/KP6 (07.00), KH6ENS (07.15), KL7FLC (07.05), OA4BI (05.15), VR2DS (07.30), 3A2AH (20.00), 9K2AM (19.55) and 9U5SA (18.50). QSL information on the last mentioned would be welcomed.

The **21 Mc/s** band has not proved of great interest, but **G3AAE** keyed with VK9DJ (11.50 Papua), VQ9C (13.30), 9U5BH (13.05), and 9U5XX (17.30), whilst **G3PSY** mentions a.m. from HC2IU (22.04), VE6WM (22.07), YV4VY (22.38) and E. Coast W/K stations. Also on a.m. **OE1ME** worked 9U5BB (19.29), 9U5DS (19.20), 9U5JH (19.00) and 9U5PC (19.45), all except the last named being in Burundi.

The forecast of conditions for **21 Mc/s** gives an expectation of an open path to S. Africa between 14.00 and 17.00 and to S. America between 18.00 and 21.00. Meagre openings to S.E. Asia may occur around 14.00 and to the Caribbean area after 18.00. An almost blank chart for **28 Mc/s** forecasts possible openings to S. Africa around 16.00-17.00. In so far as **14 Mc/s** is concerned the most prolific times will lie between 18.00 and 02.00 when openings to many parts of the W. Hemisphere will be experienced. There will be lesser openings to S.E. Asia between 13.00 and 17.00, and the long path to VK may occasionally yield results around 21.00.

DX Briefs

3A2AH is now fairly active from his QTH opposite the Palace in Monaco-Ville. He has been worked several times by G3FPK on Sunday mornings between 07.00 and 09.00 around 14,315 kc/s. The second harmonic of Radio Monte Carlo is a paralysing signal on 14,270 kc/s and it is impossible to carry on a QSO anywhere near that frequency.

ZS3DP, " Dup " from Walvis Bay, now has a TH3 beam and puts in a healthy signal from S.W. Africa in the late afternoon.

DL4FX and his XYL, **DL4SE**, will be touring the U.K. from September 4 to 16, and hope to meet some of the operators with whom they have had contacts from Germany.

KG4AO, Dick, operates a Heath " Marauder " and puts in a potent signal in the late evenings around 14,120 kc/s on s.s.b. Also found on the low end of 14 Mc/s during the evenings are **VP9CP**, who is ex-VE3CPS, and **W5JDX/VP9**. The latter is in Sandys parish for those seeking to qualify for the Bermuda award.

S.s.b. representation from Singapore is assured in the call of **VS1JH**, ex-G3AUU, who runs a Viceroy exciter into a linear consisting of four 807s. (Many thanks to **G3FPK** for all the above news items.)

East Pakistan now has c.w. representation in the shape of AP5AH, AP5CP, AP5JA and AP5SS. The latter is located in Chittagong, whilst the other stations give their QTH as Dacca. AP5HQ, also heard on 14 Mc/s c.w., is in West Pakistan.

LA1LG/P will be QRT during the first half of August on d.s.b., and pending the arrival of LA8SE at the end of this month, c.w. activity will be continued by LA2NG/P from Jan Mayen Island. (Tnx OE1ME.)

It has been noted that operators from some of the Pacific stations give differing addresses for QSL purposes although they may all be operating from one club station. This is presumably to cater for the different units to which the operators may belong and which may have different box numbers.

K9ECE reports that he has not received any logs from **EL2Q** and his QSL managership is therefore null and void.

* * *

Grateful acknowledgement is made to the *DX'press* (PA0FX), the *West Gulf DX Club Bulletin*, *The DX'er* (K6CQM) and to our many correspondents. Please send all items for the September issue to arrive at R.S.G.B. Headquarters not later than August 20.

CONTESTS DIARY

August 18-19 - W.A.E. DX Contest (Phone)
August 25-26 - All Asian DX Contest
September 1-2 National 144 Mc/s Open Contest (For details, see page 605, June 1962).
September 1-2 Region I I.A.R.U. V.H.F. Contest. (For rules, see page 606, June 1962).
September 9 - D/F National Final
September 15-16 Scandinavian Activity Contest (C.W.).
September 16 Low Power Field Day (see page 40, July, 1962)

September 22-23		Scandinavian Activity Contest (Phone).
October 6-7	—	VK/ZL Oceania DX Contest (Phone).
October 7	—	R.A.E.N. Rally (see page 40, July, 1962).
October 12-24	—	Goose Bay A.R.C. QSO Parties.
October 13-14	—	VK/ZL Oceania DX Contest (C.W.).
October 20-21	—	Second 420 Mc/s Contest (see page 85).
October 27-28	—	CQ WW DX Contest (Phone).
October 27-28	—	R.S.G.B. 7 Mc/s DX Contest (Phone).
November 3-4	—	R.S.G.B. 7 Mc/s DX Contest (c.w.).
November 10-11	—	Second 1·8 Mc/s Contest.
November 24-25		CQ WW DX Contest (C.W.).
December 1-2	—	R.S.G.B. 21/28 Mc/s Telephony Contests.
December 9	—	OK DX Contest.

FOUR METRES AND DOWN

By F. G. LAMBETH (G2AIW)*

IT is not very often that v.h.f. news is received from the Southern Hemisphere, and we are accordingly liable to forget that Australia and New Zealand amateurs are very active and progressive as far as the v.h.f./u.h.f. bands are concerned. The trouble seems to be that they do not publicize themselves sufficiently. Whatever the cause, the list of records given here, received from David Rankin,

AUSTRALIAN V.H.F. STATE RECORDS

N.S.W.				
50 Mc/s	VK2RU	JA1ANO	1/4/56	4809 miles
144 Mc/s	VK2ASZ/2	ZL3AQ	31/12/61	1342 miles
Victoria				
50 Mc/s	VK3ALZ	XE1FU	1/5/59	8418 miles
144 Mc/s	VK3ZCG	VK4HD	27/12/61	887 miles
288 Mc/s	VK3ALZ	VK7LZ	10/1/60	282 miles
576 Mc/s	VK3ANW	VK3AKE	11/12/49	80.1 miles
2300 Mc/s	VK3XA	VK3ANW	18/2/50	9.0 miles
Queensland				
50 Mc/s	VK4NG	JA1AHS	22/1/56	4140 miles
144 Mc/s	VK4HD	VK3ZCG	27/12/61	887 miles
South Australia				
50 Mc/s	VK5KL	W7ACS/KH6	26/8/47	5361 miles
144 Mc/s	VK5GL	VK6BO	30/12/51	1322 miles
288 Mc/s	VK5AW	VK3ZCG	23/1/61	262 miles
West Australia				
50 Mc/s	VK6BE	JA8BP	30/10/58	5490 miles
144 Mc/s	VK6BO	VK5GL	30/12/51	1322 miles
Tasmania				
50 Mc/s	VK7BQ/7LZ	VK9DB		2205 miles
144 Mc/s	VK7LZ	VK5BC	28/4/59	609 miles
288 Mc/s	VK7LZ	VK3ALZ	10/1/60	282 miles

Other contacts, not records, that have been submitted for recognition are as follows:

144 Mc/s	VK2AH	ZL3AR	15/12/51	1307 miles
144 Mc/s	VK2ZAL (now VK2RX)	VK5BC	18/1/58	600 miles
144 Mc/s	VK5BC	VK7PF	28/4/59	571 miles

VK3QV (Federal V.H.F. Manager, W.I.A.) is going to surprise a lot of people. The 50 Mc/s records, which are already known, are included for the information but the very fine achievements on 144 Mc/s and above will certainly be read with admiration.

V.H.F. National Field Day

G3FUR (Stamford) has sent an interesting list of Continentals worked during V.H.F. N.F.D. by G3HOP/P at a site 8m west of Oakham, all of whom gave QRA Locators. This is another pointer that the Continentals are going all out for the QRA Locator system. However, until we all have the right maps, they are rather a waste of time. Among those worked were DL7SQ/P(DK22), ON4HC(CL63), ON4ZK(CLO66A), ON4AB/P (CL74), PA0CML (CM62), PA0COB (CK72), PA0RHR (CM72), PA0JMS (CM63), PA0GE (CM55), PA0PFW (CL07), PA0KT (CM72), PA0EZ (CL20), PA0BM/M (CM77), PA0HN/P (CL30), PA0AMJ (CL20). Other good QSOs were with GC2FZC, GM3KYI/P, GM6XW/P, GM4HR/P, GM3HLH, G3OJY (Penzance), G2BHW (Falmouth), G3XC/P (Newquay), GW8UH/M (at Liskeard in Cornwall) and G3JYP.

Conditions for the contest were very good with DX signals from all directions. Home station conditions have been poor with GB3CTC well down on the previous month. Several good QSOs have been had to the North West, with Manchester area at good strength. A new local station G3NSA (Gt. Casterton, Rutland) is active. Activity at G3FUR has included building of a higher powered transmitter and a thorough round of mobile rallies.

G3JZG (Willenhall) reports that V.H.F. National Field Day on July 7-8 was more than a contest to G3OAF and G3JZG; it was an excuse for meeting a long-lived challenge—that of setting up a station which could be operated for a full 24 hours from the summit of Plynlimmon (Cardiganshire). More than 200 lb. of equipment, power supplies, food and water, were carried to the top, which involved over a thousand feet of hard climbing over a distance of 1½ miles. The equipment was far from ideal; all valve gear was used, which necessitated a small petrol generating set and a battery stabilizing float at 12 volts for the power supply. H.T. was derived from a synchronous vibrator.

The transmitter used a 6J6 p.p. p.a. with 4 watts input, modulated by a pair of EL85s in push-pull. The receiver was a home-built double conversion superhet with 12AT7s in the front-end. The aerial was a gamma matched wide spaced four element Yagi on a 15 ft. pole. As a result of all this, GW3JZG/P worked 92 stations during the 16 hours that the station was actually on the air (they were too tired, after their efforts, to operate through the night). Several stations were worked at well over the 200 miles mark, with G2JF as the best DX. ON4AB/P was RS57.

G3OAF is now engaged in transistorizing the equipment, so who knows what peak they may tackle next? They would

GW3JZG/P on the summit of Plynlimmon, Cardiganshire, during V.H.F. National Field Day.

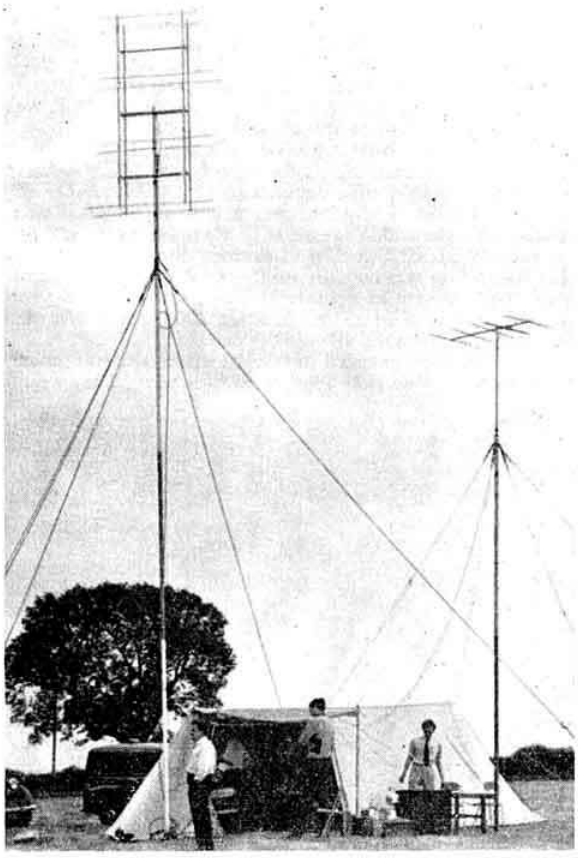
* *R.S.G.B. V.H.F. Manager, 21 Bridge Way, Whitton, Twickenham, Middlesex. Please send all reports to arrive by August 21.*

also like to know whether there are any other operators who like to meet the challenge of the mountains and tackle Field Days the hard way.

Northern activity during V.H.F. N.F.D. was pleasantly high, conditions being very favourable for a change, reports **GI3OFT** (Belfast). G3IUD (Wilmslow) was the best DX heard (and called many times during the hour he was audible at 569 on the Sunday afternoon). G3MAR/P (Birmingham) was the furthest South worked.

The North West V.H.F. Group, under their call-sign **G3OHF/P** made a very special effort for the event, and went to a site 4 miles north of Leek (Staffs). The party included G3MAX, G3AOS, G3EGK, G3AGS, G8SB, G3NSW, and G3KCB, whilst G3MAX's OM proved a capable cook and running buffet attendant! The value of the effort and work was proved by the 180 contacts made during the 24 hours. Weather conditions were ideal, but band conditions were only average. At times contacts were difficult to find, especially during the early morning, but numerous Continentals were contacted to keep up the morale. In all, five PAs, three ONs, and numerous GM, GI, EI, and GWs were worked. Their total claimed score is 24,131 points.

G3HBW reports on the V.H.F. N.F.D. activities of the Radio Society of Harrow station **G3EFX/P** which operated from an excellent site at Muswell Hill, 10 miles north east of Oxford; 136 scoring contacts were made. The best DX was GM3HLH (315 miles) but also called repeatedly were



Members of the Severn Valley Amateur Radio Club operating G3ENY/P during V.H.F. National Field Day on July 7-8, 1962. The aerials comprised a 16-element collinear array at 40 ft. plus a 5-element Yagi at 25 ft.

GM4HR/P, GM6XW/P and GM3KYI/P, all of whom were 569 signals with QSB for most of Saturday evening and early Sunday. They could *not* be raised in spite of the use of all reasonable calling frequencies. Other noteworthy QSOs included EI2AG/P (near Dublin), EI4BC/M (Co. Wexford), EI2W, GI3GXP, F9JY, ON4AB/P and G3JYP. Most of the gear was transistorized, including the receiver (noise factor 3·5db with a Philco T.2028 r.f. stage), the modulator and the h.t. pack, only the actual r.f. stages of the transmitter using valves.

EI4BC/M (Co. Wexford), operated by GI3FJA and GI3KYP, had a good weekend spreading points during the contest and worked 61 stations, of which 58 were over 100 miles away. The site was Tara Hill (800 ft.), 3 miles south of Gory.

Two Metre News and Views

Owing to the very changeable weather recently there are still no signs of a consistent summer opening, although there have been reports of quite respectable DX from time to time. Considering the difficulties, however, activity is fair, and those who venture usually find their efforts worth while.

This has apparently been so, in another sense, with **EI2W** and **GM3EGW**, who were recently in County Galway and had good DX results—with "sporadic E salmon" of all things!

From the home station **G3HBW** managed to work GB2IC under poor conditions one evening. A recent Harrow R.S. venture has been putting the Island of Sark on the 2m air probably for the first time. G3HBR, G3MLS, and G3PBR operated recently for a couple of days there as GC3PBR/A and G3HBW had several contacts with them, signals peaking S8 under poorish conditions. They seem to have given many people a brand-new county whilst they were there.

B.R.S.21476 (Shrewsbury) has been absent from 2m for some time due to the destruction of his aerial by the winter gales. He is now back again, with the beam assembled (but not yet raised) as the mast still has to be transported to Shrewsbury. The first listening session on July 8 was very rewarding. GI3GXP was heard consistently throughout the day. G3BA was heard on s.s.b. calling EI7B (who was not heard) as well as stations as far afield as Berkshire and Surrey apart from many Midlands, Lancashire and portable GW stations. On July 15 activity seemed at a lower level, but G3EHY was a good signal on both 2m and 4m, and during the evening London area stations were audible at fair strength. Impressions after six months' absence are of considerably increased activity on 2m and many new call-signs. During this absence, time has not been wasted and much construction and improvement of gear for 4m, 70cm and 23cm has taken place.

G2XV (near Cambridge) says that the only note of interest during the month was hearing GC2FZC once or twice during the V.H.F. N.F.D. No contact however was made.

G3JR (Barnes) heard GB2IC on June 20 at 229 but was unable to make a contact. On June 22 G5ZT (Plymouth) was worked on the key and at 00.03 on June 23 G3PYW (Lowestoft) who is the most easterly station in England, was worked at good phone strength both ways. On June 23-24 G5ZT/P was worked on phone from his portable site about 1800 ft. up. G3OJY has been heard many times weakly on the key. During V.H.F. N.F.D. GW3KMT/P (Denbighshire) and G3XC/P (Cornwall) were both worked on phone. This last is noteworthy as it is the first Cornish QSO for G3JR and makes the 51st county.

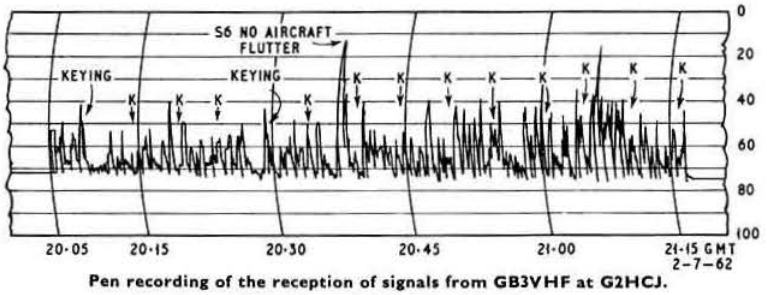
G3OJY (Rosudgeon, Penzance) reports conditions have not been particularly good and it is disappointing that since **GB2IC** left the Scillies in June very few beams seem to have been turned westwards. Until recently G6OX has been heard fairly regularly although sometimes hard to copy on c.w. owing to severe QSB. V.H.F. N.F.D. produced about

80 QSOs for **G3XC/P.** G3OJY was unable to be on much, but did work EI4BC/M (Wexford), EI2W, G3EFX/P, G3FRV/P (Sussex), G3HOP/P (Rutland), G3LLJ/A (Cheshire), G3MAR/P and G3OXD/P (Worcestershire), and G3PIA/P. Others worked recently include: GB2IC (Scilly Isles), G2AXI (Hants), G2CIW, G3HIF, G3BA, G3XC, G3BNL, G3EAT, G3EDD (Cambs), G3EGK (Ches.) G3FZL, G3HBW, G3JEQ (Surrey), G3JFS/M (Cornwall), G3KFD, G3KMT, G3MNQ (Notts), G3MTI/M (Hereford), G3OBD (Dorset), G3PBV (Bucks), G5BM (Gloucester), G5BM/P (Somerset), G5DW, G5HZ (Oxon), G5TZ (Isle of Wight), G5ZT (Plymouth), G5ZT/P (Oakhampton, Devon), G6GN (Bristol), G6OX (Surrey), GW3ACF (Port Talbot), GW3CBY (Swansea), GW3MFY, GW3MOP, GW4CG, GW5BI and GW8UH/M (Cornwall).

Expected on 2m shortly: G3OCV, G3OUZ and G3RCS, the last mentioned being the son of G2JL.

G3LTF (Galleywood) heard and called G3OJY (549) on June 23 but no QSO resulted. GB2IC was 539 most of the evening calling G3CO but never seemed to call CQ. GB3CTC was then S3. On June 24 sporadic *E* was noticed on 67·76 Mc/s from 13.00 to 15.00 G.M.T. but nothing on 144 Mc/s. On June 27 there was intense sporadic *E* and on the 28th the same, with GB3CTC S1. (The west is G3LTF's poor direction.) During V.H.F. N.F.D. GW3KMT/P and GW3MDY were worked, and the DL portables were coming in well during the early morning of Sunday. G3LTF is looking forward to the Perseids, having arranged meteor skeds with UR, I, SP and OH. Time may be taken off for sleep, but this is doubtful.

G2AHL (Compton, Guildford) finds his new QTH a considerable improvement compared with the former location, although the 8-over-8 is only up to 18 ft. so far. It is hoped to increase power shortly. A new converter is also under way. During V.H.F. N.F.D. G3XC/P (Newquay) was worked S9 both ways and was in fact a tremendous signal throughout the Sunday.



Pen recording of the reception of signals from GB3VHF at G2HCJ.

A pen recording of signals from GB3VHF has been received from **G2HCJ** (near Liverpool) and is reproduced in Fig. 1. This recording, which was taken on July 3, was made with the aid of a Nuvistor pre-amplifier, crystal controlled converter, and a BC1147 main receiver. The aerial is a 10 element Yagi at 30 ft. with a 60 ft. feeder between the aerial and the pre-amp. GB3VHF can normally just be heard with occasional peaks which just move the recorder pen. Transistors are used in the recording circuits.

GM3LTJ (Aberdeen) reports that although he himself has done little lately, **GM2FHH** with a 6-over-6 rotatable slot aerial is able to get consistent southerly contacts. GM3LTJ is now using a new and TVI-proof 20 watt rig, but the nightly CQ brings little apart from the odd enjoyable QSOs with GM2FHH, However, on June 24, GM6IZ was worked. GM3UU was also heard calling test and CQ the same morning, but although he was 59+ he did not appear to be tuning the h.f. part of the band as he was called for

September 1-2, 1962
NATIONAL 144 Mc/s OPEN CONTEST
REGION 1 I.A.R.U. V.H.F. CONTEST
For rules, see pages 605 and 606, June BULLETIN

45 minutes without result. The increasing local activity is very encouraging however.

GM2FHH says, however, that apart from portable jaunts he never seems to have any QSOs. No openings to Europe have come his way lately and the only G heard this month was G3BA who was called several times without result. Len hopes to be on 2m more regularly soon.

GM3POK reminds us that GM6RZ is new on 2m, not himself (June "BULLETIN" page 509); other GMs active are GM2TW, GM4JQ, GM3FJP, GM3BDA, GM3PAK and GM3PCQ.

GM3BOC/A (G3BOC of the Wirral) will be in Brora, Sutherland, once again from August 27 for about two and a half weeks. The frequencies in use will be 145·65 and 145·87 Mc/s.

G3PLS (Birmingham 20) reports that the Birmingham University R.S. Expedition to South Scotland will be operating between **September 17/27,** as **GM3IUB/P**, the society's call-sign. Further details will be given over GB2RS later, and in the September BULLETIN. All being well, the e.r.p. on c.w. should be nearly 1000 watts and on phone 80 watts.

GI3OFT (Belfast) says that whilst there has not been a real opening so far this year conditions during the latter part of June and early July were consistently good to the north east (Edinburgh) and south east (Birmingham). GM3JFG (Invergordon, Co. Ross) was worked on June 28 for a new and rare county, and on July 6 G3KEF/M for Loftus on the north east coast of Yorkshire at RS58 over 205 miles. G3BA is consistently a potent s.s.b. signal. **EI6X** (Limerick) is active and looking east for contacts; his nearest 2m neighbour is EI2W (Dublin)—140 miles away! On July 17 at 23.00 G.M.T. G6NB was a steady RS58 but not raised despite repeated calls. GB3VHF was heard for only the second time this year at RST549. It is hoped to field at least one GI portable station next year covering 4m, 2m and 70cm and to this end the formation of an R.S.G.B. Belfast Area V.H.F. Group seems to be highly desirable.

Do You Want Argyllshire?

County collectors requiring Argyll may get their opportunity next month when **G5UM** hopes to be in Kintyre during the week commencing September 15. More details next month.

Twenty-three Centimetres

G2RD (Wallington) is now making two-way QSOs on this band and the pioneering work is certainly beginning to bear fruit. During the 1250 Mc/s tests M operation (stationary) brought QSOs with G3FP and G8AL, both two-way on 23cm from Reigate Hill at distances of 11 and 26 miles respectively. G2RD then went on to Bagshot and worked G3FP (26 miles) and was heard on c.w. by G8AL, in turn hearing G8AL's carrier, though the phone was not readable. G3FP then acted as go-between for a partial contact with G8AL. The overall distance was 35 miles. Stations known to be active in the Home Counties and London area include :

G2DD, G2FCA, G2FN, G2RD, G3EYV, G3FP, G3GDR, G3IUJ, G5DT, G6NF, G8AL and G8RW. We shall be glad to hear of any others, as this band is now coming well into the news.

G3FEX and **G2DDD** have passed 23cm. signals, fixed QTH to fixed QTH, *with a 700 ft. high hill between them*, i.e. from Littlehampton to Storrington, Sussex. Return communication was on 2m.

The contact was made at 23.300 B.S.T. on July 23, 1962, following tests on July 22, when G3FEX went portable to the hilltop on 23cm. Signals from G2DDD were received at G3FEX S2-3. G2DDD used a CV90 tripler and a 16 in. dish aerial at 35 ft. and was assisted by G3FP who was staying witn him. G3FEX used a 16 in. dish only 3 ft. off the ground; his QTH is only 1½ miles from the base of a 700 ft. hill on the north side. The converter was crystal controlled and fed into a Hallicrafters receiver at 31 Mc/s. As far as is known this is the first time that 23cm. signals have been heard over a hill of 700 ft. It means that working on 23cm. is not restricted to line-of-sight—the signals do appear to scatter and bend. Further details are promised for later publication.

Four Metres

GI3HXB (Belfast) has arranged skeds every Tuesday night at 22.00 G.M.T. with G3PJK (Middleton Junction) and reports will be appreciated from other stations.

Lamps as R.F. Output Loads (Continued from page 64)

Details of some small low voltage lamps suitable for use with low power equipment and with operating resistances near to nominal output impedances of modern transmitters are given in Tables 1 and 2. The lamps listed cover a power range of 2·2 to 25 watts and a resistance range of 43 to 100 ohms. For higher powers two or more may be used in series but this should not be done at frequencies above 30 Mc/s. The series inductance of the lamps can be tuned out at any one frequency by a suitable capacitor (for example, a Philips trimmer).

It is obviously desirable to select a lamp which will have a resistance similar to the feeder impedance. In this connection it should be noted that the characteristics of the

TABLE 2

LAMP, SMALL PROJECTOR TYPE 50V 25W

Voltage	Current	Watts	Resistance	Lumens
50	0·5 A	25	100 ohms	100%
45	0·47 A	21·5	95 ohms	70%
40	0·44 A	17·6	90 ohms	46%
35	0·425 A	14·9	84 ohms	31%
30	0·375 A	11·25	78 ohms	20%
25	0·34 A	8·5	71 ohms	10·5%

lamps listed are very much nearer to those required than those of types normally used for domestic lighting. Bearing in mind that as the power is reduced the lamp resistance falls, a lamp should be chosen such that it has the appropriate resistance to match the feeder impedance at the expected power level. The figures for R quoted only apply at full brilliance, i.e. normal voltage and current.

Lamps cannot, of course, be regarded as non-inductive and some care is necessary in making connections to keep the inductance as low as possible particularly when using them at v.h.f. and u.h.f. It is worth noting that the screw and single contact type cap is more readily fitted to co-axial plugs or sockets than the double contact bayonet type.

Project Oscar

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

IT seems now to be established that *Oscar II* ceased to transmit on June 20 (it is regretted that this date was given as June 2, due to a printing error in the July BULLETIN), sometime during its 295th orbit, probably due to failure of the transistors consequent upon the excessive temperature induced in the package by its passage through the upper layers of the earth's atmosphere. It is possible, however, that the transmitter, but not the keying system, may have come to life again for a brief period early the following morning, for at 02.47 G.M.T. on June 21, G5LK heard an S4 and T9 carrier come up on the satellite's frequency, go through a Doppler shift and fade out three and a half minutes later in a north-westerly direction. The timing would have been correct for orbit 307.

The *Newsletter* published by the Project Oscar Association and dated July 16, claims that burn-up actually occurred during orbit 317 on June 21, but gives no evidence in support of this statement.

Quoting again from the *Newsletter*, special honours are accorded to observers in the United Kingdom, Australia, Austria and Finland, for providing a large volume of excellent data in their reports and it is noted that these generally showed a much higher degree of competence than was the case with *Oscar I*, proving that amateurs have been quick to apply experience gained in the earlier exercise.

Data given correctly on Oscar Form 5 (Tracking Report) has enabled the Data Reduction Group to transfer this immediately on to I.B.M. punch cards for quick sorting and analysis. So far as the package temperature readings indicated by the telemetry (HI-rate) are concerned, the findings are that these remained fairly constant, rising from 20° C. at launch to 30° by revolution 293. The following revolution showed a rapid rise to 44° while on revolution 295 a temperature of 58° C. was indicated, close to the point of transistor failure.

The launch of *Oscar II* was a nerve-wracking time for the Oscar Association. Because of new regulations it was impossible to obtain any specific launch information prior to blast-off. Accordingly, an "alert" was posted by amateurs near the launching site with a 7 Mc/s s.s.b. net at the ready. On launch day the net was placed on a 24 hour alert, with a 14 Mc/s s.s.b. link held open to W4ABY and KC4USB who operated the South Pole tracking equipment. As the day wore on conditions on 7 Mc/s deteriorated rapidly, and by noon contact between Oscar Headquarters (W6EE/6) and the station near the launch site was lost, and a relay point also faded out. Among the several stations which finally relayed the coded "blast-off" message to Oscar Headquarters was a mobile operator driving along the highway north of San Francisco.

A pall of gloom descended upon the Oscar gang when no reports reached them from the KC4 tracking stations in Antarctica, the immediate reaction being that *Oscar II* had failed to achieve orbit. After what seemed to be an eternity KL7FLC on Arlis II Ice Island checked into the 14 Mc/s Oscar Net reporting reception of signals and noting that the period and inclination were such that the satellite must have missed the KC4 observers by many miles. As a final disaster the cables alerting overseas co-ordinators arrived up to 12 hours late!

It is learned that the report on *Oscar I* will shortly be ready for publication.

* *Project Oscar Co-ordinator for the U.K., 24 Arundel Road, Tunbridge Wells, Kent.*

The QRA Locator in Reverse

By R. G. Flavell (G3LTP)*

THANKS to several references in G2AIW's *Four Metres and Down* feature, the QRA Locator system needs no introduction to readers of the R.S.G.B. BULLETIN. By now many will have examples recorded in the "Remarks" column of their log-books, and some will be quite content to take the matter no further. Others, however, will want to adopt a more active attitude in view of the possibility that these code groups may replace place names in v.h.f. contest working. The calculation of distances worked without a set of QRA Locator maps for all the countries likely to be worked, or a system to convert to more conventional co-ordinates, will be a task on a par with the weekly brain-teasers in our Sunday newspapers.

The present article, written at the suggestion of the V.H.F. Committee, provides a method of turning a QRA Locator group into latitude and longitude, which can then be found on a conventional map or used to calculate distance using one of the well-known mathematical expressions.

It is widely believed that one of the advantages of the QRA Locator system is that it does enable distances to be found with little or no calculation, but this is not the case, as will soon be realized when the method of coding is examined!

The QRA Locator System

Although already based on latitude and longitude, the method of coding devised by our Continental friends is far from logical, and is best described with reference to an actual example. The Needles, at the extreme west of the Isle of Wight and easily found on an atlas map, has the QRA Location ZK23G.

The initial letters identify the area bounded by 0 to 2 degrees West longitude, and 50 to 51 degrees North latitude, respectively. This, together with other similar areas over the remainder of Europe, is then divided into 80 sub-divisions, numbered from the north-west corner, the top row being regarded as numbered from 1 to 10, rather than the more usual 0 to 9. The 23, then, is the third "square" along the second row, but notice that the one on the extreme right of this row is not 29, as one would normally expect, but 30, and similarly with the other multiples of 10.

The final operation is to divide this "square" into nine by three rows of three. The outer eight are lettered clockwise from A to H, starting from the top centre, and the middle is left blank. The final letter, G, is thus located in the box to the left of the centre. This last operation does not appear on the QRA Locator maps and must be done by eye.

Working Backwards

The problem will be to find the latitude and longitude for a given QRA Location, and whatever method is adopted it will involve pencil and paper because of the three entirely different methods which have been used to produce successive stages of encoding.

The method used here is first to locate the centre of the large lettered area, then to modify this latitude and longitude by the information given by the figures, which would find the co-ordinates of the centre of the appropriate smaller "square," and then finally to alter these to identify the centre of the sub-square in which the station is situated. This is actually all done at once, and sounds a lot more difficult than it really is.

* *141 Clyfford Road, Ruislip, Middlesex.*

THE QRA LOCATOR IN REVERSE

	1st letter Long.	2nd letter Lat.
A	+1°	40°30′
B	+3°	41°30′
C	+5°	42°30′
D	+7°	43°30′
E	+9°	44°30′
F	+11°	45°30′
G	+13°	46°30′
H	+15°	47°30′
I	+17°	48°30′
J	+19°	49°30′
K	+21°	50°30′
L	+23°	51°30′
M	+25°	52°30′
N	+27°	53°30′
O	+29°	54°30′
P	+31°	55°30′
Q	+33°	56°30′
R	+35°	57°30′
S	+37°	58°30′
T	+39°	59°30′
U	—11°	60°30′
V	—9°	61°30′
W	—7°	62°30′
X	—5°	63°30′
Y	—3°	64°30′
Z	—1°	65°30′

	1st figure diff. Lat.	2nd figure diff. Long.
0	+26½′	—
1	+18¾′	—54′
2	+11¼′	—42′
3	+3¾′	—30′
4	—3¾′	—18′
5	—11¼′	—6′
6	—18¾′	+6′
7	—26½′	+18′
8	—	+30′
9	—	+42′
10	—	+54′

	Final Letter	
	diff. Lat.	diff. Long.
A	+2½′	0
B	+2½′	+6′
C	0	+6′
D	—2½′	+6′
E	—2½′	0
F	—2½′	—6′
G	0	—6′
H	+2½′	—6′
no letter	0	0

The Method

The attached table contains all the information necessary, in the order in which it appears, but it is very important to notice that this order in the QRA Locator code is Longitude/Latitude/Latitude/Longitude/Latitude and Longitude together. Any difficulty should be resolved by studying the example but until the system is thoroughly understood great care is needed to avoid applying corrections to the wrong quantity.

The amounts in the latitude and longitude columns are added algebraically. Negative values appearing in the longitude total are West of Greenwich, positive East of Greenwich.

Taking our earlier example, ZK23G, arrange the work as follows:

	Latitude	Longitude
Z		—1°
K	50°30′	
2	+11¼′	
3		—30′
G	0	—6′
	50°41¼′	—1°36′

This answer corresponds to 50°41¼′ N., 1°36′ W., which will compare very favourably with the figures given in the Gazetteer of any Atlas.

The curious custom of numbering the 80 "squares" from 1 to 80 rather than from 0 to 79, referred to earlier, affects the second part of the table in that any exact multiple of ten must be considered part of the previous decade, e.g. 70 is regarded as being composed of 6 for the first figure and 10 for the second. This will surely be an endless source of confusion, and will already have been met with by owners of QRA Locator maps.

With a little care and practice, conversions can be performed fairly quickly. As a final test, get down a map of Central Europe and try to locate the City of GL79A, my Old China!

Society News

Reception of Signals from Artificial Earth Satellites

RADIO amateurs in the United Kingdom were recently invited by the Radio Research Station at Datchet, Bucks, to carry out observations on signals from the British satellite " Ariel " which was transmitting on a frequency of about 136 Mc/s. The question then arose as to whether amateurs would be contravening the terms of their licence if they listened to signals from a satellite operating on a frequency outside the amateur bands.

It is, of course, a fact that under the terms of the Wireless Telegraphy Act 1949, the reception by the general public (and that includes licensed amateurs) of radio signals transmitted on frequencies outside the broadcast and amateur bands is not authorized, but the reception of signals from artificial earth satellites operating on frequencies within an amateur band, such as, for example, *Oscar I* and *Oscar II* is authorized by the Amateur (Sound) Licence.

As the result of discussions which have taken place between representatives of the Radio Services Department and the R.S.G.B. the Post Office have decided that, if an amateur wishes to receive signals emitted by artificial earth satellites engaged in scientific space research, for the purpose of making observations on the technical characteristics of such signals, or otherwise carrying on technical investigations in radio technique, they will authorize him to do so upon application.

The advantage of this arrangement is that the Post Office will know who has been granted the facility, which could be modified should future development in the use or allocation of frequencies for space communication so require.

The form of authority to be issued is as follows:

"You are hereby authorized to receive signals emitted by artificial earth satellites engaged in scientific space research for the purpose of making observations on the technical characteristics of such signals, or otherwise carrying on technical investigations in radio technique.

This authority is given subject to the general conditions of your Amateur (Sound) Licence and your attention is especially drawn to Note (j) regarding non-disclosure of messages, the receipt of which is not authorized."

Radio Conference on Space Communications Planned for 1963

IT is announced from I.T.U. Headquarters that an Extraordinary Administrative Radio Conference will be held in Geneva during October 1963 to allocate frequency bands for space radiocommunication purposes.

As things stand at present it seems unlikely that amateur frequencies in Region I will be affected by the 1963 Conference although it is known that the United States Government have suggested that the frequency of 144 Mc/s $\pm$ 20 kc/s should be used for satellite command purposes, subject to agreement between the administrations concerned and affected. A similar suggestion relates to the frequencies of 420 Mc/s and 450 Mc/s except that the maximum bandwidth in each case would be 25 kc/s.

At the 1959 Radio Conference the following bands were allocated in Region I for Space and Earth-Space purposes: 136-137 Mc/s, 400-401 Mc/s, 1427-1429 Mc/s. The first and last of these three allocations are shared with the Fixed and Mobile services whilst Meteorological Aids share the 400-401 Mc/s allocation.

The duration of the Conference, originally estimated at one month, will be settled later by the Administrative Council in the light of the final agenda, which may be amplified to cover discussions on frequency requirements for radio astronomy.

The Raynet Cup

THE Council has been pleased to accept an offer made by Mr. E. Arnold Matthews (G3FZW) to donate a cup —to be known as the Raynet Cup—to the Society.

The rules governing the award of the Raynet Cup are set out below:

(i) The Raynet Cup will be awarded annually, at the discretion of the Council, to the R.A.E.N. County or Independent Area Group, which in the opinion of the R.A.E.N. Committee has contributed the most towards the good standing and prestige of the Network during the year under consideration. Before reaching its decision the Committee will take into account the general conduct of the group, the progress made relative to the opportunity available and all other relevant factors.

(ii) In the event of it becoming impossible due to changed circumstances for the Raynet Cup to be awarded in accordance with Rule (i), the R.A.E.N. Committee will be requested to recommend an alternative basis of award to the Council.

(iii) In the event of R.A.E.N. ceasing to exist as a Society-sponsored organization, the Council reserve the right to award the Raynet Cup for some purpose other than that laid down in (i) and (ii).

(iv) The Raynet Cup will be presented at the Annual General Meeting of the Society.

Mr. Matthews was for some years Honorary Secretary of the R.A.E.N. Committee and is currently a member of that Committee.

R.S.G.B. International Radio Communications Exhibition

THE Society's annual exhibition will in future be known as the R.S.G.B. International Radio Communications Exhibition and will be held this year in the Seymour Hall, Seymour Place, Marble Arch, London, W.1, from Wednesday, October 31, to Saturday, November 3, inclusive.

Enquiries regarding stand space should be addressed to the Society's Exhibition Organizer, P. A. Thorogood (G4KD), 35 Gibbs Green, Edgware, Middlesex.

London Lecture Meetings

LECTURE meetings will be held in the Faraday Room of the Institution of Electrical Engineers, London, on Fridays, October 26, 1962, and March 29, 1963. Details of the lecture programme will be published later in the year.

The Golden Jubilee Year Presidential Address will be delivered in the lecture theatre on January 25, 1963.

London O.R.M.

THE Council has authorized the London Regional Representative (Mr. P. A. Thorogood, G4KD) to hold an Official Regional Meeting at Earls Court, London, on Saturday, October 6, 1962, commencing at 2.30 p.m.

Tickets, price 12s. 6d., which includes the cost of high tea at 5.30 p.m., can be obtained from the R.R. or from any T.R. or A.S.R. in the London Region. The raffle will be drawn at 7 p.m., followed by a social evening from 7.30 p.m. to 9.30 p.m.

During the afternoon the ladies will be able to hear a talk by Nell Corry (G2YL).

London Region Junk Sale

THE London Region Representative (Mr. P. A. Thorogood, G4KD) has forwarded to the Society a contribution for £10 towards Headquarters Fund from the London Region Giant Junk Sale held on May 26, 1962. Ninety-one

people attended the sale and three prizes were won by members as the result of raffles organized by 65th Signals Regiment, T.A.

The Amateur (Television) Licence

FROM time to time, enquiries are received at Headquarters as to the types of communication permitted under the terms of the Amateur (Television) Licence. The answer to these queries lies in Clause 1(1)(b) which states, in effect, that the station may (i) transmit pictures, (ii) transmit on phone or c.w. messages relating solely to technical matters connected with the sending and receiving of pictures, (iii) send the call-sign by phone or c.w., and (iv) receive messages from other amateur stations. Transmissions are restricted to the 420 Mc/s band and to the other higher frequency amateur bands.

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

The frequency of the Society's v.h.f. beacon transmitter at Wrotham Hill, Kent, when measured by the B.B.C. Frequency Checking Station, was as follows (nominal frequency 144·50 Mc/s).

Date	Time	Error
July 3, 1962	13.04 G.M.T.	786 c/s low
July 10, 1962	17.30 G.M.T.	540 c/s high
July 17, 1962	19.05 G.M.T.	485 c/s high
July 26, 1962	13.07 G.M.T.	610 c/s high
July 31, 1962	11.07 G.M.T.	620 c/s high

The station is in operation from 06.30-23.59 G.M.T. daily, but may be on for the full 24 hours for test purposes from time to time.

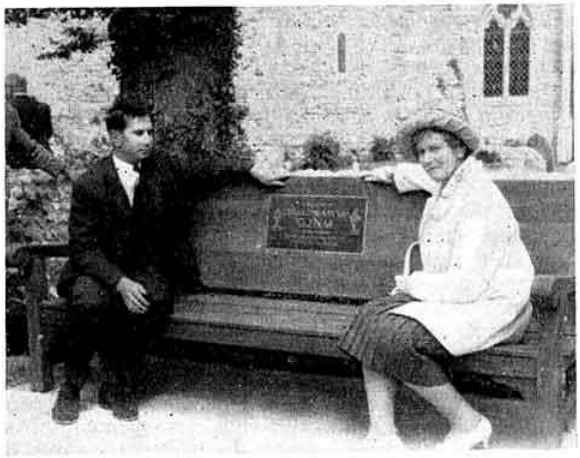
Marcuse Memorial Seat

AT a short ceremony outside Bosham Church, Sussex, during the afternoon of Saturday, July 21, 1962, a teak seat in memory of the late Gerald Marcuse (G2NM), a past president of the R.S.G.B., was formally handed over to the Chairman of the Bosham Parish Council (Mr. Frank Parham) by representatives of the Radio Amateur Old Timers' Association.

The eulogy was delivered by John Clarricoats (G6CL), who referred to the great services which Gerald Marcuse rendered to Amateur Radio over a period of more than 40 years.

Mr. Parham, in accepting the seat on behalf of the people of Bosham, of whom a great many were present at the ceremony, asked that the thanks of the Parish Council be conveyed to all who had been associated with the gift.

Harry Clark (G6OT) thanked Mr. Parham for his interest and for the help he had given to the organisers of the Memorial Fund, especially in connection with the negotiations with the Manor of Bosham authorities.



Mrs. Irene Marcuse and her son David were among the first to use the seat after it had been handed over to the Chairman of the Bosham Parish Council.

A close-up of the bronze plaque affixed to the Marcuse Memorial seat placed outside Bosham Parish Church.

Among those present at the ceremony were G2IJ, G2MN, G2TX, G2WJ, G3FJ, G5VS, G2DZT, G3AWY, G3BNC, G3CCX, G3LOK, G3PBB and May Gadsden. Afterwards Mrs. Irene Marcuse entertained a company of about 70 at her home, Tidewaters.

Silent Keys

BASIL DAVIES (G2BZ)

Yet another of the pioneers of Amateur Radio in Great Britain, Basil Davis (G2BZ) of Park Lane, London, W.1, passed from the scene on July 12, 1962. Licensed very shortly after World War I his early Amateur Radio activities, especially during the time he was associated with the Marble Arch Pavilion, London, brought him into the public eye on many occasions.

Mr. Davis was a member of the London Transmitters Society and a Council member of the R.S.G.B. during the late 1920's He was also a founder member of the Radio Amateur Old Timers' Association and although he had recently been ill he was able to attend the Reunion in April 1962 to the pleasure of all his friends.

Just prior to his last illness Mr. Davis had travelled to Torquay for a holiday. He died in Torbay Hospital.

The funeral service took place at Golders Green Crematorium on July 16, 1962.

Sympathies are extended to Mrs. Beryl Davis and to her son Richard in their great loss. J. C.

NORMAN J. BRUNDLE (G2CPL)

It is with deep regret that we report the death, on June 29, 1962, of Norman Brundle (G2CPL) of Trimley St Martin, Suffolk, at the age of 49 years.

Norman was a well-known personality in East Anglia, whose excellent signals on Top Band and 2m reflected the extremely efficient workmanship of his home built station. He will, however, be remembered for the energetic part he played in R.A.E.N. activities since its early days. For three years as County Controller for Suffolk, his hard work and outstanding leadership built the Suffolk Group into an efficient force. His initiative and foresight were responsible for the cordial relations which have always existed between the Group and the local Police and Red Cross. The Network has lost one of its staunchest members who will be difficult to replace.

To his family and close friends we offer our deepest sympathy. C. J. C.

R. J. DIXON (G3HSY)

It is with deepest sorrow that we record the passing of Russell Dixon (G3HSY) very suddenly on Sunday, June 24, 1962.

Rus, as he was known to his many friends in both the Stockport Radio Society and latterly the Guildford and District Radio Society, was a very keen c.w. operator, especially on 7 Mc/s, where his immaculate " fist " will be sadly missed. Those of us who were fortunate enough to visit his shack will remember the great pains he took in the construction of his equipment and also his pride in operating technique. He will be sadly missed by all to whom he was known.

Heartfelt sympathies are extended to his widow, two sons and also to his mother, in their very great loss. G3KGW

Certificate Claims

MEMBERS are reminded that all claims for R.S.G.B. certificates should be sent direct to Headquarters with a check list of the QSL cards enclosed. A leaflet giving details of Society awards is available on request.

Posting Certificate

ALL copies of the July issue of the R.S.G.B. BULLETIN were posted on Saturday, July 14, 1962, and the Society holds a certificate to that effect from the Letchworth, Herts, Post Office.

A QSL Mystery Solved

IN our March 1962 issue it was stated that K9QIZ is QSL Manager for 5N2NFS, ex-ZE5JI, G3PBM. The operator of 5N2NFS has written to explain that K9QIZ acts as his *Stateside* QSL Manager. The original letter from K9QIZ did not make that point clear.

International Railway Congress, Strasbourg

F9ZX will be very pleased to hear from any R.S.G.B. member who is due to attend the International Railway Congress at Strasbourg from September 22 to 25. He can be contacted at Rue de la Marne 4, Eragny, Seine-et-Oise, France.

Mobile Rallies

THE Council have accepted a recommendation of the Mobile Committee that no person may win more than one proficiency prize or certificate at any Mobile Rally organized by the Society during any one year.

Headquarters Fund—List No. 11

THE following is the eleventh list of those who had contributed to the Headquarters Fund up to July 31, 1962:
A. A. Lohmeyer (K0HBB), London Regional Giant Junk Sale, A. A. Hammond (G6AH), G. R. Singleton (G3HKF), R. T. Fowles (A.1631), R. C. Hewitt (G3NIX), Commander J. E. Ironmonger (G8PO), D. R. Cocking (B.R.S.19292), H. R. Poole (G3PKO), P. J. A. Gowen (G3IOR).

Total amount contributed to date: £1,504 5s. 10d.

SOUTH WEST OF ENGLAND REGIONAL MEETING

Grand Atlantic Hotel

Weston-super-Mare, Somerset

Sunday, September 23, 1962

COMMENCING AT 2 P.M.

The council will be represented at the meeting by Mr. H. A. Bartlett, G5QA (Zonal Representative and Past President), Mr. A. O. Milne, G2MI (QSL Manager and Past President), Mr. L. E. Newnham, B.Sc. G6NZ (Chairman, G.P.O. Liaison Committee and Past President) and Mr. John Clarricoats, O.B.E. G6CL (General Secretary and Editor).

Tickets, covering also high tea, 15s. single, 25s. double.

Applications for tickets should be sent with the appropriate remittance to Mr. J. Etherington, G5UG, 32 Worlebury Park Road, Weston-super-Mare, Som.

* * *

A mobile Rally will be held on Saturday September 22 1962 on the Beach Lawns, Grand Atlantic Hotel from 1.30 p.m. Talk in Stations G2FQP/A 144·36 and 144·108 Mc/s, G5UG 1920 kc/s, G5UG/M 1900 kc/s.

Full details from above address.

Much of the success of the Wethersfield R.S.G.B. National Mobile Rally held at Wethersfield U.S.A.F. Base on Whit Sunday was due to the great help which the Society's Mobile Committee received from Major W. T. Clark, U.S.A.F., and Sergeant E. Bernfield U.S.A.F. (WIVQF). In this picture, taken at the Rally, they are seen with Mr. C. H. L. Edwards, G8TL (Chairman of the Mobile Committee), Mrs. Elsie Edwards (Hon. Secretary of the Committee) and at the microphone Mr. Cliff Fenton, G3ABB, a member of the Committee.

Coventry Cathedral Festival Station

IN our report of the Coventry Cathedral Festival Station published last month a reference was omitted to the great help which the Coventry & District Group of the R.S.G.B. received from Daystrom Ltd of Gloucester. That company very kindly loaned a DX100 transmitter which was used for all the s.s.b. contacts.

Current Comment (Continued from page 57)

unduly worried on the score of security, whereas others, such as the United Kingdom and those of the Scandinavian countries, appear to regard the granting of an amateur licence to a foreigner as a risk that must not be taken.

A most curious reciprocal licensing anomaly exists in the case of the United States and Canada. A United Kingdom amateur cannot obtain a licence if he goes direct to the United States, but if, as has happened several times recently, he travels first to Canada and obtains a Canadian licence then he can operate on the soil of the United States by virtue of a reciprocal licensing arrangement which is in force between the United States and Canadian Governments. There does not appear to be any machinery at present in existence which will permit a U.S. amateur to operate in the U.K. by virtue of the U.S.-Canadian agreement.

At a recent meeting of the Society's G.P.O. Liaison Committee it was resolved to recommend the Council to reopen with the Post Office the question of International Amateur Radio reciprocal arrangements. As the recommendation has been accepted by the Council negotiations are again under way. Let us keep our fingers crossed this time! J. C.

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, June 25, 1962, at 6 p.m.

Present: The President (Mr. E. G. Ingram in the Chair), Messrs N. Caws, C. H. L. Edwards, R. C. Hills, A. O. Milne, L. E. Newnham, F. K. Parker, A. D. Patterson, R. F. Stevens, G. M. C. Stone, J. W. Swinnerton, P. H. Wade, E. W. Yeomanson (Members of the Council) and John Clarricoats (General Secretary).

Apologies for Absence were submitted on behalf of Major-General E. S. Cole and Mr. H. A. Bartlett.

An apology for absence was received from Mr. A. C. Williams on June 26, 1962.

* * *

Membership

Resolved (i) to elect 96 Corporate members and 39 Associates; (ii) to grant Corporate membership to five Associates who had applied for transfer.

Applications for Affiliation

Resolved to grant affiliation to: Cray Valley Radio Society, Manchester University Amateur Radio Society, Radio Club of Loughborough and District, Pye Telecommunications Amateur Radio Group, and Wickford Radio Club.

Mr. G. E. Verrill

Resolved to award an honorarium to Mr. Verrill in appreciation of his past services to the Society as Hon. Certificates Manager.

Headquarters Committee

Mr. Caws reported on the informal discussions which had taken place between the members who had been appointed to serve on the ad hoc Headquarters Committee. The Committee would report fully to the Council at a later meeting.

Consideration was given to a petition, which had been received from ten members resident in South London and North Surrey. The petitioners expressed concern over the decision to establish a Headquarters Fund and stated they had no confidence that a target sum will be reached sufficient to rehouse Headquarters adequately or in the way envisaged by Council members.

It was agreed to draw the attention of the petitioners to the *Current Comment* published in the May 1962 issue of the R.S.G.B. BULLETIN and to the decision of the Council to set up an ad hoc Headquarters Committee. (A representative on behalf of the petitioners later wished the Council every success in its search for new headquarters and expressed the hope that those in the Society who support the move will not be wanting in generosity. —EDITOR).

Exhibition Matters

It was agreed (i) to accept a recommendation of the Exhibition Committee that the name of the Radio Hobbies Exhibition be changed to R.S.G.B. International Radio Communications Exhibition; (ii) to advise Mr. Thorogood that the Council is in favour of a suggestion that an exhibition sponsored by the Society should be held in the New Hall of the Royal Horticultural Society during the autumn of 1963.

In reaching a decision on (ii) above the Council were advised that as there would be no Radio Show at Earls Court during 1963 there should be no difficulty in obtaining good support for an R.S.G.B. exhibition in the New Hall of the Royal Horticultural Society during September of that year.

The Amateur Radio Handbook

Resolved to advertise *The Amateur Radio Handbook* in the October 1962 issues of the *Wireless World*, *Practical Wireless* and *Radio Constructor* at a total cost of £55.10.0.

I.A.R.U. Region I Division

It was reported that an I.A.R.U. Region 1 Division Conference would be held in Malmo, Sweden, during the period June 10-15, 1963.

A summary of the audited accounts of the Division for the year 1961 was submitted. The accounts showed that income during the year totalled 13,404.96 Sw. Fr. Expenditure totalled 5,258.74 Sw. Fr. Balances as at December 31, 1961, were as follows:

		£
Fund 1 (established for general expenses)	6,276.51	523
Fund 2 (established for the organization of Committee meetings)	3,500.08	291
Fund 3 (established for representation at I.T.U. C.C.I.R. Conferences)	24,019.83	2001
Sw. Fr.	33,796.42	2815

It was reported that (i) the basis of contributions (as agreed at the Folkestone Conference in 1960) had been at the rate of 50 Swiss Cents per licensed member as at January 1, 1960; (ii) there are approximately 12 Swiss Francs to the £1 sterling.

Wethersfield Mobile Rally

It was reported that the R.S.G.B. National Mobile Rally held at U.S.A.F. Base, Wethersfield, Essex, on Whit Sunday, was a great success. It was agreed to present inscribed copies of *The Amateur Radio Handbook* to Major W. T. Clarke and Sgt E. Bernfield of the U.S.A.F. in appreciation of the help they gave to the Society in connection with the Rally, and to the Base Library as a token of goodwill.

Reports of Committees

The Minutes of meetings of the following committees were submitted as Reports:

V.H.F. Committee	May 14, June 4, 1962
Finance and Staff Committee	May 17, 1962
Mobile Committee	May 20, June 6, 1962
Contests Committee	May 24, 1962
R.A.E.N. Committee	May 26, 1962
Scientific Studies Committee	May 28, 1962
TVI/BCI Committee	June 13, 1962
Exhibition Committee	June 15, 1962

Resolved to receive the Reports and to accept and adopt certain of the Recommendations contained therein.

The recommendations dealt, *inter alia*, with staff salaries, an offer by Mr. E. A. Matthews to present a trophy to the Society in connection with R.A.E.N. activities, the Low Power Contest, the International Quiet Sun Year programme, and a Technician's Licence.

The meeting terminated at 10.15 p.m.

GB2RS SCHEDULE

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

Frequency	Time	Location of Station
3600 kc/s	9.30 a.m.	South East England
	10 a.m.	Severn Area
	10.30 a.m.	North Midlands
	11 a.m.	North East England
	11.30 a.m.	South West Scotland
	12.00	North East Scotland
145·3 Mc/s	11.15 a.m.	Beaming north east from Sutton Coldfield
	11.30 a.m.	Beaming north west from Sutton Coldfield
	11.45 a.m.	Beaming south west from Sutton Coldfield
145·1 Mc/s	12 noon	Beaming north from South East England
	12.15 p.m.	Beaming west from South East England

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

County Representatives

THE following is an addition to the list of County Representatives published in the December 1960 issue:

REGION 1—LANCASHIRE EAST
M. BARNSLEY (G3HZM), 11 Cemetery Road, Denton, Manchester.

Town Representatives

THE following are additions to the list of Town or Area Representatives published in the December 1961 issue:

REGION 8—KENT
CANTERBURY AND ASHFORD
D. N. T. WILLIAMS (G3MDO), Seletar, New House Lane, Canterbury.
FOLKESTONE AND HYTHE
F. C. RICHARDSON (G3MYX), 7 West View, Folkestone.

Change of Address

The address of Mr. W. A. Higgins (G8GF), Representative for Region 3, is now 33 Cedars Avenue, Kingswinford, Brierley Hill, Staffs.

Resignations

Messrs J. E. Hodgekins (G3EJF) and F. N. Kendrick (G3CSG) have resigned as Area Representatives for Bury and Rossendale, and the Wirral respectively.

Nominations for their successors should be made in the prescribed form and sent to reach the General Secretary by not later than September 30, 1962.

Affiliated Society Representative

THE following is an addition to the list of Affiliated Society Representatives published in the December 1961 issue:

CIVIL SERVICE RADIO SOCIETY:
D. E. Tomkinson (G3IIE), 24 Meadway, Old Coulsdon, Surrey.

CONTEST NEWS

RESULTS — REPORTS — RULES

144 Mc/s Field Day

CONDITIONS during the 144 Mc/s Field Day on May 6, 1962, were very variable but on the whole were above average for the month. The weather conditions were generally poor, some stations operating in fog and mist.

Considering the weather it is very pleasing to find an increase in the number of contestants participating. Though there were quite a number of stations missing who have been prominent in the past few years, over 90 portables and mobiles are known to have been active and from these 46 entries were received. Several portable stations were operating from rare counties during the contest and the " county chasers " who remained at home must have had a good time.

The winner of the contest was J. Berry (GW3JZN/P) who operated from a very elevated QTH in Caernarvonshire with L. H. Noden (GW3JPB/P) as runner up. Both of these operators and four others had over 100 contacts during the nine hours of the contest.

An otherwise excellent entry was unfortunately marred by the poor log keeping of many of the entrants. On the whole the report and serial number were copied correctly but a large number of errors occurred in the location, particularly in the bearing; e.g. 10 west of Oxford instead of 10 east of Oxford. This leads to a change in the computed mileage, sometimes more, sometimes less, and a deduction of a percentage of the points for the error (see R.S.G.B. BULLETIN, December, 1961, page 270). Many entrants will find that their score has been reduced by several hundreds of points due to errors of this kind.

G3HWR, G3LTN and B.R.S.13336 are thanked for their check logs.

Posn.	Call-sign	Contacts	Points	Posn.	Call-sign	Contacts	Points
1	GW3JZN/P	105	14940	24	G3PNA/P	69	5734
2	GW3JPB/P	113	12988	25	G3LSF/P	61	5637
3	G3PIA/P	101	10859	26	G3PBV/P	51	5343
4	G3KMT/P	94	10664	27	G3GRS/P	69	5006
5	GW4LU/P	100	10589	28	G2CPM/P	47	4787
6	G3MNQ/P	100	10124	29	G3IAS/P	46	4464
7	G3MAR/P	109	10095	30	G3KEU/P	45	4445
8	G3JWQ/P	80	9643	31	G3OXD/P	61	4361
9	G3EFX/P	82	9469	32	GM2FHH/P	36	4134
10	G3FD/P	69	8649	33	G3XC/P	21	3716
11	G5ZT/P	54	8386	34	G2DHV/P	52	3636
12	GW3OAF/P	59	8218	35	G3BXF/P	41	3620
13	G3MRA/P	54	8027	36	GW3NUE/P	31	3455
14	G3ERD/P	72	7828	37	G8TA/P	49	3139
15	G3MTI/M	79	7498	38	G3PHO/P	29	2907
16	G3LHA/P	68	7026	39	G3HRH/P	27	2668
17	G3BNL/P	55	6888	40	GW2HIN/P	30	2570
18	G5HZ/P	57	6714	41	G3JDM/P	29	1926
19	G3JXN/P	62	6560	42	GM6XW/P	31	1740
20	G3GWB/P	40	6190	43	G3FEX/P	31	1632
21	G3ION/P	45	6075	44	G3COJ/P	22	1605
22	G3KLL/P	68	6061	45	GW3CBY/P	11	1475
23	G3JZW/P	60	5936	46	G5UM/P	17	1180

70 Mc/s Contest 1962

THIS year for the first time cross-band contacts were not allowed to count for points in the 70 Mc/s Contest held on June 16-17. In spite of this, many more contacts were made, more stations were on the band and higher scores resulted. Two years ago the " 4 metre " contest was nearly dropped from the calendar for lack of support: this year 61 stations are known to have been active including one EI, 49 Gs, seven G portables, three G mobiles, and four GMs. The entry of 18 is the highest yet.

The winner was L. W. G. Sharrock operating G3BNL/P from high ground south of Nottingham, with a multi-operator station G3PSA/P operated by five members of Pye Telecommunications, near Cambridge, second.

Several entrants commented that the contest is too long at the present level of activity—nevertheless there were 32 scoring contacts in the last hour and quite a lot of rag chewing. At the present state of the 70 Mc/s band first-class equipment is more important than slick operating and several good DX contacts were made on the Sunday afternoon, each of which took up to 20 minutes under weak signal conditions. In a short contest not only would stations grudge so much time for one QSO but QRM would also be heavier making such contacts still more difficult.

A strong signal for much of the time over most of England was EI2W, but his frequency was not well known and few stations actually heard him. As the Eireann band now coincides with the British allocation this difficulty should not arise again.

Equipment

Much of the equipment on the transmitting side was based on surplus mobile gear but the usual range of v.h.f. valves appear in home-built rigs:—three 829s, two QQV03-20s, two 832s, two QQV03-10s, one 815, two 6146s, three DET19s, one TT12 and a QV04-7.

Receiver front-ends described used four RF27s, and one each of EC91, ECC84, ECC88, ECC91, A2521, 12AT7, 6CW4, E180F and an AFZ212 in an all transistor receiver at G3KEU/P.

Aerials were mostly Yagis: 2 five elements, 3 fours, 7 threes, 2 twos, 2 dipoles, a bi-square and a 4-over-4 slot fed.

Check logs received from EI2W, G3NDF and B.R.S. 13336 are gratefully acknowledged.

Position	Call-sign	Points	Scoring Contacts	Best DX (miles)
1	G3BNL/P	2809	33	245
2	G3PSA/P	2141	29	282
3	G3KEU/P	1648	21	223
4	G5FK	1451	38	140
5	G3CLW	1201	28	125
6	G5JU	1186	13	157
7	G3OHH	1045	18	200
8	G3CCM	969	30	91
9	G3FZL/P	859	20	117
10	G5DS	803	27	116
11	G3AYT	776	13	202
12	G5MR	761	8	152
13	GM3EGW	660	6	250
14	G3PJK	652	15	170
15	G3OKJ	650	26	89
16	G3FEX	502	11	139
17	G3NNO	190	5	73
18	G3HWR	70	4	48

Second 420 Mc/s Open Contest 1962

MEMBERS taking part in this contest are recommended to operate in accordance with the British Isles Seventy Centimetre Band Plan. The details of the contest are as follows:

When: 18.00 G.M.T. on Saturday to 18.00 G.M.T. on Sunday, October 20-21, 1962.

Station Locations: Stations may be operated from more than one site but the National Grid Full Six Figure reference must be recorded in the log for each location in the case of entries from G, GD, GM and GW. In all other cases, entrants must show latitude and longitude.

Eligible Entrants: All fully paid-up members of the R.S.G.B. resident in Europe. Multiple-operator entries will be accepted provided only one call-sign is used.

Contacts: May be made on either A1, A3, A3a or F3.

Scoring: Points will be scored on the basis of one point per mile.

Contest Exchanges: RST (RS) reports followed by the contact number and location (e.g. RST559001 5NE Wigan). This location must be identifiable on the 10 mile to the inch Ordnance Survey Map.

Logs: (a) Must be tabulated in columns headed (in this order) " Date/Time (G.M.T.)" " Call-sign of station contacted," " My report on his signals and serial number sent," " His report on my signals and serial number received," " Location of station contacted as received," " Points claimed." Logs must show clearly when station locations are changed.

(b) The cover sheet must be made out in accordance with R.S.G.B.

Contests Rule 5 and the declaration signed. The location of the station as transmitted must be given on the cover sheet.

(c) Entries must be postmarked not later than **Tuesday, November 6, 1962.**

Awards: At the discretion of the Council, a **miniature cup** will be awarded to the winner and **certificates of merit** to the runner-up and to the non-transmitting member submitting the best check log in the opinion of the Contests Committee.

The General Rules for R.S.G.B. Contests published on page 361 of the January 1962 issue of the BULLETIN apply to this contest.

V.H.F. National Field Day 1963

THE V.H.F. National Field Day, introduced as an experiment in July 1962, will be extended next year to include all v.h.f./u.h.f. amateur bands. A draft set of rules based on those of National Field Day, with changes appropriate to the higher frequencies, has been prepared by the Contests Committee who invite comments on them from interested members. The final rules will be published early in 1963. A copy of the draft rules can be obtained on application to Headquarters.

Members are urged not to wait until next year before sending in comments, as it will then be too late.

D/F National Final

DETAILS of the D/F National Final to be held on September 9, 1962, are being sent by post to all those who have qualified to take part, during the next two weeks.

Region 1 Field Day

REGION 1 (North West of England) Field Day is to be held this year on Sunday, September 16. Participation is open to single contestants or organized groups provided the holder of the call-sign used is a member of the Society residing in Region 1.

Details and a copy of the Rules may be obtained from the Regional Representative, B. O'Brien (G2AMV), 1 Waterpark Road, Prenton, Birkenhead.

Beacon Station GB3GEC **(Continued from page 67)**

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reaching the free space value but this phenomenon may perhaps come about during summer time when real duct formations may occur. As a rule the signal is fading rapidly and is suffering (in particular during daytime) from severe aircraft flutter effects. Worthy of particular mention are the night of April 24/25 when for 10 hours and the night April 25/26 when for 12 hours the signal level rose to about 5 μV. It is hoped to provide additional information at three monthly intervals as the experiment proceeds.

Courses of Instruction for the R.A.E.

Bradford Technical College, Central Hall, Bradford 5. Registration for the R.A.E. course will take place at Carlton Grammar School, on September 10, 11 and 12 at 7 p.m. Classes will be held on Wednesdays from 7 to 9 p.m. The lecturer will be D. M. Pratt (G3KEP).

Brentford Evening Institute, Clifden Road, Brentford, Middlesex. The following courses will commence during the week beginning September 24: (i) Morse, 7-9 p.m. on Tuesdays; (ii) Radio Servicing, 7-9 p.m. on Tuesdays; (iii) R.A.E., 7-9 p.m. on Wednesdays. The fee in each case will be 10s. per term.

Brighton: Preston Technical Institute, Coombe Road, Brighton 7. A course in preparation for the Radio Amateurs' Examination will commence on September 20, 1962. Details may be obtained from the Principal, Brighton Technical College, Coombe Road, Brighton.

Bristol Technical College. A course in preparation for the R.A.E. will be held on Mondays from 6.45-9.15 p.m. A Radio Communication Course on radio technique with an amateur bias, which will include Morse instruction, will be held on Wednesdays from 7-9 p.m. Details may be obtained from R. E. Griffin (G5UH), 13 Alexandra Road, Uplands, Bristol 3, or from the Principal, Bristol Technical College, Ashley Down Road, Bristol 7.

Derby and District College of Technology, Kedleston Road. A course lasting for three terms will be conducted by F. C. Ward (G2CVV). Theory classes will be held on Tuesdays from 7-9 p.m. and Practical and Morse on Fridays at the same time. Enrolment will take place on September 17, 18 and 19. The fee will be 35s. for adults and 15s. for juniors.

East Ham Technical College, High Street South, East Ham, E.6. Enrolment for the R.A.E. course will take place on September 10, 11 and 12. Morse classes will be held on Mondays and theory classes on Wednesdays. Further information may be obtained from H. E. Reeve (G3JXZ), 284a, Barking Road, East Ham, E.6.

Erith Technical College, Erith Road, Belvedere, Kent. A course in preparation for the R.A.E. will commence in September. Details may be obtained from the Principal or from E. C. Hasted (G3BHF), 54 Plaxtol Road, Erith, Kent.

Glasgow: Allans Glens School, Montrose Street. Classes for the R.A.E. will be held on Tuesdays from 7-9.30 p.m. and for Morse Instruction on Thursdays from 7-9.30 p.m. A General Radio course will also be held on Thursdays. Enrolment for the courses will take place between September 3-6 at 7 p.m. Classes will commence the following week. No previous knowledge is required for any of these courses. The fee for the R.A.E. course (including Morse) will be £1. The fee for the General Radio course will also be £1. The lecturers will be A. M. Fraser GM3AXX (R.A.E. Theory), J. Sey, GM8MJ (Morse) and A. H. Mason, GM6MS (General Radio).

Ilford Literary Institute (High School for Girls), Cranbrook Road, (adjacent to Gants Hill Station, Central Line). The following classes have been arranged by the East London R.S.G.B. Group: (i) An eight month course for those intending to take the Examination (Wednesdays 7.15-9.15 p.m.); (ii) a 20 month course in preparation for the R.A.E. for those who have no basic knowledge of electricity and magnetism; (iii) Morse and Codes of Practice: a six month course in preparation for the G.P.O. Morse Test for an Amateur (Sound) Licence. Arrangements have been made for those who, in the opinion of the instructors, have reached the required speed to be tested at the College by a Post Office representative.

The fees for students living in the Essex County Council area will be 30s. for the R.A.E. Course, 20s. for the Morse and Codes of Practice Course or 35s. for the two courses. Students from other parts of London will be admitted as out-county students provided the Local Authority is informed. Enrolment will take place on September 10-13 from 7-8.30 p.m., but those who intend to enrol are advised to send their names with a s.a.e. to C. H. L. Edwards (G8TL), 28 Morgan Crescent, Theydon Bois, Essex, at once so that a place may be assured. Classes commence during the week beginning September 24.

London: Montem School, Hornsey Road, Holloway, N.7. The following courses will commence during the week beginning September 24: (i) R.A.E. (Mondays 7-9 p.m. repeated on Tuesdays and Wednesdays); (ii) Morse Code (Mondays 9-10 p.m. repeated on Tuesdays and Wednesdays). Enrolment will take place on September 17-21 from 7-9 p.m. but application should be made in the first instance to A. W. H. Wennell (G2CJN), 145 Uxendon Hill, Wembley Park, Middlesex. The fee will be 25s. for either course or for both.

Northwood Evening Institute, Potter Street School, Northwood Hills, Middlesex. A course for the R.A.E. and Morse Code will commence on September 24. Enrolment will take place 6.30-8.30 p.m. on September 17-19.

Thorpe Evening Institute, St. Andrew's School, Spinney Road, Thorpe, Norwich. An R.A.E. Course will commence on September 19,1962, at 7. p.m. The fee for the course will be 30s. for those over 21, 10s. for those between 18-21 years; there will be no fee for those under 18. Further information may be obtained from P. J. A. Gower (G3IOR) at the Institute.

Torbay Amateur Radio Society. A series of 19 two-hour lectures in preparation for the R.A.E. will commence on September 11 at 8 p.m. at the club lecture room, 95 Belgrave Road (rear entrance), Torquay. The fee for the course will be £1 1s. plus membership subscription. The lecturer will be E. J. Hayman (G3ABU).

No November R.A.E. in Bromley

WITH reference to the list of centres for the Radio Amateurs' Examination published on page 603 of the June BULLETIN, it is learnt that Bromley Technical College will not be holding an examination on November 2, 1962.

R.S.G.B. Slow Morse Practice Transmissions

The following Slow Morse Practice transmissions are sponsored by the Society. Those responsible for the transmissions have a duty to the membership to adhere to the schedule but if they cannot do so for any reason they should notify the Honorary Organizer, Mr. C. H. L. Edwards (G8TL), 28 Morgan Crescent, Theydon Bois, Essex.

Time	Call-sign	kc/s	Town
Sundays			
09.30	G3BHS	1910	Southampton
09.30	G3HNJ, G3OFP, G3OMJ	1840	Doncaster
10.15	G3CGD	1875	Cheltenham
10.30	G3NCZ	1920	Blackburn, Lancs.
11.00	G3GZE	1840	Blackburn
11.00	G2FXA	1900	Stockton-on-Tees
11.00	G3NXQ	1850	Warndon, Worcs.
11.00	GW3PCK, GW3PEX	1850	Cefncoed, Breconshire
12.00 †	G3HVI, G3IVB, G3OGD, G3ONQ	1920	Stoke-on-Trent
12.00	G3IGW, G3NBI	1900	Halifax
12.00	GI5UR	1860	Belfast
22.30	G3KWH	1900	Welwyn Garden City
Mondays			
18.30	G3NC	1825	Swindon
18.30	G3NCZ	1920	Blackburn, Lancs.
19.00	G3EEL	1960	Peterborough
19.00	G3KTP	1850	Heanor, Derby
19.00	G3MXS	1915	Wirral
19.30	G3AJD	1940	Barnet
20.00	G3BMY	1838	Birmingham
20.00	G3GZE	1840	Blackburn
20.00	G3HJG	1825	Manchester
20.00	G3NIM	1910	Southampton
20.30	G3AGN	1875	Felixstowe
21.30 †	G3IRM, G3MWO	1981	Bury St. Edmunds
21.30	G3NOE	1900	Bradford
22.00	G3PRM	1916	Alvaston, Derbys.
Tuesdays			
18.00	G3GZE	1840	Blackburn
18.30	G2FXA	1900	Stockton-on-Tees
19.00	G3ONB	1850	Kirkby-in-Ashfield
19.00	GW3BQY, GW5VX	1918	Port Talbot
19.30	G3AJD	1940	Barnet
20.00	G3NBV	1910	Southampton
20.00	G3NHR	1900	Hounslow
20.15	G2AYQ	1875	St. Agnes, Cornwall
20.30	G3MEH	1900	Old Coulsdon, Surrey
20.30	G3NKX	1875	Loughton
21.00	G3LSC, G3MKN, G3NUN	1875	Poole
21.15	G2CPL	1875	Felixstowe
21.45	G2UK	1875	Lowestoft
22.00 †	G2CZU, G3LLM	1820	Bath
22.00	G3AWL	1980	Wingate, Co. Durham
22.30	G3KWH	1900	Welwyn Garden City
Wednesdays			
19.00	G8RQ	1850	Chesterfield
19.30	G2BSQ	1930	Ashtead, Surrey
19.30	G3AJD	1940	Barnet
Wednesdays			
19.30	G3NQR	1875	Harrow Weald
19.45	G3KFE	1950	Stevenage
20.00	G3BHS	1910	Southampton
20.00	G3GZE	1840	Blackburn
20.15	G2AYQ	1875	St. Agnes, Cornwall
20.30	G3LCK	1910	Canterbury
20.30	G3PED	1910	Goodmayes, Essex
21.00 †	G3HVI, G3IVB, G3OGD	1920	Stoke-on-Trent
21.00	G3LSC, G3MKN, G3MXF	1875	Poole
21.00	G3AGX	1920	Hull
22.00			
21.30	G3HNJ, G3OFP, G3OMJ	1840	Doncaster
21.30	G3NOE	1900	Bradford
22.00	G3NXQ	1850	Warndon, Worcs.
Thursdays			
18.30	G3NC	1825	Swindon
19.00	G3EEL	1960	Peterborough
19.30	G3AJD	1940	Barnet
20.00	G3NBV	1910	Southampton
20.00	G3NHR	1900	Hounslow
20.00	G5XB	1890	Reading
20.15	G2AYQ	1875	St. Agnes, Cornwall
21.15	G3LGK	1916	Ilkeston, Derbys.
21.30 †	G3IRM, G3MWO	1981	Bury St. Edmunds
22.00 †	G2CZU, G3LLM	1820	Bath
22.00	G3AWL	1980	Wingate, Co. Durham
22.00	G3HZM	1825	Manchester
22.30	G3KWH	1900	Welwyn Garden City
Fridays			
18.30	G3DMN, G3FVP	1880	Ipswich
18.30	G3NCZ	1920	Blackburn, Lancs.
19.00	G3PGS	1850	Kimberley, Notts.
19.30	G3AJD	1940	Barnet
20.00	G2BOJ, G3NXZ	1840	Doncaster
20.00	G3JQS	1915	Totton
20.00	G3NYB, G3NXZ	1980	Doncaster
20.15	G2AYQ	1875	St. Agnes, Cornwall
20.30	G3ICX	1915	Sutton Coldfield
20.30	G3KGU	1915	Theydon Bois, Essex
21.30 †	G3OVU, G3KSS	1900	Bradford
Saturdays			
13.00	G2FXA	1900	Stockton-on-Tees
14.30	G3NQA	1925	Birmingham
19.30	G3KPO	1900	Peterborough
19.30	G3KPO	1960	Peterborough

† *Alternately*

Alterations and additions to this list should be sent to the Honorary Organizer at the address given above.

Receipts

RECEIPTS for subscriptions paid by cheque, bankers' order or postal order are not now issued unless specially requested. Receipts are drawn, however, and kept on file at Headquarters for six months.

Held Over

DUE to pressure on space, the second part of "Third Method Single Sideband" and a number of other technical and topical features have been unavoidably held over.

Affiliated Societies and Clubs

THE following Clubs and Societies were affiliated to the Radio Society of Great Britain as at July 15, 1962. The addresses given are for communications.

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

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

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

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

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

Amateur Radio Club (G3HUS): Army Apprentices School, Arborfield, Reading Berks.

Amateur Radio Club of Nottingham (G3EKW): c/o T. Kirk (G3OMK), 33 Sunnydale Road, Bakersfields, Nottingham.

*Amateur Radio Club (G5PM): Royal Military Academy Sandhurst, Waterloo Coy, Camberley, Surrey.

Albright and Wilson Amateur Radio Society (G3OXD): Albright & Wilson (Mfg.) Ltd., P.O. Box 3, Oldbury, Birmingham.

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

Aquila Radio Club (G3BRK): c/o R. C. B. Cutts (G3HRC), "L" Division, I.B.I. "Aquila," Golf Road, Bromley, Kent.

Ariel Radio Group (Langham) (G3AYC): c/o A. H. B. Bower, Designs Dept., B.B.C. London, W.1.

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

Ariel Radio Group (TV Section) (G3NTS): c/o S. W. Lane, SA11, Ariel Radio Group, B.B.C., TV Studios, Lime Grove, London, W.12.

Atomic Energy Research Establishment (Harwell) Amateur Radio Club (G3PIA): c/o C. Sharpe (G2HIF), 20 Harcourt Road, Wantage.

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

Barnet Radio Club (G3FFA): c/o E. W. Brett (G3LUY), 28 Edward House, Edward Grove, New Barnet, Herts.

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

Basingstoke Amateur Radio Club: c/o P. Jackson (G3ADV), 11 Oaklands, Winklebury, Basingstoke, Hants.

B.B.C. (Daventry) Club (G5XX): c/o R. B. Boughton, 11 Chaucer Way, Daventry, Northants.

B.B.C. (Evesham) Club (G8PG): c/o B. J. Gealer, St. Ecwins, High Street, Evesham, Worcs.

*B.B.C. (Rampisham) Club, Radio Section (G3OAP): c/o Miss Z. K. Johnson, Rampisham Down, Maiden Newton, Nr. Dorchester, Dorset.

Bishop Rawstorne Secondary School Radio Society: c/o S. E. Kelly (G3HDL), Bishop Rawstorne C.E. Secondary School, Croston, nr. Preston, Lancs.

*Blackpool & Fylde Amateur Radio Society (G3NJN): c/o L. Beevers (G3JLF), 6 Marina Avenue, High Cross, Blackpool, Lancs.

Bloxham School Radio Club: c/o F. Y. Pratt, Bloxham School, Banbury, Oxon.

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

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

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

Bridlington & District Radio Society: c/o I. C. Purves (B.R.S.23003), 10 Meadow Road, Bridlington, E. Yorkshire.

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

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

Brownhills Secondary Boys' School Radio Club (G6SW): c/o C. J. Morris (G3ABG), Head of Science Dept., Brownhills Secondary Boys' School, Chester Road, Brownhills, nr. Walsall, Staffs.

Burnham-on-Sea Amateur Radio Club: c/o M. Lillington, 19 St. Marys Road, Burnham-on-Sea, Somerset.

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

Bury Radio Society (G3BRS): c/o J. C. Turner (G8NL), 56 Sunny Bower, Tottington, nr. Bury, Lancs.

Cambridge & District Amateur Radio Club (G3PKF): c/o H. L. Lowe (G3PEI), 34a Verulam Way, Cambridge.

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

Cannock Chase Amateur Radio Society: c/o N. H. Hyde, D.L.C., (G3PJM), 91 Pelsall Lane, Rushall, nr. Walsall, Staffs.

Cathays High School (Cardiff) Radio Club (GW3OUW): c/o W. F. Ware, Cathays High School (Boys), New Zealand Road, Cardiff.

*Catterick Amateur Radio Club (G3CIO): c/o J. E. Collins, 2 Sqdn., 8th Sig. Regt., Catterick Camp, Yorks.

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

Cheltenham Amateur Radio Society (G5BK): c/o J. H. Moxey (G3MOE), 11 Westbury Road, Leckhampton, Cheltenham, Glos.

Chesterfield & District Radio Society: c/o K. S. Hudson, 20 Tennyson Avenue, Chesterfield, Derbyshire.

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

*City of Belfast Y.M.C.A. Radio Club (G16YM): c/o R. J. Boal, Y.M.C.A., Wellington Place, Belfast.

City & Guilds College Radio Society (G5YC): Electrical Engineering Dept., City & Guilds College, South Kensington, London, S.W.7.

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

Clifton Amateur Radio Society (G3GHN): c/o C. E. Godsmark (G3IWL), 211 Manwood Road, London, S.E.4.

Conway Valley Amateur Radio Club: c/o R. Jones, 15 Glyndwr Road, Llysfaen, Colwyn Bay, Denbighshire.

Cornish Radio & Television Club: c/o W. C. Pitman (G3PEP), Pendower Farm, Perranwell Station, nr. Truro, Cornwall.

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

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

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

Cray Valley Radio Society: c/o S. W. Coursey (G3JJC), 49 Dulverton Road, London, S.E.9.

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

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

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

Dorking and District Radio Society : c/o J. Greenwell (G3AEZ), Eastfield, Beare Green, near Dorking, Surrey.

*Dudley Amateur Radio Club: c/o D. H. W. Pratt (G3MHS), 23 Kent Street, Upper Gornal, Dudley, Worcs.

East Kent Radio Society (G3LTY): c/o D. N. T. Williams (G3MDO), "Seletar", Newhouse Lane, Canterbury, Kent.

Eccles & District Radio Club (G3GXI): c/o J. A. Jennison, 20 Carr Road, Higher Irlam, nr. Manchester, Lancs.

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

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

Farnborough Technical College Radio Society (G3POW): c/o N. Anscombe, Farnborough Technical College, Boundary Road, Farnborough, Hants.

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

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

Grantham & District Amateur Radio Society: c/o A. Brown (G3OWR), Beechcroft Road, Grantham, Lincs.

*Gravesend Amateur Radio Society (G3GRS): c/o W. Young, 99 Darnley Road, Gravesend.

Grimsby Amateur Radio Society: c/o J. M. Charles, 17 Revesby Avenue, Grimsby, Lincs.

*Guildford & District Radio Society: c/o J. R. Barker, 35 Banders Rise, Merrow, Guildford, Surrey.

Halifax & District Amateur Radio Society: c/o G. Sunter, 24 Booth Fold, Luddenden Foot, Halifax, Yorkshire.

Harlow & District Radio Society: c/o G. E. Read (G3ERN), 6 High Street, Harlow, Essex.

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

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

Ilford & District Radio Society: c/o C. E. Largen, 11 Chapel Road, Epping, Essex.

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

Ilminster Grammar School, Amateur Radio Society: c/o R. J. Harris, New Cross, South Petherton, Somerset.

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

King's College Radio Society (G3OWM): Union Society, College Road, Newcastle-on-Tyne 1, Northumberland.

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

*Kirkwall & District Amateur Radio Club: c/o A. B. Wylie, 7 Garrioch Street, Kirkwall, Orkney.

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

*Leeds University Union Amateur Radio Society: c/o P. Green, University Union, University Road, Leeds 2, Yorkshire.

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

Lichfield Amateur Radio Society: c/o G. Seward (G3PBK), 51 Longbridge Road, Lichfield, Staffs.

Lincoln Short Wave Club (G3IXH): c/o J. S. Russell (G3PMT), Room C6, Garland Block, R.A.F. Scampton, Lincs.
*__Liverpool & District Amateur Radio Society (G3AHD):__ c/o H. James (G3MCN), 448 East Prescot Road, Knotty Ash, Liverpool 14.
*__Lothians Radio Society:__ c/o W. T. Sutherland (GM3JWS), 47 Great King Street, Edinburgh 3.
*__Loughborough College Radio Society:__ c/o D. B. Johns, Faraday Hall, Ashby Road, Loughborough, Leics.
Lymington & District Amateur Radio Society (G3RBZ): c/o W. Johnson, Denton, Hordle Lane, Hordle, Lymington, Hants.
Magnus Grammar School Radio Society (G3PAW): c/o J. Baxter, Magnus Grammar School, Notts.
Manchester College of Science and Technology Radio Society (G3CXX): c/o The Secretary, Students' Union, Sackville Street, Manchester.
Manchester Grammar School Radio Club: c/o D. I. Hoult, Manchester Grammar School, Rusholme, Manchester 13, Lancs.
Manchester & District Amateur Radio Society (G3HOX): c/o A. B. Langfield (G3IOA), 2 Rowland Street, Moston, Manchester 10.
March & District Radio Amateurs Society (G3PMH): c/o R. E. Ludman, Police Headquarters, High Street, March, Cambs.
Marconi Apprentices' Amateur Radio Club (G3JTW): c/o D. A. Hills, Marconi's Wireless Telegraph Co. Ltd., Essex.
Mitcham & District Radio Society (G3OCT): c/o B. Blandford (B.R.S. 18572), 1 Biggin Avenue, Mitcham, Surrey.
Murphy Radio Sports Club Radio Section (G8LM): c/o E. Garrett, Electronics Design, Murphy Radio Ltd., Welwyn Garden City, Herts.
Newbury & District Amateur Radio Society: c/o G. T. Allen (G3JTK), 83 Huntsmoor Road, Tadley, near Basingstoke, Hants.
Northampton Short Wave Radio Club (G3GWB): c/o Allens Pram Works, 8 Duke Street, Northampton.
Northern Heights Amateur Radio Society: c/o A. Robinson, Candy Cabin, Ogden, Halifax, Yorkshire.
North Kent Radio Society (G3ENT/GB3ENT): c/o B. J. Reynolds (G3ONR), 49 Station Road, Crayford, Kent.
*__North Notts Amateur Radio Society:__ c/o E. W. Badger, 20 Tennyson Drive, Worksop, Notts.
North West V.H.F. Group (G3OHF): c/o J. G. Barnes (G3AOS), 5 Prospect Drive, Hale Barns, Cheshire.
*__Norwich & District Radio Club:__ c/o O. F. Simkin, 15 Hillside Road, Thorpe-next-Norwich, Norfolk. NOR. 48.T.
*__Norwood Technical College Amateur Radio Society (G3HFY):__ c/o R. F. Burns, 35 Beulah Hill, London, S.E.19.
Oxford & District Radio Society: c/o F. A. Jefferies, 1 Lovelace Road, Oxford.
Paddington & District Amateur Radio Society (G3PAD): c/o L. Orbach, 2 Warwick Crescent, London, W.2.
Plymouth Radio Club (G3PRC): c/o R. Hooper, 2 Chestnut Road, Peverell, Plymouth, Devon.
*__Portsmouth and District Radio Society (G3DIT):__ c/o T. R. Mortimer, 72 Whitworth Road, Copnor, Portsmouth.
Preston Radio Society (G3KUE): c/o W. K. Beazley (B.R.S.24462), 9 Thorngate, Penwortham, Preston, Lancs.
*__Purley & District Radio Club:__ c/o E. R. Honeywood (G3GKF), 105 Whytecliffe Road, Purley, Surrey.
Pye Telecommunications Amateur Radio Group (G3PYE): c/o J. M. Bowman, Pye Telecommunications Ltd., Newmarket Road, Cambridge.
Queens University of Belfast Radio Club: c/o M. Scott, B.Sc., 22 Malone Road, Belfast 9.
Radar & Electronics Association (Students Branch) Northern Polytechnic: c/o M.S. Heghoyan, c/o Students Union, Northern Polytechnic, London, N.7.
*__Radio Society of Harrow:__ c/o A. C. Butcher, 95 Norval Road, N. Wembley, Middx.
Radio Society of Loughborough & District (G3RAL): c/o M. Hawkins, 22 Sileby Road, Barrow-on-Soar, Leics.
R.A.F. Amateur Radio Society (G8FC): c/o R.A.F. Locking, Weston-super-Mare, Somerset.
*__R.A.F. (Aldergrove) Amateur Radio Club (GI3LSH):__ c/o Sgt. C. Curtis, Sergeant's Mess, R.A.F. Station, Aldergrove, near Crumlin, Northern Ireland.
*__R.A.F. (Boscombe Down) Amateur Radio Club (G3LQA):__ c/o Cpl/Tech R. W. Duggan, "B" Sqdn. Signals, R.A.F. (MoA Unit) Boscombe Down, Amesbury, Wiltshire.
R.A.F. (Compton Bassett) Amateur Radio Club (G3HXZ): c/o Officer i/c, R.A.F. Station, Compton Bassett, Calne, Wilts.
R.A.F. (Stanbridge) Amateur Radio Society (G3HSX): R.A.F. Station, near Leighton Buzzard, Beds.
*__R.A.F. (Watton) Amateur Radio Society (G3MSZ):__ c/o Sgt. R. E. Wiseman, Sgts. Mess, R.A.F. Watton, Thetford, Norfolk.
R.A.F. (Yatesbury) Amateur Radio Club (G3HWF): R.A.F. Station, Yatesbury, nr. Calne, Wilts.
*__Ravensbourne Amateur Radio Club (G3HEV):__ c/o J. H. F. Wilshaw, 4 Station Road, Bromley, Kent.
*__Reading Amateur Radio Club:__ c/o R. G. Nash (G3EJA), 9 Holybrook Road, Reading, Berks.
Reigate Amateur Transmitting Society: c/o F. D. Thom (G3NKT), 12 Willow Road, Redhill, Surrey.
*__Romford & District Amateur Radio Society:__ c/o N. Miller (G3MVV), 55, Kingston Road, Romford, Essex.
Rotherham & District Radio Club (G3OAM): c/o S. J. Scarbrough, 25 Crawshaw Avenue, Sheffield 8, Yorkshire.
Royal Naval Amateur Radio Society (G3BZU): c/o K. E. Taylor, *H.M.S. Mercury*, Leydene, Petersfield, Hants.
Royal Signals Amateur Radio Society (G3CIO): c/o Capt. J. E. P. Philip, 12 Rawlinson Road, Catterick Camp, Yorkshire.
Salisbury & District Short Wave Club: c/o A. C. A. Newman (G2FIX), 74 Victoria Road, Wilton, nr. Salisbury, Wilts.
S.B.D. Radio and Television Society: c/o H. Crisp, Special Inquiry Branch, P.O. Savings Dept. (S.B.D.), Blythe Road, London, W.14.
Scarborough Amateur Radio Society (G4BP): c/o P. B. Briscombe (G8KU), Roseacre, Irton, nr. Scarborough, Yorks.
Severn Valley Amateur Radio Club: c/o R. G. Yearwood, 9 Kidderminster Road, Bridgnorth, Shropshire.
Sheffield Amateur Radio Club: c/o D. R. A. Hill, 16 Tylney Road, Sheffield 2, Yorkshire.
Shefford & District Amateur Radio Society (G3FJE): c/o G. R. Cobb (G3IXG), 75 Ampthill Road, Shefford, Beds.
Slade Radio Society (G3JBN): c/o D. S. Williams, 117 The Boulevard, Wylde Green, Sutton Coldfield, Warwickshire.
South Birmingham Radio Society (G3OHM): c/o T. W. Legg, Flat 3, 80 Alcester Road, Moseley, Birmingham 13.
South Dorset Radio Society: c/o C. E. Biggs, 54 Prince of Wales Road, Dorchester, Dorset.
Southend & District Radio Society (G5QK): c/o Mrs. P. M. C. Collop, 53 Beedell Avenue, Westcliff-on-Sea, Essex.
South Manchester Radio Club (G3FVA): c/o M. Barnsley (G3HZM), Greenways, 11 Cemetery Road, Denton, Manchester 8, Lancs.
*__Southport Radio Society:__ c/o S. Ellis, 5 Woodmoss Lane, Scarisbrick, near Ormskirk, Lancs.
*__South Shields & District Amateur Radio Club (G3DDI):__ c/o K. Sketheway, 51 Baret Road, Walkergate, Newcastle-on-Tyne 6.
South Yorkshire Amateur Radio Society: c/o M. E. Brailsford, 15 Ayrsome Walk, Cantley 4, Doncaster, Yorkshire.
Spen Valley Amateur Radio Society: c/o L. A. Metcalfe, 1a Moorlands Road, Birkenshaw, near Bradford.
S.R.D.E. Technical Society (G3DMZ): c/o J. Singleton, A.M.I.E.E. S.R.D.E., Ministry of Aviation, Christchurch, Hants.
Standard Radio Club (Harlow) (G3NIS): c/o C. Waterman, 46 Danbury Road, Loughton, Essex.
Stockport Radio Society (G6UQ): c/o E. G. Houldsworth (G6NM), 52 Worsley Crescent, Stockport, Cheshire.
*__Stourbridge & District Radio Society:__ c/o A. K. Davies (B.R.S.20650), 48 Church Avenue, Amblecote, nr. Stourbridge, Worcs.
Stratford-on-Avon & District Radio Club: c/o P. Robinson, 43 Loxley Road, Stratford-on-Avon, Warwickshire.
Surrey Radio Contact Club: c/o S. A. Morley (G3FWR), 22 Old Farleigh Road, Selsdon, South Croydon, Surrey.
Sutton & Cheam Radio Society: c/o F. J. Harris (G2BOF), 143 Collingwood Road, Sutton, Surrey.
Sutton Coldfield Radio Society: c/o L. E. R. Hall, 24 Calthorpe Road, Walsall, Staffs.
Tees-Side Amateur Radio Club: c/o A. L. Taylor (G3JMO), 8 Heythrop Drive, Middlesbrough, Yorkshire.
Thames Valley Amateur Radio Transmitters Society: c/o K. Rogers (G3AIU), 21 Links Road, Epsom, Surrey.
*__Thanet Radio Society (G3DOE):__ c/o J. P. Barnes (G3BKT), 18 Grange Road, Ramsgate, Kent.
*__Torbay Amateur Radio Society (G3NJA):__ c/o Mrs. G. L. Western (G3NQD), 118 Salisbury Avenue, Torquay, Devon.
*__Unit Amateur Radio Club, 46 (NM) Corps Signal Regiment:__ T.A. Centre, Kingsway, Derby.
University of Bristol Amateur Radio Society (G3KAC): c/o University of Bristol Union, The Victoria Rooms, Bristol 8.
University of Manchester Amateur Radio Society: c/o C. W. Tarry, University Union, Oxford Road, Manchester 13, Lancs.
*__Upton House School Radio Club:__ c/o R. H. Lamb, 17 Queens Road, London, E.11.
West Kent Amateur Radio Society: c/o H. F. Richards, 17 Reynolds Lane, Tunbridge Wells, Kent.
Wickford Radio Club: c/o D. Bond, Twindale, Station Avenue, Wickford, Essex.
*__Wirral Amateur Radio Society (G3NWR):__ c/o A. Seed (G3FOO), 31 Withert Avenue, Bebington, Wirral, Cheshire.
Wolverhampton Amateur Radio Society (G8TA): c/o J. Rickwood (G3JJR), 738 Stafford Road, Fordhouses, Wolverhampton, Staffs.
Wolverton & District Radio Club: c/o D. A. Shepherd (G3LCS), 35 The Crescent, Haversham, Wolverton, Bucks.
Worthing & District Amateur Radio Club: c/o P. J. Robinson, 46 Hillview Road, Worthing, Sussex.
*__Yeovil Amateur Radio Club (G3CMH):__ c/o D. L. McLean (G3NOF), 9 Cedar Grove, Yeovil, Somerset.
York Amateur Radio Society (G3HWW): c/o N. Spivey (G3GWI), 80 Melton Avenue, Clifton, York.

OVERSEAS

*__Northern Rhodesia Amateur Radio Society:__ c/o G. A. Wafer (VQ2GW), P.O. Box 332, Kitwe, Northern Rhodesia.
*__Royal Air Force (Ayios Nikolaos) Amateur Radio Club (ZC4GT):__ c/o Hon. Secretary, R.A.F. Station, Ayios Nikolaos, B.F.P.O.53.
*__Royal Air Force (Changi) Amateur Radio Club (VS1GZ):__ c/o F/O D. Wren, Temple Hill Officers' Mess, R.A.F. Changi, Singapore 17.
*__Tri-Zonal Amateur Radio Club:__ 6915th RSM, Kingsley Kaserne, Hof/Saale, Germany.
254 Signal Squadron (Aden) Amateur Radio Club: c/o 254 Signal Squadron, Aden, B.F.P.O. 69.

**Address subject to confirmation.*

Forthcoming Events

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

DATES FOR YOUR DIARY

August 22-September 1.—National Radio and Television Show, Earls Court, London.
September 2.—G6UT's Ham Party.
September 8.—B.A.T.C. Amateur Television Convention, Conway Hall, London, W.C.1.
September 22.—Region 9 Mobile Rally at Weston-super-Mare.
September 23.—Region 9 O.R.M. at Weston-super-Mare.
September 23.—Surrey Radio Contact Club 144 Mc/s D/F Hunt.
October 6.—Region 7 O.R.M. at Earls Court, London.
October 20-21.—Jamboree-on-the-Air.
October 26.—London Lecture Meeting at I.E.E.
October 31-November 3.—R.S.G.B. International Radio Communication Exhibition, Seymour Hall, London W.1.
December 15.—Annual General Meeting, Overseas House, London S.W.1.
March 29, 1963.—London Lecture Meeting at I.E.E.
Details of Mobile Rallies are given in *Mobile Column*.

REGION 1

Ainsdale (A.R.S.).—August 22, September 12, 26, 37 Hawthorne Grove, Southport.
Blackburn.—Fridays, 8 p.m., West View Hotel, Revidge Road.
Blackpool (B. & F.A.R.S.).—Mondays, 8 p.m., Pontins Holiday Camp, Squires Gate.
Bury (B.R.S.).—September 11 ("TVI and other things," by Gerry Openshaw, G2BTO), 8 p.m., Knowsley Hotel, Kay Gardens.
Chester.—Tuesdays, 8 p.m., Y.M.C.A.
Eccles (E. & D.R.C.).—Tuesdays, 8 p.m., The Congregational Mission Church, King Street. September 25, visit by Regional Representative.
Liverpool (L. & D.A.R.S.).—Tuesdays, 8 p.m., Gladstone Mission Hall, Queens Drive, Stoneycroft.
Macclesfield.—August 21, September 4, 18, 42 Jordongate.
Manchester (M. & D.A.R.S.).—Wednesdays, 7.30 p.m., King George VI Club, North Road, Moston, Manchester 10. **(S.M.R.C.).**—Fridays, 7.30 p.m., Fallowfield Bowling & Lawn Tennis Club, 81 Wellington Road, Fallowfield, Manchester 14.
Morecambe.—September 5, 125 Regent Road.
Preston (P.A.R.S.).—August 28, September 11, 25 (Morse practice at 7.30 p.m.), St. Paul's School, Pole Street.
Southport (S.R.S.).—Thursdays, 8 p.m., The Esplanade.
Stockport (S.R.S.).—August 15, 29, September 12, 26, 8 p.m., The Blossoms Hotel, Buxton Road.
Wirral (W.A.R.S.).—No meetings in August. September 5, 19, 7.45 p.m., Harding House, Park Road West, Claughton.

REGION 2

Barnsley.—September 14, (A.G.M.), 7.30 p.m., King George Hotel, Peel Street.
Bradford.—August 21, September 4, 18 (First meeting of new session), 7.30 p.m., 66 Little Horton Lane.
Halifax (Northern Heights).—August 29 (Discussion on R.A.E. Course), September 5 (Visit to Wakefield C.I.D.), September 12 ("Fault finding on Receivers" by G3OGV), 7.30 p.m., Sportsman Inn, Ogden.
Scarborough.—Thursdays, 7.30 p.m., Chapman's Yard, North Street.

REGION 3

Birmingham (M.A.R.S.).—August 21, 7.30 p.m. ("G2DAF Receiver for S.S.B." by G3LNN), Birmingham and Midland Institute, Paradise Street. **(South).**—August 23, 7.45 p.m., Friends' Institute, Moseley Road, Birmingham.
Cannock (A.R.S.).—First Thursday in each month, White Lion Hotel, Bridgtown.
Coventry (C.A.R.S.).—Mondays, 7.30 p.m., R.A.F.A. Club, Holyhead Road, Coventry.
Stourbridge and District (A.R.S.).—September 11, 7.45 p.m., Foley College, Stourbridge.
Sutton Coldfield.—September 13, 7.30 p.m., 92 The Parade, Sutton Coldfield.

REGION 4

Chesterfield (C. & D.A.R.S.).—August 22, September 12 (A.G.M.), 7.30 p.m., Newbold Observatory, Newbold Road, Chesterfield.
Derby (D. & D.A.R.S.)—August 19 (Mobile Rally), August 22 (Stereophonic Demonstration), August 29 (A.E.I. Film—"The World of Semiconductors"), September 5 (Surplus Sale), September 9 (D.F. Final—President's Trophy), September 12 (Transistors—1), September 19 (Transistors—2), 7.30 p.m., Room No. 4, 119 Green Lane, Derby.
Derby (D.S.W. Exp. Soc.).—Fridays, 7.30 p.m., Sundays, 10.30 a.m., Nunsfield House, Boulton Lane, Alvaston, Derby.
Grantham (G. & D.A.R.S.).—Mondays, 7.30 p.m., Club Rooms (rear of Manners Arms Hotel), London Road, Grantham.
Grimsby(G.& D.A.R.S.).—August 30, September 13, 8 p.m., R.A.F.A. Headquarters, Abbey Drive West, Grimsby.
Loughborough (A.R.S.).—Fridays, 7.30 p.m., Corporation Hotel, Wharncliffe Road, Loughborough.
Leicester (L.R.S.).—Mondays, 7.30 p.m., Club Rooms, Old Hall Farm, Braunstone Lane, Leicester.
Lincoln (L.S.W.C.).—Fortnightly Wednesdays, 7.30 p.m., Lincoln Technical College, Cathedral Street, Lincoln.
Nottingham (A.R.C.N.).—Tuesdays (R.A.E.), Thursdays (Lecture), 7.15 p.m., Room No. 3, Sherwood Community Centre, Woodthorpe House, Mansfield Road, Sherwood, Nottingham.
Northampton (N.S.W.C.).—Thursdays, 7 p.m., Allens Pram Works, 8 Duke Street, Northampton.
Peterborough (A.R.S.).—September 2, 2.30 p.m., D/F Contest at Alwalton. October 5 ("Aerials"), 7.30 p.m., Peterborough Technical College.
Retford & Worksop (N.N.A.R.C.).—Tuesdays (Beginners), Thursdays (Club), 7.30 p.m., Victoria Institute, Eastgate, Worksop, Notts.

REGION 5

Cambridge (C. & D.A.R.C.).—Fridays, 7.30 p.m., Club Headquarters, Corporation Yard, Victoria Road, Cambridge. (Next formal meeting will be first Friday in September. No Junior Club activities in August.)
March (M. & D.R.A.S.).—Tuesdays, 7.30 p.m., Police Headquarters, High Street.
Shefford (S. & D.A.R.S.).—Thursdays, Digswell House, Shefford.

REGION 6

Cheltenham.—First Thursday in each month, 8 p.m., Great Western Hotel, Clarence Street.

REGION 7

Acton, Brentford and Chiswick (A.B.C.R.C.).—August 21, ("Post Office S.T.D. System" by G3OJX), 7.30 p.m., A.E.U. Club, 66 High Road, Chiswick.
Bexleyheath (N.K.R.S.).—August 23, September 13 ("Mallory Batteries"), 8 p.m., Congregational Hall, nr. Clock Tower, Bexleyheath.
Croydon (S.R.C.C.).—September 11 (Surplus Sale), October 9 (P. Pennell, G2PL, on "Portable Operation"), 7.30 p.m., "Blacksmiths Arms," South End, Croydon.
Dorking (D. & D.R.S.).—August 28, 8.30 p.m., Kings Head, Holmbury St. Mary.
Ealing.—Sundays, 11 a.m., A.B.C. Restaurant, Ealing Broadway.
East Ham.—September 11, fortnightly, 8 p.m., Leigh Road, East Ham.
East Molesey (T.V.A.R.T.S.).—September 5, Carnarvon Castle Hotel, Hampton Court.
Edgware & Hendon (E. & D.R.S.).—Second and fourth Mondays in each month, 8 p.m., John Keeble Hall, Church Close, Deans Lane, Edgware.
Enfield.—Fourth Thursday in each month, 8 p.m., George Spencer School, Southbury Road.
Harlow.—Tuesdays, 7.30 p.m., rear of G3ERN (G. E. Read), High Street, Harlow.
Holloway (G.R.S.).—Closed for summer recess, club re-opens September 7, Montem School, Hornsey Road, Holloway, N.7.
Hounslow (H.A.D.R.C.).—Mondays, 7.30 p.m., Isleworth Town School, Twickenham Road, Hounslow.
Ilford.—Thursdays, 8 p.m., 579 High Road, Ilford (near Seven Kings Station).
Kingston.—Lectures alternate Thursdays, 7.45 p.m., Y.M.C.A., Eden Street, Kingston. (Morse classes weekly at 2 Sunray Avenue, Tolworth.)
Mitcham (M. & D.R.S.).—Lectures alternate Fridays (Morse classes 7 p.m.), "The Canons" Madeira Road, Mitcham.
New Cross (C.A.R.S.).—Fridays, 7.30 p.m., 225 New Cross Road, S.E.14.
Norwood and South London (C.P. & D.R.C.).—August 18, "The Construction of Power Stations and the Associated Communication Problems" by G3IWA and G3IIR, 8 p.m., C.D Training Centre, Bromley Road, Catford.
Paddington (P. & D.A.R.S.).—Wednesdays, 7.30 p.m., Beauchamp Lodge, 2 Warwick Crescent, W.2.
Purley (P. & D.R.C.).—August 17 ("Holiday in Majorca" by G3FTQ), Railway Men's Hall (side entrance), Whytecliffe Road, Purley.
Romford (R. & D.R.S.).—Tuesdays, 8.15 p.m., R.A.F.A. House, 18 Carlton Road, Romford.
Science Museum (C.S.R.S.).—August 21, 6 p.m., Science Museum, South Kensington.
Sidcup (C.V.R.S.).—August 28, 8 p.m., Station Hotel, Sidcup. September 6, 8 p.m., Church Hall, Court Road, Eltham.
Slough (S.A.R.S.).—First Wednesday in each month, 8 p.m., United Services Club, Wellington Street.
Southgate and District.—No meeting in August. September 13 ("Model Radio Control"), 8 p.m., Arnos School, Wilmer Way, N.11.

LONDON MEMBERS' LUNCHEON CLUB

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

at 12.30 p.m. on Friday, August 17, September 21 and October 19, 1962.

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

REGION 8

Crawley (A.R.C.).—August 22 ("V.H.F. Operation" by R. W. Standley, G8RW), 8 p.m., West Green Centre, Crawley.

REGION 9

Bristol.—August 17 (Visit by Zone D Representative, H. A. Bartlett, G5QA, and film: "This is the B.B.C."), 7.15 p.m., Carwardines Restaurant, Baldwin Street, Bristol 1.
Dorchester (S.D.R.S.).—September 7, 7.30 p.m., Labour Rooms, West Walks, Dorchester.
Exeter.—September 4, 7.30 p.m., Y.M.C.A., St. David's Hill, Exeter.
Falmouth (C.R. & T.C.).—First Wednesday in each month, Y.M.C.A., Falmouth.

Plymouth (P.R.C.).—First Tuesday in each month, 7.30 p.m., Guild of Social Service Building, Plymouth. Other Tuesdays, Virginia House Settlement, St. Andrew's Cross, Plymouth.
Torquay (T.A.R.S.). September 8 ("Two Metres and V.H.F." by H. A. Bartlett, G5QA), 7.30 p.m., Y.M.C.A., The Castle, Torquay.
Yeovil (Y.A.R.C.).—Wednesdays, 7.30 p.m. Grove House, Preston Road, Yeovil.

REGION 10

Cardiff.—September 10 ("The Principles of Transistors," by R. A. Stevens), 7.30 p.m., T.A. Centre, Park Street, Cardiff.

REGION 14

Ayrshire.—Third Sunday in each month, 7.30 p.m., Royal Hotel, Prestwick.

REGION 16

Basildon (B. & D.A.R.S.).—Last Monday in each month, 8 p.m. For details of venue, etc., contact G3ORT or G3IFN.
Chelmsford (C.A.R.C.).—No meeting in August. September 4 (A.G.M.), 7.30 p.m., Marconi College, Arbor Lane, Chelmsford.
Southend (S. & D.R.S.).—Alternate Fridays in the canteen at E. K. Cole Ltd., Priory Road, Prittlewell. Next meeting August 24.

REGION 17

Newbury.—August 31 ("S.S.B.—Ancient and Modern," by E. Smith, G3JMT), 7.30 p.m., The Canteen, Elliots of Newbury, West Street, Newbury.
Portsmouth.—Wednesdays, 7.30 p.m., The Community Centre, Twyford Avenue, Portsmouth.

Regional and Club News

Ayrshire.—The June meeting was well attended and members aired their post-N.F.D. opinions and suggestions. A Mullard film on transistors is to be shown at a forthcoming meeting. *Hon. Secretary:* W. A. F. Davidson (GM3NYY), 13 Irvine Road, Kilmarnock.

Bury and Rossendale.—At the July meeting John Hodgekins (G3EJF) was presented with an engraved tankard in appreciation of his past services to local radio amateurs over a period of many years. His wife Jean (G3JZP) was the recipient of a large box of chocolates. Mr. and Mrs. Hodgekins are moving to Catterick. Lancashire's loss is Yorkshire's gain.

Cambridge and District Amateur Radio Club.—On July 1, the club held a picnic at Houghton Mill, a well-known beauty spot in Huntingdonshire, at which there was a very good attendance, visitors coming from March, Peterborough, Shefford, Bedford and Newmarket. The event proved such a success that a repeat was requested for September.

Cannock Chase Amateur Radio Society.—Membership continues to increase and meetings are held at the White Lion, Bridgtown, on the first Thursday in each month, commencing at 7.30 p.m. W2HWA was due to attend the August meeting. Details of activities may be obtained from the *Hon. Secretary:* N. H. Hyde (G3PJM), 91 Pelsall Lane, Rushall, near Walsall.

Clifton Amateur Radio Society.—Members took part in V.H.F. National Field Day, operating for nine hours out of the possible 24 with 10 watts to a five-element Yagi. The second 3·5 Mc/s D/F event is to be held on August 19 and the third on September 2. *Hon. Secretary:* C. E. Godsmark, 211 Manwood Road, London, S.E.4.

Cornish Radio and Television Club.—At the July meeting, there was an attendance of 33 including G3LJF. The Hon. Treasurer gave an interesting talk on the Goonhilly satellite station. Details of future meetings are given in *Forthcoming Events. Hon. Secretary:* W. C. Pitman (G3PEP), Pendower Farm, Perranwell Station, near Truro.

Crawley Amateur Radio Club.—Recent activities have included operation in V.H.F. N.F.D. and a Mobile Evening held at Guildford during July. On August 22, R. W. Standley (G8RW) will give a lecture/demonstration entitled "V.H.F. Operation." *Hon. Secretary:* R. G. B. Vaughan (G3FRV), 9 Hawkins Road, Tilgate, Crawley, Sussex.

Cray Valley Radio Society.—An exhibition station was operated at the 1st Swanley Group's Fete on July 21. "The Radio Amateur and Interference" was the title of a talk by David Deacon (G3BCM) at the July meeting. *Hon. Secretary:* S. Coursey (G3JJC), 49 Dulverton Road, London, S.E.9.

Crystal Palace and District Radio Club.—There was a good attendance at the first meeting at the new premises at Bromley Road, Catford, on July 21. On August 18, John Worrall (G3IWA) and Eric Yeomanson (G3IIR) will give a talk on the construction of power stations and the associated communications problems. Visitors will be most welcome. *Hon. Secretary:* G. M. C. Stone (G3FZL), 10 Liphook Crescent, Forest Hill, London, S.E.23.

Dudley Amateur Radio Club.—Meetings are held fortnightly at the Priory Hall, Dudley. On August 17 final arrangements for the club's station at the Dudley Arts Gallery Exhibition on August 31-September 1 will be discussed. The station will operate on all bands from 10 to 160m under the call-signs G3OMY/A, G3MHS/A, G3PWJ/A, G3OHN/A and G3OSP/A. A lecture on mobile activities will be given on September 14 by G6GR and G8CK. *Hon. Secretary:* D. H. W. Pratt (G3MHS), 23 Kent Street, Upper Gornal, Dudley.

East London.—The group operated GB3DTS on 20, 40 and 80m c.w., a.m. and s.s.b. at the Dagenham Town Show which was attended by more than 25,000 people. Great interest was shown in the exhibit. The QSL card used to confirm contacts took the form of a greeting from the Mayor of Dagenham.

Grafton Radio Society.—Another successful field day took place on July 8 when G3AFT/P was operated on 40, 80 and 160m at Hampstead Heath, London. G3ONS/P was active on 2m. Meetings recommence after the summer recess on September 7. *Hon. Secretary:* A. W. H. Wennell (G2CJN), 145 Uxendon Hill, Wembley Park, Middlesex.

Harrow, Radio Society of.—On August 17 Brian Hummerstone will describe his recent experiences in Guernsey. Lectures alternate with practical evenings when G3EFX is active. Contacts with club stations will be appreciated. Details of other activities may be obtained from the *Hon. Secretary:* A. C. Butcher, 95 Norval Road, North Wembley, Middlesex.

Lothians Radio Society.—At the A.G.M. John A. Hughes (GM3LCP) was elected president for 1962-63. The first meeting of the season will be held at 7.30 p.m. on September 13 in the Board Room of the Y.M.C.A., 14 South Saint Andrew Street, Edinburgh 2, when Mr. Hughes will deliver his presidential address. Meetings thereafter will be held on the second and fourth Thursdays of each month. Prospective members and visitors will be most welcome. *Hon. Secretary:* W. T. Sutherland (GM3JWS), 47 Great King Street, Edinburgh 3.

Loughton Amateur Radio Society.—At the meeting to be held at the Loughton Hall on August 17 at 7.30 p.m., N. C. Ta'Bois (G3HWG) will give a talk on the construction and operation of oscilloscopes. *Hon. Secretary:* J. Atkinson (G3OPA), 6 Rochford Avenue, Loughton, Essex.

Northern Heights Amateur Radio Society.—Recent activities have included a very successful junk sale and a display of members' equipment. Details of future arrangements are given in *Forthcoming Events. Hon. Secretary:* A. Robinson (G3MDW), Candy Cabin, Ogden, Halifax.

Peterborough Radio Society.—The Zonal Representative, F. K. Parker (G3FUR), demonstrated his 40 valve communications

Members of the Rhondda Radio Society operated GB3RCH at the Group Captain Cheshire Home at Radyr, near Glamorgan, on July 22, 1962. The station was one of those set up to communicate with GB3SMG at the National Spinal Injuries Centre at Stoke Mandeville, near Aylesbury, during the Annual International Stoke Mandeville Games.

(Photo by B.R.S. 22036)

receiver at the July meeting at which G3HXR presided. *Hon. Secretary:* D. Byrne (G3KPO), Jersey House, Eye, Peterborough.

Reigate Amateur Transmitting Society.—With the licensing of G3RAX/T and G3RCY there are 21 call-signs amongst the membership of 40. Members attended the Crawley club members' night and presented to that club a box of " gauntlets for the throwing down of " to ensure a continuance of challenges between the two groups! G3NZP gave a talk entitled " QRO on Two " at the July meeting while G3FM is to describe a " Crystal Filter for the CR100 " on August 18 at the Tower, Redhill. Informal meetings will be held at the same venue on the first Saturday in each month at 8 p.m., commencing September 1. *Hon. Secretary:* F. D. Thom (G3NKT), 12 Willow Road, Redhill, Surrey.

Shefford and District.—Members of the Cambridge Club were entertained at Digswell House, Shefford, on July 19.

South Dorset Radio Society.—There was a good attendance at the July meeting when Mullard films entitled *The Frame Grid Valve* and *The Electroneers* were screened together with a film of N.F.D. and the Longleat Mobile Rally made by F. Marshall (G2XQ). *Hon. Secretary:* C. E. Biggs (G2TZ), 54 Prince of Wales Road, Dorchester, Dorset.

Southend.—The annual party organized by W. E. Nutton (G6NU) and held this year at Southend on July 29 was attended and much enjoyed by more than 100 members and friends. " Naughty Uncle " asks that his thanks be conveyed via the BULLETIN to those who supported the event.

Torbay Amateur Radio Society.—At the July meeting, SM5BCJ was a welcome visitor. Among the matters discussed were the enlargement of the headquarters at the rear of 95 Belgrave Road, Torquay, the construction of D/F receivers and arrangements for a series of 19 weekly lectures in preparation for the R.A.E. G3ABU gave a much-appreciated demonstration of the causes and cures of TVI. *Hon. Secretary:* E. J. Hayman (G3ABU), 113 Barton Road, Torquay, Devon.

Wirral Amateur Radio Society.—Owing to decorations and repairs to the new premises at the Scout Headquarters, Park Road West, Claughton, Birkenhead, no meetings will take place during August. G2FOS will give a talk on single sideband on September 6. *Hon. Secretary:* A. Seed (G3FOO), 31 Withert Avenue, Bebington, Wirral.

York Amateur Radio Society.—No functions have been arranged for August but the club rooms are open on Tuesday evenings for Morse and R.A.E. instruction and on Thursdays for informal " ragchews." *Hon. Secretary:* N. Spivey (G3GWI), 80 Melton Avenue, Clifton, York.

The 3·5 Mc/s station operated by members of the Kynoch Radio and Television Society under their call-sign G3HPP. The transmitter comprised a modified TU5B unit as a v.f.o. driving an 807 followed by a pair of 807s in parallel in the p.a. On the right is the modified CR100 receiver (Photo by Kynoch Press)

Kynoch Centenary Gala

ON June 2, 1962, the Kynoch Radio and Television Society operated G3HPP at the Gala arranged to celebrate the centenary of the foundation of the Kynoch Works, now the headquarters of Imperial Metal Industries (Kynoch) Ltd., a subsidiary of I.C.I. The Gala, which was held at the company's sports field at Witton, four miles north of the centre of Birmingham, was attended by many thousands of employees and their families.

Assistance in assembling and running the Gala station was given by the Sutton Coldfield Amateur Radio Society and the Slade Radio Society. Those who helped to keep the stations on the air throughout the day were G3PWS, G3PJY, G3LNN, G3IGI, G3AYJ, G3PPA, G3PXU, G3AIX, G3DNZ and G3ICX

Sutton Coldfield Amateur Radio Society loaned and operated the 14 Mc/s a.m. and s.s.b. equipment while the Slade Radio Society operated on 144 Mc/s. Kynoch Radio and Television Society itself operated on 3·5 Mc/s. In 12 hours of operation, the stations made 102 contacts in 13 countries. Signals from *Oscar II* were received very well during its 15.00 G.M.T. transit.

The exhibition proved very successful and the organizing committee are most grateful to all those who helped to make it so.

INDEX TO ADVERTISERS

	Page
Airflow Developments Ltd.	92
Avo Ltd.	49
British National Radio School	50
Brookes Crystals Ltd.	50
Candler System Co. Ltd.	94
Crystals & Components Ltd.	52
Dale Electronics Ltd.	*Cover i*
Daystrom Ltd	54
Green & Davis	93
Home Radio of Mitcham	93
Jackson Brothers	50
K. W. Electronics Ltd.	*Cover iii*
Light Soldering Developments Ltd.	50
The Minimitter Co. Ltd.	94
M. O. Valves Ltd.	53
Mosley Electronics Ltd.	56
P. C. Radio Ltd.	53
Radio, Television & Instrument Services Ltd.	93
R.S.G.B. Publications	84
H. L. Smith & Co. Ltd.	93
Southern Radio & Electrical Supplies Ltd.	93
Stratton & Co. Ltd.	*Cover ii*
Tele-Radio (1943) Ltd.	94
Jack Tweedy	92
Whitaker, H.	93
Withers, T.	53
Young, Chas. H., Ltd.	*Cover iv*
Z.E.D. & I. Aero Services Ltd.	*Cover iv*

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ECH81 ..	7/6	PC97 ..	10/-	UB41 ..	11/-										
ECH83 ..	8/6	PCC84 ..	8/-	UBC41	7/-										
ECL80 ..	7/6	PCC85 ..	8/-	UBC81	8/-										
ECL82 ..	8/6	PCC88 ..	13/-	UBF80	8/6										
ECL86 ..	8/6	PCC89 ..	11/-	UBF89	8/6										
EF22 ..	7/-	PCF80 ..	9/6	UBL21	13/-										
EF37A	8/-	PCF82 ..	9/9	UCC84 ..	9/-										
EF39 ..	4/-	PCF84 ..	15/-	UCC85 ..	8/-										
EF40 ..	10/-	PCL81 ..	9/-	UCH21	9/6										
EF41 ..	8/-	PCL82 ..	10/-	UCH42	8/-										
EF42 ..	7/6	PCL83 ..	10/-	UCH81	8/-										
EF50 ..	1/6	PCL84 ..	10/-	UCL82 ..	11/-										
EF80 ..	6/-	PCL85 ..	11/-	UCL83 ..	12/6										
EF85 ..	6/6	PCL86 ..	11/-	UF41 ..	9/-										
EF86 ..	7/6	PEN45 ..	7/-	UF42 ..	9/-										
EF89 ..	7/-	PEN46 ..	6/-	UF80 ..	7/6										
EF98 ..	10/-	PL36 ..	11/-	UF85 ..	8/-										
EF183 ..	10/-	PL38 ..	16/-	UF86 ..	12/-										
EF184 ..	10/-	PL81 ..	10/-	UF89 ..	8/6										
EL32 ..	4/-	PL82 ..	10/-	UL41 ..	9/6										
EL33 ..	7/-	PL83 ..	8/-	UY21 ..	6/6										
EL34 ..	13/-	PL84 ..	8/-	UY41 ..	8/-										
EL41 ..	8/-	PT15 ..	10/-	UY85 ..	7/-										
EL42 ..	8/-	PX25 ..	10/-	VR40 ..	10/6										
EL84 ..	7/-	PY32 ..	12/-	VR53 ..	4/-										
EM84 ..	9/6	PY80 ..	7/-	VR56 ..	4/6										
EN31 ..	10/-	PY81 ..	7/6	VR57 ..	6/-										
EN32 ..	10/-	PY82 ..	8/-	VR65 ..	4/-										
EY51 ..	8/-	PY83 ..	8/-	VR100	6/-										
EY81 ..	9/-	PY88 ..	9/-	VR108	3/6										
EY84 ..	7/6	QP25 ..	7/6	VR119	3/-										
EY86 ..	8/-	QQV03-10	30/-	VR135	2/6										
EY91 ..	3/-	QQV03-20	20/-	VR137	4/6										
EZ41 ..	6/6	QS75/30	20/-	VU33 ..	3/-										
EZ80 ..	6/-	QS150/15	10/-	VU111 ..	4/-										
EZ81 ..	7/-	QV04-7	7/-	VU120 ..	4/6										
GS18 ..	15/-	R10 ..	15/-	W81M ..	6/-										
HL2K ..	3/-	RL18 ..	12/6	X65 ..	5/6										
HL23DD	6/-	SP2 ..	3/6	X66 ..	8/-										
KT8C ..	25/-	TT11 ..	3/-	X81M ..	7/-										
KT33C	6/-	TT15 ..	35/-												

TRANSISTORS

Mullard Top Quality: OC44, 7/6; OC45, 6/6; OC72, 8/-; OC78, 7/-; OC78D, 7/-; OC81, 7/-; OC81D, 7/-; Set of two matched OC78 plus one OC78D or set of two matched OC81 plus one OC81D, 18/-. Pair of matched OC81 or OC78, 13/-.

R.C.A. Top Quality: 2N410 (OC45), 5/-; 2N412 (OC44), 5/-.

Slightly substandard but fully guaranteed OC44 or OC45, 3/- each.

Red Spot (L.F.), 2/8; White Spot (H.F.), 2/8; Green Spot (L.F. 3V), 1/6; Yellow Spot (L.F. 6V), 1/10.

UNIVERSAL D.C. RELAYS

300Ω Coil High Speed Relay with four independently adjustable change-over contacts of 500mA capacity. Contacts can be adjusted on site to operate on any voltage from 3 to 24V. DC, either together or in the required sequence as the voltage is gradually increased. 15/-, p.p. 1/9.

POST OFFICE RELAYS TYPE 3000

2 C.O., 500 mA, 10kΩ coil, sec. hand .. 8/6
4M + 4B, 500 mA, 250Ω coil, sec. hand 8/6
1M, 1 Amp., 6500Ω coil, brand new .. 10/6
3M + 1B, 1 Amp., 8800Ω, brand new 12/6

NUVISTORS

2CW4 or 6CW4 .. .. 14/-
7586—general purpose medium "mu" triode 22/6
7895—General purpose high "mu" triode 22/6
Bases 2/9 each.

6BR8 medium "mu" triode and high slope pentode with separate cathodes, suitable for A.F. applications, 5/-.

VHF TRANSMITTER CHASSIS BC625

This is a section of VHF 4-channel crystal Controlled Aircraft Transmitter-Receiver, having a range of 100-156 Mcs. Valve line-up: Crystal Oscillator 6G6G; First Amplifier 12A6, Second Amplifier 832, Power Amplifier 832, Speech Amplifier 6887; Modulator-two 12A6. Complete with microphone transformer and modulation transformer and with all valves except 832. Price with circuit diagram, 15/-, p.p. 7/6. A/vo receiver chassis available at 7/6 plus 7/6 p.p.

DO-IT-YOURSELF R.P.M. INDICATOR

Aircraft Altimeter Indicator containing 5mA circular movement can be easily converted into an engine R.P.M. Indicator operating off Circuit Breaker connection on the distributor. Complete kit with detailed instructions, 45/-, p.p., 5/-. Indicator only 25/-, p.p. 5/-.

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

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