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R.S.G.B. BULLETIN

OFFICIAL JOURNAL OF THE INCORPORATED RADIO SOCIETY OF GREAT BRITAIN

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Forthcoming Events

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Burnley.—October 5, 7.30 p.m., Mechanics Institute, Manchester Road.
Bury.—October 13, 7.30 p.m., Atheneum, Market Street.
Darwen and Blackburn.—September 30, October 14, Weaver's Institute, Darwen.
Manchester.—October 3, 7.30 p.m., Reynolds Hall, College of Technology, Sackville Street.
Oldham (O.R.S.).—Alternate Wednesdays, 7.30 p.m., Civic Centre, Clegg Street.
Rochdale.—October 2, 3 p.m., Drill Hall, Baron Street.

REGION 2

Barnsley.—September 23, October 14, 7.30 p.m., King George Hotel, Peel Street.
Bradford.—September 20 (A.G.M.), October 3, 7.30 p.m., Cambridge House, 66, Little Horton Lane.
Catterick.—Wednesdays, 7 p.m., Loos Lines, Catterick Camp.
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Spenborough.—September 28, October 12, 7.30 p.m., Temperance Hall, Cleckheaton.
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REGION 3

South Birmingham.—October 2, 10.30 a.m., Stirchley Institute.
Birmingham (M.A.R.S.).—October 15, 6.30 p.m. for 7 p.m., Annual Dinner, Imperial Hotel, Birmingham. Ladies invited.

REGION 4

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Little Hallingbury.—October 2, G6UT's Annual "Ham Party," 2.30 p.m., Normandale, New Barn Lane. Ladies welcome.
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REGION 6

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REGION 7

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Barnes and Putney.—October 5, 7.30 p.m. Railway Hotel, Richmond. October 11, 7.30 p.m., 28 Nassau Road, S.W.13.
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Enfield.—September 18, 3 p.m., (Exhibition of Amateur Gear), George Spicer School, Southbury Road.
Hampstead.—September 23, 8 p.m., 1 Broadhurst Gardens, N.W.6 (behind John Barnes).
Hayes.—October 3, 7.30 p.m., The Vine, Uxbridge Road.
Hoddesdon.—September 22, October 6, 8 p.m., The Salisbury Arms.
Holloway (Grafton R.S.).—Mondays, Wednesdays and Fridays, 7.30 p.m., Grafton School, Eburne Road, N.7.
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Peckham.—October 3, 7.30 p.m., The Kentish Drover, Rye Lane.
Southgate.—October 7, 8 p.m., Merryhills Hotel, near Oakwood Station.
Slough.—September 15, 7.30 p.m., Labour Memorial Hall, Chandos Street.
St. Albans.—October 12, 8 p.m., The Beehive, London Road.
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REGION 8

Brighton.—Tuesdays, 7.30 p.m., Eagle Inn, Gloucester Road.
Southampton.—October 1, 7.30 p.m., 22 Anglesea Road, Shirley.

REGION 9

Exeter.—October 7, 7 p.m., Y.M.C.A., 41 St. David's Hill.
Bristol.—September 23, 7 p.m., Keen's Cafe, Park Row.
Plymouth.—September 17, 7 p.m., Tothill Community Centre, Tothill Park, Knighton Road, St. Judes.
Torquay.—September 17, 7.30 p.m., Y.M.C.A., Castle Road.

REGION 11

September and October meetings cancelled.

REGION 13

Edinburgh.—October 3, 17, 31, 7.30 p.m., Chamber of Commerce, 25 Charlotte Square.

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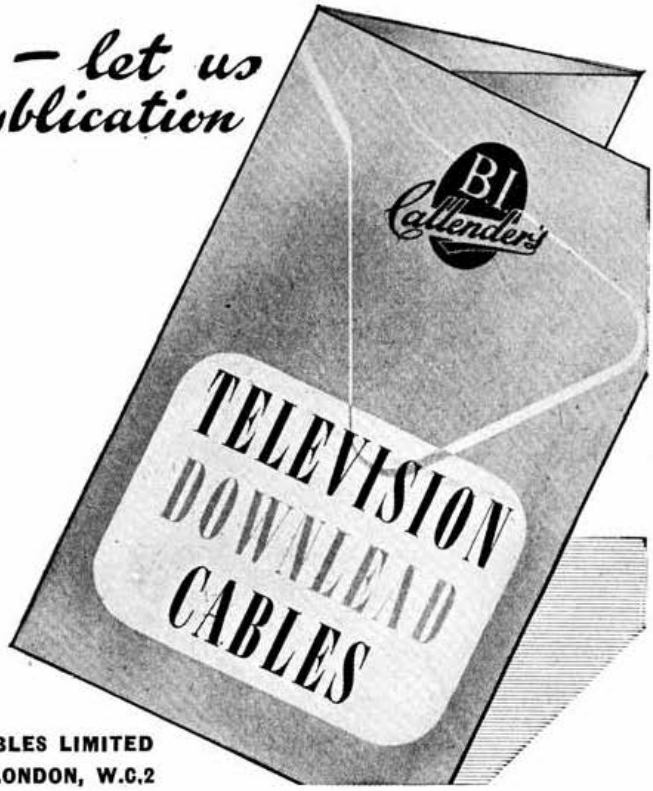

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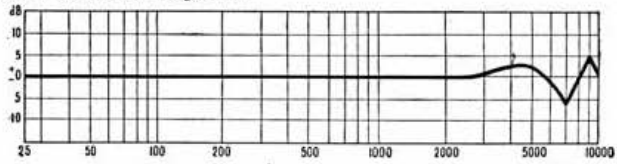

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R·S·G·B

BULLETIN

For the advancement of Amateur Radio

VOLUME XXV No 3. SEPTEMBER 1949

THE CONTEST SPIRIT

IF you listen on the amateur bands during any weekend you are quite likely to find some particular group of stations monopolising the ether with a contest. The humble origin of such events is to be found in the first organised tests—staged nearly thirty years ago—in which amateurs opened-up short-wave communication. The competitive idea was found to be a stimulant, and, as international working developed, so came the Contests—first the A.R.R.L. and B.E.R.U., followed by others—until to-day, with six National Amateur Radio Societies and two other organisations running such events, a clash of dates is well-nigh inevitable. In addition, a multitude of local, or inter-country events, provide outlets in many other branches of Amateur Radio. An outside observer must surely wonder if so many Contests are necessary, and whether a little more order could not be introduced.

Undoubtedly Amateur Radio contests help to develop the technique and personal skill of communication, as well as providing a very satisfying outlet for surplus energy. But there are other aspects of the hobby which must not be overwhelmed by demands for bigger and better contests. This danger can only be avoided by increased international co-operation.

R.S.G.B. contests are organised and managed by a committee of volunteers who have the task of selecting suitable times, producing workable rules, and judging the results. With twelve or more annual events—including two of an international character—the task of the Committee has become both heavy and responsible. Attention to the rules and in particular to the presentation of entries, will materially reduce the work of the judges. Unfortunately there can be no ideal permanent sets of rules, as has sometimes been suggested, since it is necessary to keep pace with the growth of the amateur population and the evolutionary progress of the art.

As with legal or international agreements, the successful operation of a set of rules depends upon the co-operation of all parties ; no matter what skill be used in drafting, if one party wishes to defeat them, a way-round can usually be found for the purpose. Attempts to remove all loop-holes result in regulations too complex to administer.

The success of a contest thus depends as much on the *spirit of participation* as on the *precision and forethought* of the organisers; it requires more than rigid, impartial administration; it requires a set of competitors who are agreed to " play cricket " and accept their gains or losses in true ham-spirit.

The Contests Committee, under the direction of the Council, will continue to function as accurately and fairly as possible, and without bias, and where there is clear evidence of infringement of rules appropriate action will be taken. The Committee, however, will not be intimidated and any attempt to influence its judgment, whether it be of an organised or individual nature, can only be considered as falling within the same category as less blatant technical attempts to defeat the regulations.

Whilst competitive work can further the art of radio communication it can also, quite easily, bring out the worst human qualities. To emphasise this aspect unduly would be unfair to the thousands who derive great pleasure from contests, yet it is difficult to understand what satisfaction can be obtained by the small minority who violate the rules and spirit of an Amateur Radio contest. The true reward of the successful surely lies in the knowledge that the prize has been honestly won. All amateurs would do well to remember that the lasting pleasures of life can only be based on a clear conscience. F. C.

A 6—ELEMENT AERIAL ARRAY for the V.H.F.'s

This article explains in a simple fashion the advantages to be derived from the use of aerials possessing high vertical directivity, as distinct from the popular narrow horizontal-patterned beams, for V.H.F. transmission and reception. The authors also provide full constructional details of a 6-element array which is easy to build and adjust, and which—because of its broad horizontal radiation pattern—should considerably increase the ease of making contacts on the 144 Mc/s. band. Similar technique is equally applicable to 420 Mc/s.

By

F. CHARMAN,* G6CJ **and** **H. E. SMITH*** G6UH

ONE of the major problems connected with V.H.F. work is brought about by the relatively small size of the receiving aerial. Since, on any frequency, the amount of energy intercepted is proportional to the area of the receiving aerial "facing" the transmitter, it follows that for a given design of aerial the energy received will vary in proportion to the square of the wavelength. A simple hypothetical case will illustrate how this fact has far-reaching effects on amateur V.H.F. work.

Once upon a time . . .

Suppose that G6UH with 25 watts of radiated power on 145 Mc/s. is transmitting over a fixed path to G6CJ, using an aerial with a narrow beam; also assume that by the time the wave-front reaches G6CJ the cross-section of the beam is one kilometre square. Then, if G6CJ has a receiving aerial which is effectively one metre square, the maximum energy which could be picked up on this aerial will be in the ratio of 1 square metre to 1 square kilometre of the total radiated power. In the example given this will be one millionth of 25 watts, *i.e.* 25 microwatts.

Now suppose that the same two stations decide to operate on 435 Mc/s., which is three times greater than their original frequency. G6UH uses a transmitter with the same power output as on 145 Mc/s. but both aerials are scaled down in the ratio of 1 : 3. The radiation pattern will be unaffected so that the field strength at G6CJ in watts-per-square-metre will remain the same. However, the effective area—or what is called the aperture of the receiving aerial—has been reduced to 1/9 sq. m. and so the maximum energy collected can now be only one ninth of what it was on 145 Mc/s., *i.e.* 2·8 microwatts.

With the comparatively poor signal-to-noise ratio of the normal 435 Mc/s. receiver, G6CJ soon decides that these results are not satisfactory. He therefore builds up a frame one metre square and fills it with 435 Mc/s. dipoles all acting in unison. The absolute aperture of the receiving aerial is now the same as it was on 145 Mc/s. and the energy picked up will again be 25 microwatts. Perhaps, thinks G6CJ, the 435 Mc/s. band is not so bad after all!

When G6UH hears of these results, he in turn constructs a similar square for the transmitting aerial with the result that the beam becomes narrower and there is a ninefold increase in energy, or 3 : 1 in signal strength, at the receiver. This is fine! The 435 Mc/s. signals are now being received at far better strength than the 145 Mc/s. transmissions ever were.

So far, so good—for *fixed* schedules. But G6UH and G6CJ are soon disillusioned when they start searching for other stations on the band. For they find that because their beams are three times as sharp as 145 Mc/s. beams of the same physical size, they have to rotate them—on the average—three times as slowly and transmit three times as many calls as were necessary on 145 Mc/s. in order to get a contact. In fact, if all the other stations have similar beams, the chance of a contact will have been reduced by nine times. For, at any given moment, each station can only search or "look" at one third of the corresponding 145 Mc/s. sector while the transmitting sector is equally reduced.

The Solution

This little story may help to explain why, after the transition from 58·5 Mc/s. to 145 Mc/s., many amateurs found themselves spending whole evenings on "Two" waiting for contacts which had been comparatively simple on "Five." Their opinion of the band was not improved by the knowledge that if any one of the stations sending them an S2 carrier could only be persuaded to "shine" his beam in the right direction, an S9 contact would result. When the problem is translated, in turn, to 10,000 Mc/s. it can be seen that the establishment of a contact under similar conditions would call for the alignment of beams with almost scientific precision!

The answer to this problem is, of course, to stop using the popular end-fire type of aerial arrays, which build up directivity in both vertical and horizontal planes simultaneously, and to employ instead arrays which combine moderate forward gain with a broad horizontal polar diagram, and in which the vertical and horizontal polar diagrams can be controlled separately. Fortunately these conditions can be easily met: a vertical stack of dipoles, all in-phase, has its area extended vertically, but not horizontally, and therefore has the required properties.

6-Element Array

A tier of omni-directional elements would undoubtedly be ideal (at least, until the band becomes overcrowded), with a stack of half-wave dipoles as next choice. However, on these frequencies, it might prove difficult to feed more than a few such elements. Therefore, in order to test the value of a simple vertical array, the aerial shown in Fig. 1 was erected at G6UH for use on 145 Mc/s. It will be seen that this arrangement consists of three horizontal centre-fed full-wave elements (*i.e.* 6 half-wave elements) with half-wave vertical spacing. The array radiates equally well in both forward and backward directions, but, due to its sharp vertical

* *F. Charman, B.E.M., Orchard Cottage, Stoke Poges, Bucks. H. E. Smith, 176 Station Road, Hayes, Middlesex.*

polar diagram, the gain compared with a simple dipole is as much as 10 db. Since the horizontal polar diagram is that of a full-wave centre-fed aerial (*i.e.* a beam width of 60° for a 3 db. loss, in either direction), the array covers approximately 120°, or one third of the horizon, without rotation. By comparison, the popular three-element parasitic array covers only one eighth of the horizon with a gain of about 7 db. over a simple dipole.

Constructional Details

In order to make the array as light as possible, No. 12 S.W.G. copper wire was used for the elements which were framed and supported by waxed line (wire could be used for this purpose providing it is broken by insulators every quarter-wave). An alternative form of mounting would be provided by two 8 ft. lengths of 2 in. × 1 in. timber fixed to a rotatable pole, with the array strung between. Small *Eddystone* stand-off insulators, bolted back-to-back with a soft gasket between them, were employed at the centres of the radiating elements. The junction feeders, made from 16 S.W.G. copper wire, were spaced 1¼ in. by means of short lengths of perspex.

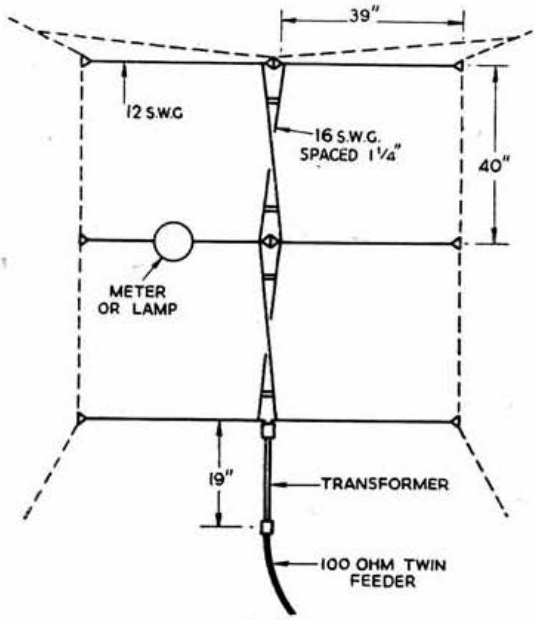

Fig. 1.
6-Element Broadside Array. Dimensions given are in inches; broken lines represent the supporting cords.

As shown in the diagram, these feeders must be transposed between each set of radiating elements. The quarter-wave transformer (or matching stub) was made of No. 10 S.W.G. copper wire and the final spacing was approx. ⅞ in. (details of the adjustment of this spacing are given later). Electrical connector blocks, similar to those used for household wiring, were found to facilitate adjustment of this matching transformer. Finally, the array was coupled to the transmitter by means of a length of 100-ohm balanced feeder (*Telcon B.A.*3).

Adjustment

For adjusting the dipoles and junction feeder lengths, a grid-dip meter, similar to the one described in the January 1949 issue of the BULLETIN, will be found extremely useful, although not absolutely necessary. If such a meter is available the array should be tuned up as a unit with the transformer stub disconnected. Where a grid-dip meter is not available, a 6 V. 0·3 A. bulb or 0·5 A. thermo-ammeter should be connected in the centre of one element as shown in the diagram and adjustments made with the transmitter connected. Fortunately this type of array is fairly broadly tuned, so that critical adjustment should not be necessary. An overall resonance is all that is required, provided the elements are trimmed to the same lengths.

The adjustment of the transformer stub, which is also not particularly critical, may be carried out as follows: couple the feeder to the transmitter, just tightly enough to give a visible indication in the 6 V. lamp or R.F. meter; then, with the transformer spacing set at about 1½ in., bring a sheet of metal, approx. 18 in. × 3 in., towards the transformer, parallel to the two wires. As the metal sheet approaches the transformer, the aerial current will probably rise, indicating that closer spacing is needed in the transformer. Adjust the spacing slightly and repeat the test. When the spacing has been reduced to the correct value it will be found that the approach of the metal sheet will cause a reduction in the aerial current.

Balancing the Feeders

It will also usually be necessary to ensure that the feeders are correctly balanced, even where twin feeder is used. If a concentric feeder is employed, the balance will almost certainly have to be adjusted. At G6UH it was found that a heavy unbalance existed with twin screened line, and the precautionary steps described later were required. A very simple test will show whether or not the feeder is balanced: a small neon bulb is passed slowly across the top of the transformer stub in a line parallel to the plane of the two wires. With a 25 watt transmitter in use no difficulty should be experienced in making the neon strike at this point. If the feeder is correctly balanced the neon should glow equally well off either wire and go out as it passes the centre neutral point. Unequal brilliance off the two wires indicates an unbalanced feeder. Where this is found to be the case one of the devices shown in Fig. 2 should be incorporated.

Fig. 2A, effective for twin shielded or unshielded line, comprises a quarter wavelength (19 in.) of metal braid or sleeve which is passed over the feeder and moved along until the balance is restored. This device should preferably be applied at the transmitter end of the feeder since there is a risk that its action might be affected by moisture.

Fig. 2B may be used on twin shielded line, and was applied to the model described. "F" is the main feeder and "S" is a quarter-wavelength stub of similar diameter conductor, one end of which is strapped and soldered to the sheath of "F" while

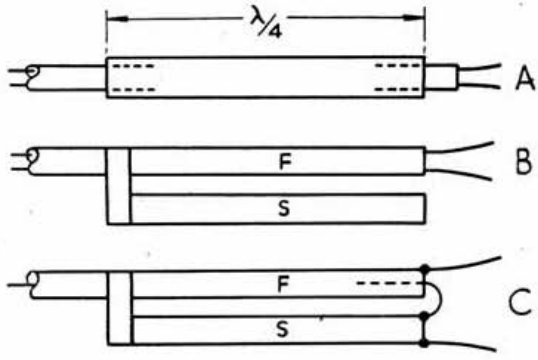

Fig. 2.
Line Balancing Devices. (A) Unscreened or screened twin feeder. (B) Screened twin feeder. (C) Concentric feeder. Insulating supports are not shewn.

the other end is insulated. The device, commonly known as a "rejector" is tuned to the working frequency by cutting "S" to length or adjusting the position of the short circuited end, preferably using a grid-dip oscillator coupled to the closed end.

Fig. 2C is similar to 2B but is intended for use with concentric lines. After adjustment to resonance, as described above, the inner conductor of the main feeder "F" is joined to the outer sheath of the stub "S." The inner wire of "S" is *not* connected. The balanced aerial or load is connected to the two outer sheaths as shown.

These devices are extremely effective, and operate by providing a free path in the "wanted" circuit whilst placing a high impedance in the "unwanted" unbalanced path. The first two may be used at either end of the line, and will be found effective in all cases where the feeder is unduly "live." If, when testing the 6-element aerial, a serious unbalance is discovered, it may prove advisable to check the transformer adjustment after balancing the feeder.

Impedances

The three full-wave aerials are effectively in parallel at the feed point, and calculation† shows that the impedance here is of the order of 600 ohms. To match a 100 ohm feeder line, the quarter-wave transformer should have a surge impedance of about 250 ohms, which agrees with the value arrived at in practice.

If the array were made self-supporting, using, for example, ½ in. diameter tubing for the elements, the centre impedance of each pair would be much lower, say 800 ohms, making the feed point about 170 ohms, and the transformer would require similar tubing at about 1 in. spacing. If 70 ohm line is used the transformer spacing will be a little less in either case than when 100 ohm line is employed. Also, in the case of a concentric line, the balancer (Fig. 2C) should be incorporated below the transformer.

The addition of reflectors to the array would, to some extent, vitiate the advantage of the broad fore and aft coverage, although the gain would be increased by 3 to 4 db. In addition, the feed point impedance would be much higher, making the use of tubular elements essential.

Results

Tests with this array at G6UH, and also at G2FMF, where two such arrays have been erected at right angles to one another with a change-over switch at the transmitter, indicate that either with two arrays, or with a simple 90° rotation, it is possible to cover effectively the whole horizon. Comparisons made with normal three-element parasitic arrays, both close and wide-spaced, show that an array of the type described is superior in gain, particularly at distances of 50—100 miles, some stations reporting as much as two S-point improvement in signal strength.

† *Terman*: *Radio Engineers' Handbook* pp. 777, 800, 863-5.

Correlation of Sporadic E Occurence with Noise Received on Two Metres

*By D. W. HEIGHTMAN, M.BRIT. I.R.E. (G6DH).**

FOR some time a schedule between ON4FG (G. Felix, Bornhem, Belgium), and G6DH (Clacton, Essex), has been kept daily at 1845 G.M.T., on the 144 Mc/s. amateur band. Distance 155 miles. PA0PN (Walcheren Island, Netherlands), has also frequently joined in. Distance 110 miles.

On June 2, 1949, both stations reported a considerable increase in general noise level as their beams were turned from other directions towards that of G6DH, *i.e.* approximately to their west. This noise increase was noted by the writer to coincide with sporadic E. reflections on frequencies of the order of 30 to 50 Mc/s. emulating from southerly and south-westerly directions from G6DH; mainly from France and Spain.

This chance observation prompted G6DH to suggest to ON4FG that, when possible, checks on the direction of reception of maximum noise should be made by him. M. Felix has a 12-element horizontally polarised beam (three 4-element Yagis stacked vertically) of good directivity both horizontal and vertical and considerable forward gain, rotatable from the operating position. The beam at G6DH being only a 4-element, rotatable outdoors, was not so suited for the tests.

Since June 2, ON4FG has made frequent tests of this nature, generally at about 0700 and 1830 G.M.T., reporting the results to G6DH on 3·5 or 144 Mc/s. The daily E_s and F_2 M.U.F. checks made by G6DH on frequencies above 20 Mc/s. have shown a very interesting correlation which may be summarised as follows: When E_s reflections of 28 Mc/s. or over are observed at G6DH, ON4FG reports noise increases on 144 Mc/s. of varying intensity but averaging some 6 to 12 db above "normal" from the same general direction. When frequencies above 25 Mc/s. are "dead" 4FG reports either a nil increase in noise in any direction or occasionally a barely perceptible increase. The direction of reception may vary daily, as does, of course, the zone of E_s occurrence, *i.e.* this is not direct reception of solar radio radiation.

Sometimes noise reception is over a wide horizontal angle. For instance, on August 18, 1949, 4FG reported a broad increase from east to south, while 28 Mc/s. signals were received at G6DH from Germany, Czecho-Slovakia through Italy, etc., to S. France, *i.e.* from the same general zone. On other occasions the reception has been from a much more restricted area.

As these tests have only been conducted during the summer of 1949 with F_2 M.U.F.'s of barely 30 Mc/s., the effects observed under high F_2 M.U.F. conditions have yet to be ascertained.

No conclusions as to the possible causes of this phenomenon have been reached, but it would appear that it must be due either to reflection or scattering of solar radio radiation from zones of intense E ionisation or actual re-radiation from these zones.

Details of observations of a similar nature, by others interested, would be welcomed by the writer. It would seem that the large multi-element arrays used by some U.S.A. stations, should show up the effect more clearly.

* 234 *Burrs Road, Clacton, Essex.*

New U.S. V.H.F. Long Distance Records Established

QST reports a 1,000 mile cross-band contact between W5JLY, San Antonio, Texas, on 144 Mc/s. and W4QN, Orlando, Florida, on 50 Mc/s. The North American 220 Mc/s. record has been raised to 275 miles by a contact between W1CTW, Arlington, Mass., and VE1QY, Yarmouth, N.S. Two W9 and two W0 stations have now "Worked All States" on 50 Mc/s.

HOME CONSTRUCTED IMPEDANCE BRIDGE

By DESMOND P. C. THACKERAY, B.Sc. (B.R.S. 13,321)*

Introduction

THE instrument to be described is the result of the author's attempt to build, largely from what material came to hand, a device that would measure, within a reasonable tolerance, values of resistance, capacitance and inductance, and give at least an approximate indication of power factor. Although not claimed to be a precision instrument, it has sufficient accuracy for most amateur purposes, and there is no reason why, if built with one per cent. tolerance components, it should not be comparable with a manufactured article.

In the interests of economy the "standards" incorporated have been limited to two, a resistor and a condenser (S_R and S_C).

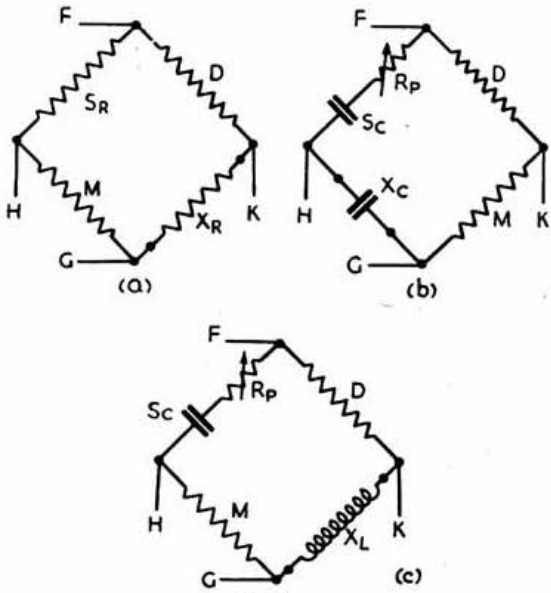

Fig. 1.
Simplified diagrams of the bridge circuits. These fit in to the general circuit diagram of Fig. 3 at F, G, H and K, and show the different kinds of bridge which are selected by the L-C-R switch, Sw.1 F, G, H and K also correspond to the same letters on the full circuit of the bridge network, Fig. 2.

Design Features

The design centres around the actual bridge itself, which consists of the two standards and two variable resistances which, with the unknown impedance to be measured, are arranged to form the "arms" of standard bridge circuits for the three cases of R, C, and L measurements. One of the resistive arms, the "multiplier" arm (marked "M" in the circuits), consists of seven resistors, selected, one at a time, by the multiplier switch (Sw3 in Fig. 2), so that, as the switch is turned, the resistance is multiplied or divided by 10 for each successive position. The second variable resistance (marked "D" in circuit) is also switched (as shown in Fig. 2), but has *equal* resistors, arranged in series, so that the net resistance increases by equal increments as the switch is turned. This resistance, referred to as the decade resistance, D, is permanently in series with a large instrument potentiometer, wired rheostat fashion, of value equal approximately to one of the decade "steps," so that the whole decade arm of the bridge can be set exactly to any value of resistance between zero ohms and maximum.

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Component Values

As regards choice of actual values for the component resistors, the potentiometer which was available read 5,000 ohms exactly on an "Avo," so 4,700 ohms was adopted for the decade step value, nine of these being wired in series around the decade switch. For convenience of dial and switch calibration, the "multiplier" resistances are arranged to be integral powers of 10 times this chosen value of 4,700 ohms, *i.e.* 4·7, 47, 470, 4,700, 47,000, 470,000 ohms and 4·7 megohms respectively. The "standards" were then chosen to have impedances in the region of the geometric mean of the maximum and the minimum values of the decade arm of the bridge, *i.e.* $\sqrt{4,700 \times 47,000}$ or $4,700\sqrt{10}$ ohms, so as to equalise operation of the bridge when working at the ends of the decade. For convenience of calibration, this had to be modified slightly, and the actual values in use for the standards are 0·01 μF and 24,000 ohms. The dial calibrations are then directly in integers with no awkward correction factors to apply on the R and C ranges.

The three bridges are as follows (S = Standard; D = Decade; M = Multiplier; X = Unknown) :—

Fig. 1 (*a*). For resistance, a Wheatstone network in which at balance $X_R = \frac{D.M}{S_R}$

Fig. 1 (*b*). For capacitance, a Kurakawa bridge in which at balance $X_C = \frac{D.S_C}{M}$

Fig. 1 (*c*). For inductance, a Hay bridge in which at balance $X_L = D.M.S_C$

The variable resistance, R_p is used in capacity and inductance measurements, to compensate for the power factor of the unknown reactance "X," and has its own dial with a power factor calibration. The complete bridge circuit is shown in Fig. 2.

The remainder of the instrument comprises a valve oscillator generating a 1,000 c/s tone, which is amplified by a second valve and fed to the bridge. The output from the bridge is taken to a second amplifier and then fed to headphones as a balance-detector. The oscillator is tuned grid in theory, the circuit stray capacitances being sufficient to tune it fairly close to 1,000 c/s.

The transformer in use is an old inter-valve transformer of unknown characteristics, one half of the secondary feeding back to the oscillator grid, and the whole secondary being used as coupling to the following stage, which is a straightforward amplifier.

Coupling to the bridge is effected by means of a second transformer, with its primary tuned, stepping down in order to provide greater power input to the bridge when measuring low impedances.

The output of the bridge is taken to the second

amplifier valve through a tuned-secondary step-up transformer, the output of which valve is fed to 'phones by means of a miniature output transformer, also tuned. By tuning the transformer windings, a better discrimination against harmonics of 1,000 c/s is obtained, and the sensitivity around the bridge balance point is improved.

Power Supply

The power supply was derived from an old eliminator, the components being remounted and a 4-volt heater winding added to the mains transformer

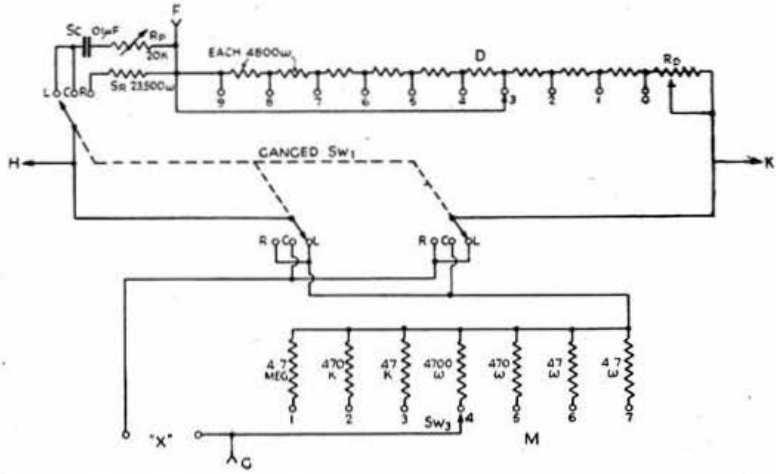

Fig. 2.
Full circuit of bridge network, showing the switching and arrangement of resistors in the "decade" arm D and the "multiplier" arm M. Ganged switch Sw1 selects the kind of bridge necessary to measure resistance (R), capacitance (C) or inductance (L) as shown in Fig. 1.

bobbin. The H.T. voltage obtained is lower than would normally be specified for operating the three triodes and an improvement could be made by designing the power pack to give 200–250 volts H.T.

Construction

The chassis measures 10 in. × 6½ in. × 2 in., to which is bolted a 6½ in. × 5½ in. panel, supported by brackets so that it is co-planar with the skirt of the chassis. The panel carries the decade and multiplier (Yaxley type switches and the instrument potentiometer), and one of the "X" terminals, which are of the heavy-current, fully insulated type, with socket holes drilled in them. The short chassis skirt under the panel carries the other "X" terminal, for connecting to the unknown impedance to be measured, and the "phase angle" (or power factor) rheostat (20,000 ohms wire-wound). The chassis and panel together, where they overlap, carry the R–C–L switch (Sw1), a hole being cut away about 3 in. square from the top surface of the chassis to accommodate it. The valves are placed line abreast just clear of the panel-mounted components, and the remaining half of the chassis is devoted to the power pack.

Under the chassis, the bridge input and output transformers (T2 and T3) are mounted on either side of the R–C–L switch, with the oscillator transformer, output transformer and output jack in line abreast between the valves and the power pack.

The panel should be wired up with switches, etc., mounted, before being attached to the chassis, and the bridge network wiring then completed before T2 and T3 are mounted. This will ameliorate the difficulties encountered when soldering in cramped quarters.

The network components should be chosen with care. Most radio dealers will allow an amateur to go over their stock of resistors with an accurate meter in order to sort out the nine with values close together somewhere less than 5,000 ohms (this being the potentiometer resistance, R_D) for the decade-arm of the bridge, and the seven necessary for the multiplier-arm. For the "Standard" resistance, S_R multiply the average value of the decade arm resistances, *e.g.* 4,800 ohms, by the average of the first two figures of each of the multiplier-arm resistances, *e.g.* 49 (giving 235,000), and divide by either ten or one hundred. This will give a suitable value for the resistance standard, S_R, which in this case was 23,500 ohms, although, in the original, a 24,000 ohms resistor was used.

The condenser S_C is a fairly accurate 0·01 μF mica type, with negligible power factor. Experience has also shown that for many inductances, 20,000 ohms (R_p) in series with this condenser represents an insufficient phase compensation for the bridge to balance. Therefore, a switch placing R_p in parallel with S_c would be a valuable addition to the bridge.

The transformers T1 and T2 are tuned by trial and error, using an output A.C. voltmeter and trying different values of condensers from 50 μμF upwards across the windings. The resonant peak (indicated by maximum A.C. volts across the headphones) will be very "broad," but it will be possible to get within 50 per cent. of the correct condenser value fairly easily, and this will be satisfactory. The original tuning of the oscillator frequency (varying C1) can be left to the ingenuity of the constructor. (Musical note, C, two octaves above middle C, is 1,024 c/s.)

Power Factor

The power factor dial may be calibrated either in power factor (*cos* φ, where φ = phase angle) or in the tangent of the phase angle, which is simpler. *Tan* $\varphi = 2\pi fCR$. The dial is marked at places where *tan* φ = 0·2, 0·4, 0·6, 0·8, 1·0, the corresponding values of R being 3,180, 6,360, 9,540, 12,720, 15,900 ohms respectively.

The dial for the potentiometer R_D may then be "laid off," the divisions being equal to tenths of the average decade step value, *i.e.* 480 ohms each, giving ten positions, with an overlap of a few hundred ohms between adjacent steps.

Operation

Connect the unknown impedance to "X" terminals, set the decade switch to position 1 or 2 and, with the R–C–L switch set as required, turn the multiplier switch to the position where least output is heard. Adjust the decade switch for similar

condition, and make final adjustments with decade potentiometer (and phase angle control if on L or C), till zero output at 1,000 c/s is obtained. Harmonics of 1,000 c/s and 50 c/s hum will probably still be heard, but with practice these can be eliminated aurally. If the decade-switch is calibrated from 1 to 10 and its potentiometer R_D from 0·1 to 1·0, then the multiplier dial will have the following ranges for its seven positions :—

Sw3 position	C	L	R
1	10 μμF	235 H	1·0 megohm
2	100 μμF	23·5 H	0·1 megohm
3	1,000 μμF	2·35 H	0·01 megohm
4	·01 μF	235 mH	1,000 ohms
5	·1 μF	23·5 mH	100 ohms
6	1·0 μF	2·35 mH	10 ohms
7	10·0 μF	0·235mH	1 ohm

The series of factors for L contain the same figures 235 as were obtained in arriving at the value of the " standard " resistor. The R and C ranges, however, are in powers of 10, which makes for convenience on the most used ranges. If the decade resistors had been ordered to one per cent by any of the firms selling such high quality components, they could have been chosen as 3,162 ohms resistors, and with a multiplier having 3·162, 31·62, 316·2 ohms, etc., the bridge could then have been direct-reading on the L range as well, since $31{\cdot}62^2 = 1{,}000$.

Finally, a hint to constructors. The Yaxley type switches run more easily if one of the pair of locator bearings for the eleven " stop " positions on the switch head are removed. This reduces appreciably the effort required to spin round the switches when finding a balance point.

Addenda

The range of the power factor control (R_p) can also be extended by wiring-in a switch to change the control from its normal position in series with the standard condenser (S_c) to a position in parallel with it. The dial may then be provided with a second set of calibrations, in reciprocal to the first set, since now, as an alternative, the control covers a range given by

$$Tan\ \varphi = \frac{1}{\omega\ C_s\ R_p}$$

(where $\omega = 2\pi f$.) Also the calibration $Tan\ \varphi = 1$ may be exactly marked by finding a balance of the bridge at which this added switch may be set in either position, and the balance remain unaffected so far as R_p is concerned. For this purpose connect a 0·01 μF. condenser in series with a 25,000 ohm rheostat to the " X " terminals of the bridge and successively approximate to the required condition by adjusting R_p and the rheostat alternately.

Because of the loud volume of output from the bridge, it is advisable to obtain approximate balances with the headphones " on the table," reserving the wearing of them until making final accurate adjustments to exact balance.

An " indicator " type of neon lamp, or something smaller if available, strapped across the primary of the output tranformer, will act as a limiter of 1,000 c/s. output tone, whilst preserving sensitivity close to the balance point.

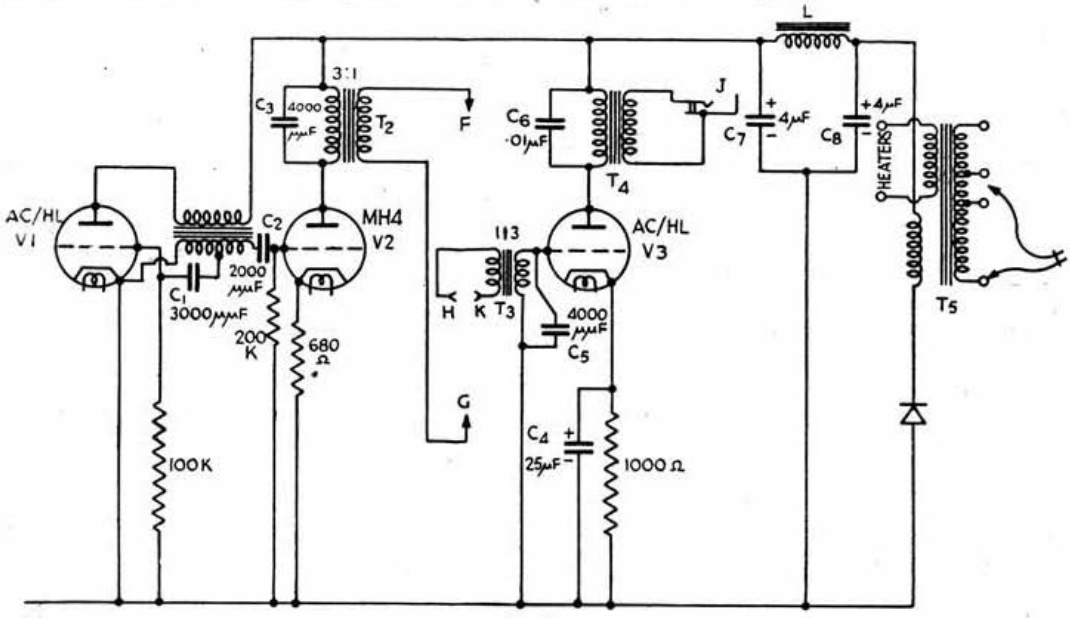

Fig. 3.

General circuit diagram. The oscillator valve (V1) feeds the amplifier (V2) which in turn feeds the bridge network at F and G. The bridge output, at H and K, is amplified by V3 before reaching the headphones.

AN INEXPENSIVE V.F.O. AND EXCITER UNIT

By SIDNEY A. DENNEY (G3CIM)*

This article contains full constructional details of a simple three-stage V.F.O. giving a stable output on 1·7 and 3·5 Mc/s. Although basically similar to the design published in the June, 1949, issue, much useful and additional information is provided on the constructional aspect of this type of unit. Mr. Denny's article was submitted before the publication of GM3BXQ's circuit.

VARIABLE frequency control has become an almost indispensable feature of present-day amateur operation on frequencies below 30 Mc/s. Properly employed, the V.F.O. can add enormously to the effectiveness and ease of communication on the crowded bands : the amateur who can rapidly change frequency is able to pick a clear spot ; to move when jammed ; and to bring about a considerable reduction in calling-time by the adoption of semi-single-channel technique.

Many amateurs have already found that an ideal basis for a compact V.F.O. is provided by the " TU " series of tuning units which originally formed part of the American BC-375 transmitter and are now readily available on the surplus market. In particular the TU5B (1,500—3,000 kc/s.) provides many of the essential parts for a stable V.F.O. exciter at low cost to the constructor. Apart from the conveniently sized and workable chassis, which lends itself admirably to conversion, it possesses an excellent vernier control dial with 2,500 divisions for a 180° rotation of the tuning shaft, simplifying calibration and giving a high re-setting accuracy. It also normally contains a useful high-C tank circuit with a temperature compensated coil and padding capacitors, and sturdily-built variable capacitors eminently suitable for V.F.O. construction.

This article describes the conversion of one of these units into a three stage V.F.O./exciter employing a Franklin oscillator and providing a stable R.F. output at high or low impedance on either 1·7 or 3·5 Mc/s. The Franklin was chosen after experience had proved this type of circuit to be extremely

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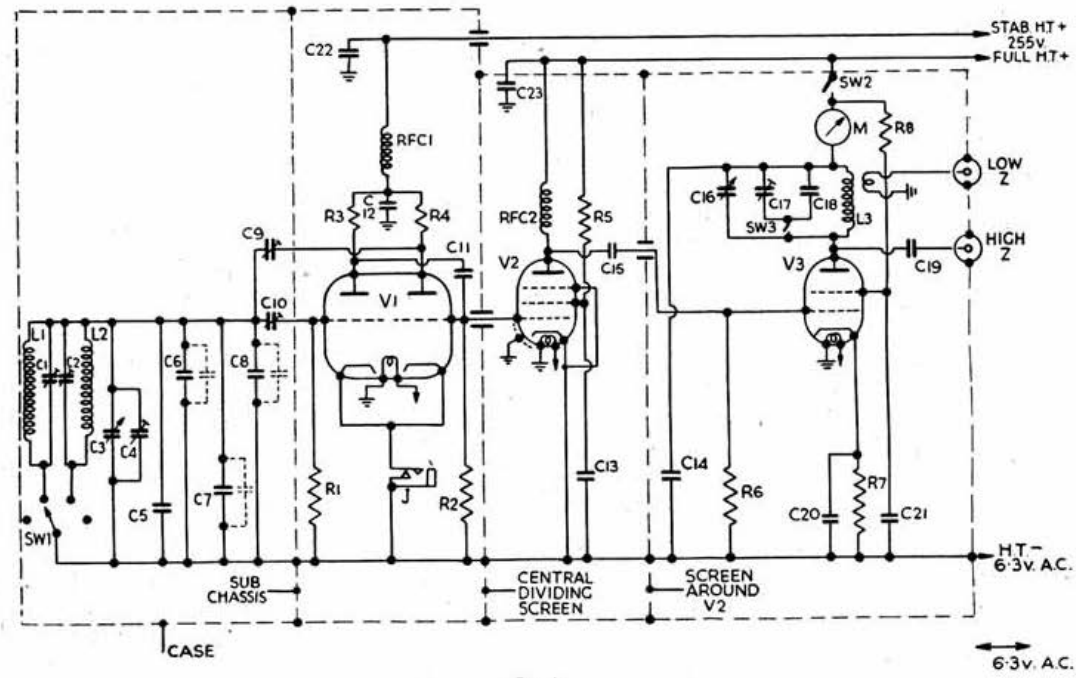


Fig. 1.
Circuit diagram of V.F.O./Exciter as described. The temperature compensating capacitors are shown dotted, and are part of the original unit.

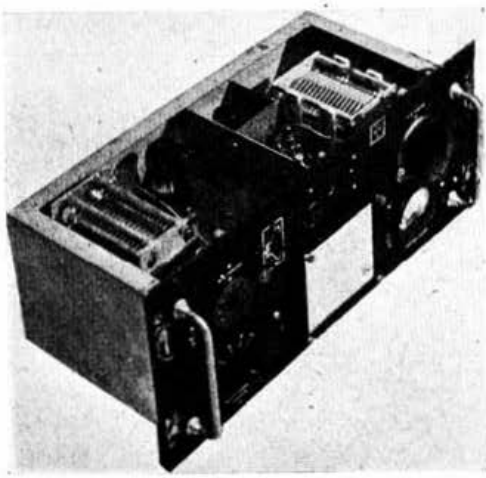
Component	Values.		Component	Values.
C1, 2, 17	6–30 $\mu\mu$F. Concentric Variables.		C11, 15, 19	50 $\mu\mu$F. mica.
C3	20–135 $\mu\mu$F. Variable	Existing in TU5B.	C12, 13, 14, 20, 21	·01 μF. mica.
C7, 8	100 $\mu\mu$F. Padding		C18	·0003 μF. mica.
C6	30 $\mu\mu$F. Padding		R1	1 megohm ½ watt.
C16	20–156 $\mu\mu$F. Variable		R2	·5 megohm ½ watt.
C5	70 $\mu\mu$F. approx. additional padding (see text).		R3, 4	25,000 ohms 2 watts.
C4	2–30 $\mu\mu$F. air spaced pre-set.		R5	50,000 ohms 2 watts.
C9, 10	1–8 Concentric Variables.		R6	15,000 ohms 2 watts.
			R7	500 ohms 2 watts.
			R8	30,000 ohms 2 watts.
			SW1	4 WAY S.P.
			SW2	S.P.S.T.
			SW3	S.P.S.T.
			J	Closed circuit jack.
			RFC1, 2	Receiving type chokes.
			M	0–50 milliammeter.
			V1	6SN7/GT.
			V2	6SJ7.
			V3	TT11 (VT501).

stable and " docile," and to operate efficiently at the first trial—a feature which should particularly appeal to the newcomer to V.F.O. construction. The only criticism which may justly be levelled at the Franklin is the low R.F. output. In the apparatus to be described this disadvantage has been overcome by including a tuned buffer-amplifier stage as an integral part of the unit while an isolating stage interposed between the oscillator and buffer eliminates any interaction or " pulling " of the oscillator frequency. The use of a twin-triode 6SN7GT valve reduces the number of valves required.

Incidentally, the unit by itself could easily be considered as a low power transmitter by coupling an aerial tuner to the low impedance output socket.

Construction

The interior of the TU5B should first be stripped of all parts with the exception of the variable capacitors, the drives and three of the padding capacitors in the left hand section. The identification plate on the front panel must also be removed as it covers a countersunk screw holding the centre screen in place. Since it can never be over-emphasised that the final results of any master-oscillator depend upon the rigidity of the components and wiring, it is suggested that the original wiring of the TU5B should be studied as an excellent example to be closely followed in all new wiring associated with the tuned circuits and R.F. leads. Heavy gauge wire, such as 16 S.W.G. tinned copper, should be used—a ¼lb. reel will prove ample for this purpose. If a unit containing a band-switch is purchased this should be broken down in order to remove the ceramic pillars. These pillars will be found most useful as stand-off insulators in the new V.F.O. but the switch, itself, has little practical value. All nuts and screws removed from the unit should be carefully retained since the American thread used is difficult to replace in this country.



General view of the modified TU5B.

The trimmer C4 is adjusted from the front panel after the unit is boxed. The hole for the trimmer tool can be seen to the left of the " M.O. tuning " scale. Both SW2 and SW3 are visible, one each side of the meter.

Layout

The fabrication of two sub-chassis on which are mounted the valve holders may prove a little tricky but once accomplished the remainder of the constructional work will be found quite straightforward. These assemblies can be made of 16 or 18 S.W.G. mild steel; in the case of the original model, part of the screening from a stripped RF24 unit was utilised. The positioning of the sub-chassis can be seen in the photograph although it is not necessary for the original layout to be slavishly copied. It will, however, be found convenient if the sub-chassis are bolted on the one side to the centre dividing screen and on the other to the variable capacitor mountings. The coils are then mounted on the underside of the sub-chassis in order to keep them well away from the valve heat. Especial care must be taken when mounting the 3·5 Mc/s. oscillator coil to make sure that absorption by screening does not reduce the R.F. output. In practice it was found that unless this coil was mounted vertically, absorption reduced the ouput on this frequency to negligible proportions. The entire left-hand section of the unit should be reserved for the oscillator, the right-hand portion containing both the isolating stage—which should be well screened—and the tuned buffer amplifier.

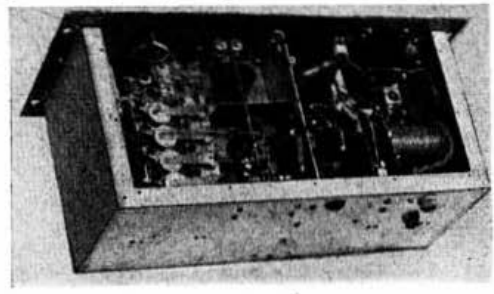
The Oscillator Section

The Franklin has already been described in the BULLETIN on several occasions and it is felt that at this stage a circuit diagram and list of component values should provide sufficient guidance to permit the construction of a stable oscillator. With the exception of the two 1–8 μμF. concentric trimmers, C9 and C10 and the frequency control tank circuits, the values of components are not critical but those given were found satisfactory in the original model. It is important that C9 and C10 should be adjusted to the minimum capacity consistent with gentle oscillation over the entire frequency ranges. The variable capacitors and padders in the TU5B provide a low L/C ratio tank circuit, a factor which greatly assists frequency stability.

The oscillator is designed for switched operation on the 1·7 and 3·5 Mc/s. bands without frequency doubling in any stage. If output is required on 3·5 and 7 Mc/s., V3 could be operated as a doubler with suitable adjustment of L3, although some loss of output would be experienced. As shown, Sw1 is a four way single pole ceramic switch with an unconnected position on each side of the two bands fitted. This is an optional feature but provides points for an extension of frequency coverage at a later date. This switch should be mounted in the place of the original band-switch previously mentioned.

In order to simplify dial readings and calibration charts, it was decided to trim each coil so that for any given position of the dial the frequencies on the two ranges are in direct harmonic relationship, *i.e.* the dial reading for 1,900 kc/s. is identical to that for 3,800 kc/s. on the H.F. range. This arrangement requires a certain amount of patience in coil trimming, but the resulting simplification in dial readings will easily offset the extra trouble involved.

Additional padding across the tank circuit is provided by C5 (approx. 70 μμF.) in order to cover the required frequency range. The actual value will,



Under view of the converted TU5B.

The fixed padding and temperature compensating capacitors can be clearly seen on the left. One of the 100 μμF. padders is not used

of course, depend upon the stray capacities in the wiring. A 6–30 μμF. air spaced pre-set trimmer, which can be adjusted with a screw-driver from the front panel, is placed across the main tuning capacitor (C3). This permits final adjustments to be made after the V.F.O. is installed in its outer case. Capacitors C1 and C2 (across the coils) are concentric variables and should be adjusted with a trimming tool *after* the screening plates have been replaced. Two holes must be made in these plates to enable this operation to be carried out. After the final trimming, hot wax should be dropped on the trimming spindles to prevent any movement through vibration, and the coils thoroughly shellacked for the same reason.

In view of the fact that the vernier drive possesses 2500 divisions, it was decided to cover only 250 of the 285 kc/s. at present permitted on the 1·7 Mc/s. band. In the original model a "safety region" of 17·5 kc/s. was left at both edges of the band, the frequency range being 1,732·5 – 1,982·5 kc/s. with each division of the dial covering 100 c/s. With this arrangement the full width of the 3·5 Mc/s. band can be easily covered with 200 c/s. intervals between dial divisions.

Isolating and Buffer Stages

The 6SJ7 isolating stage and the TT11 (VT501) amplifier are both conventional and require little comment. Careful screening of the isolating stage has already been mentioned. Originally a 6V6GT was employed as the buffer amplifier but this proved unstable and a TT11, which has a top cap anode, was successfully substituted. The tank coil used in the amplifier came originally from a T.R.1196 unit but the details given in the table will permit a similar coil to be wound. On the L.F. range additional capacitors C17 and C18 are switched across the coil and C17 adjusted to spread the 1·7 Mc/s. band uniformly over the dial. In practice, the low-C ratio of the amplifier tank circuit on 1·7 Mc/s. is not found to be a serious handicap since adequate output can be obtained. Two *Pye* co-ax connectors are mounted, as shown, on the back of the unit and provide R.F. output at either high or low impedance. A 50 mA. F.S.D. meter is included in the plate circuit of the amplifier to indicate resonance.

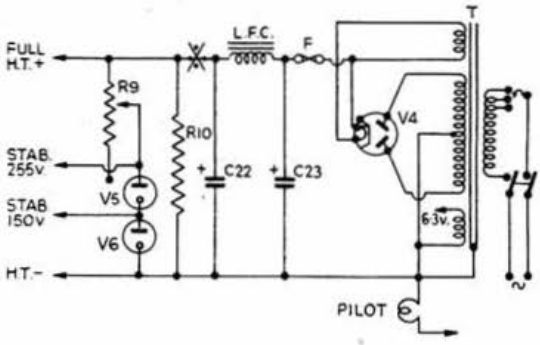


Fig. 2.

Suitable power supply. A further filter section could be inserted at point x with possible improvement.

C22	32 μF. 500 V. working electrolytic.
C23	8μF. 500 V. working electrolytic.
R9	20,000 ohms 5 watts variable.
R10	30,000 ohms 15 watts.
Transformer	300–0–300 V. 100 mA; 6·3 V. 2 A; 5 V. 2 A.
Choke	10 H. 100 mA.
V4	5Z4/G.
V5	VR105.
V6	VR150.

Power Supply

The circuit of a suitable power pack is given in Fig. 2. The unit supplies a stabilised output at both 150 and 255 V. although only the 255 V. source is strictly required in connection with the exciter. An unstabilised supply of approximately 300 V. from the same unit is used for the other two stages. It is not possible to stabilise the entire H.T. supply as the current drain exceeds 30 mA. The single section filter has proved smooth enough in practice although a further smoothing choke and capacitor could be inserted at the point indicated with possible slight improvements. The value of R9 may be calculated as follows:

$$R = \frac{(E1 - E2)}{I} \times 1000$$

where $E1$ is the supply voltage, $E2$ the voltage across the regulator tube, and I is the maximum voltage regulator tube current (*i.e.* 30 mA. for the types specified). The power ratings of all resistors should be conservatively rated in order to minimise heat.

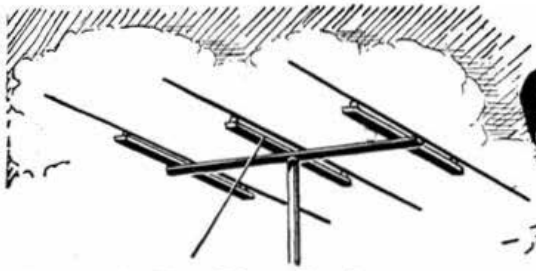
INDUCTANCES			
OSCILLATOR SECTION		BUFFER ANODE	
1·7 Mc/s.	3·5 Mc/s.	1·7 Mc/s.	3·5 Mc/s.
18μH	5μH	18μH	18μH
35 turns of 26 S.W.G. enam. spaced one diameter on 1" diam. form.	12¼ turns of 26 S.W.G. enam. spaced one diameter on 1" diam. form.	29 turns of 18 S.W.G. tinned copper on 1¾" diameter form, and wound 10 turns per inch.	
CAPACITY SWING			
OSCILLATOR SECTION		BUFFER ANODE	
1·7 Mc/s.	3·5 Mc/s.	1·7 Mc/s.	3·5 Mc/s.
350–465μμF.	350–465μμF.	350–485μμF.	20-156μμF.

Results

The completed unit was calibrated against a stabilised BC221 frequency meter, and has been thoroughly tested on the air. Drift is negligible and the note consistently T9. Since the oscillator valve is keyed by means of the jack J, the unit is suitable for break-in operation, and no keying lag has been observed. A key-click filter should be included at the keying position.

Once adjusted the calibration of the unit remains accurate, although, in order to fulfil the requirements of the licence, a suitable frequency meter must always be available.

Acknowledgement is gratefully paid to G3BTM for his assistance on points of design.



AROUND THE V.H.F.'s

Highly Successful 70 c.m. Tests

Planning the Two Metre Band

DOES the two metre band require planning? Well, surely not as that term is understood on the lower frequencies, with portions set apart for C.W. and 'phone to alleviate mutual interference. Anyone who is active on "two" soon realises that for the most part activity is confined almost exclusively to a section of the band 250 or 300 kc/s. wide, starting at 145 Mc/s. Recently, however, there have been signs that more use is being made of parts of the band on either side of this section. One only has to work outside this confined space for a short time to appreciate how few operators give the remaining section of the band more than a very cursory glance at rare intervals.

By

W. H. Allen,* G2UJ

This is the case so far as stations with little or no "county value" are concerned; if a station happens to be situated in a sufficiently out-of-the way corner of the country he could, no doubt, work quite happily on 144·01 or 145·99 Mc/s. and have little difficulty in getting QSO's. He wouldn't need to put out a T9 note either, and what's more, he would never know—because his best friends would be most unlikely to tell him in case the coveted card was not forthcoming!

This brings us to two points; the plan for dividing up the country on a frequency district basis as recommended by our contemporary *Short Wave Magazine*, and the question of whether "two" is to degenerate into a DX and County Collector's band pure and simple.

The *Short Wave Magazine* plan aims at making it easier to find stations in a given part of the country by confining stations in that particular area to one section of the band. The chief attraction in this scheme seems to be that of utilising the whole of the 2,000 kc/s. instead of the absurdly small section aforesaid, and as such we feel it to be an advantage. If, however, this is simply a device to make it easier for certain operators to work the DX at the expense of the local contact, then it is to be deprecated, for "two" is fast becoming a band on which the unpremeditated rag-chew is almost impossible.

During those periods when propagational conditions are exceptional, activity is quite high, and seems to be the only time when some operators deign to come on, and then only to work DX. For the remainder of the time the activity is low, nearly non-existent, and the newcomer whose first essay on the band coincides with such a time can be excused for thinking that "two" is hardly worth the trouble, or alternatively, that he has slipped up somewhere and is off the band altogether.

We are not, by any means, opposed to DX working: it provides a thrill and it also adds considerably to our knowledge of radio propagation on this section of the V.H.F. What we do deprecate, however, is that the complete preoccupation with DX, Counties and Cards to the exclusion of all else, is ruining what could be a very fine band, ideal for short range rag-chewing on 'phone or C.W.

Those stations—and there are several—who run skeds. with others at a distance day in and day out irrespective of conditions, are doing a fine job, and it is hoped that in due course their observations will be correlated and made available to such scientific bodies as would be interested in them. Meanwhile, DX hunters, spare half an hour now and again for a friendly chat with that fellow who isn't in a rare county, but who just wants to know that his gear is functioning, or wants to try a test or two which you carried out years ago, or who appreciates the old art of rag-chewing as practised in the days when

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President's Trophies Won by Midland Amateurs

AT long last the two silver trophies, offered by Mr. V. M. Desmond, G5VM, for the first two-way contact between fixed stations at least 25 miles apart and operating on the 420/460 Mc/s. band, have been won. The successful members are Messrs. J. Spragg, G3APY, of Kirby-in-Ashfield, Notts., and F. Pike, G3ENS, of Loughborough, Leicestershire, who made QSO, under the conditions specified, for the first time on August 12, 1949.

Contact was first established at 1830 G.M.T., and lasted upwards of half-an-hour with M.C.W. signals of R5 S7/8 in both directions. The Nottingham station was also S6 on 'phone. The distance involved is slightly in excess of 25 miles.

Their success was due in no small measure to the excellent receivers built by G3ENS, and employed at both stations. The basis of these was the ex-Naval type P.5B, considerably modified, and incorporating a number of novel features including an R.F. stage with a "lighthouse" valve in a co-axial tuned circuit. It is hoped to publish a full description of this receiver in an early issue.

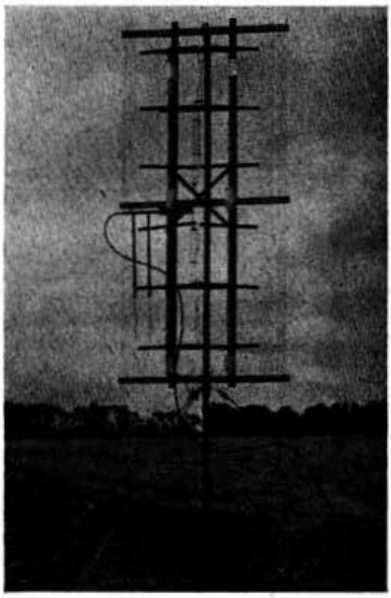
The transmitters, similar at both stations, used CV82's as modulated oscillators in an earthed grid push-pull circuit, and inputs in the region of 15 watts.

The aerial at G3APY was a 5-element Yagi 20 ft. high, fed with co-axial feeder, and serving for both transmission and reception. Separate aerials were employed at G3ENS; the transmitter feeding a 16-element broadside array raised only 3 ft. from the floor, while the receiver relied upon a 6-element Yagi, comprising a folded dipole, reflector and 4 directors, 10 ft. off the ground.

In offering hearty congratulations to the two amateurs concerned in this achievement, we feel sure our sentiments will be echoed by V.H.F. workers everywhere.

The 70 cm. Tests

Sunday, August 21, undoubtedly produced the most widespread activity on this band since its inception. Conditions in the South of England were more or less normal, with a considerable improvement in propagation towards the evening, a state of affairs which regular users of this band have come to expect. News from other parts of the country seems to indicate that somewhat similar conditions were general, but nevertheless some excellent work was accomplished. It is not our intention to do more



The 12-element 420 Mc/s. (70 c.m.) beam with wire-mesh reflector incorporating a L-stub tuner and "Balun" co-axial transformer used by G2FKZ during the 420 Mc/s. tests. Signals up to 75 miles were heard with this array which was set up at Wantage, Bucks.

than touch upon the high spots of the day, mainly because there has not been time for enough news to reach us to enable a balanced report to be prepared. We understand this will be undertaken by the Contests Committee in due course.

The best distance seems to have been achieved by GW4OS/P and G2JT/P with a contact at a range of 95 miles, while G2FKZ/P (Wantage) and G3FZL/A (Ore, nr. Hastings), 96 miles apart, have reason to believe they heard one another at times, although flutter fading prevented positive identification in both cases. G3BEX/P (Devil's Dyke, nr. Brighton) was heard by 2FKZ/P at 75 miles but no contact resulted. G3AHB/A (E.M.I. Building, Hayes, Middlesex) worked G3FZL/A with an S8 signal at 62 miles, and 3BUR, operating portable on Walton Hill, Worcester, employing a monumental 48-element stacked array, contacted G3MY/P (Birbage Moor) at 67 miles.

One thing seems certain, the superhet is coming into its own on 70 cm. as it has on all other bands. From our own experience at G2WS/P (Ashdown Forest, Sx.) the superhet., provided the I.F. pass band is reasonably wide, can accommodate most self-excited-oscillator transmissions so long as modulation is kept within bounds. Unfortunately the application of modulation at some stations caused the carrier to do the most extraordinary things, reducing the transmission in the worse cases to a semblance of a not too steady pulse! We desire to

New G-DX Record on Two

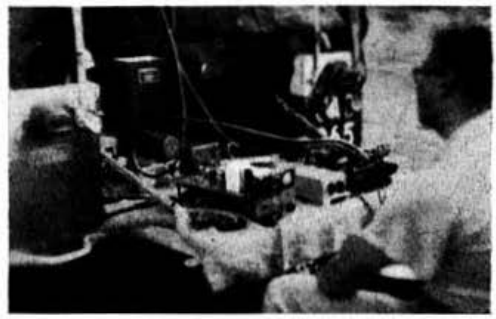
Our congratulations to G3BLP (Selsdon), holder of the previous longest distance record with GM3OL (Dumfries), for his achievement on August 20 at 2223 G.M.T. of effecting two-way contact with GI2FHN (Belfast). Reports of RST 549 each way were obtained, the distance being approximately 240 miles.

Other Two Metre News

G3EHY (Banwell, Som.) found that August 17 marked an improvement in conditions after ten days or so when things were decidedly below normal. The onset of foggy weather in the London district on the following evening resulted in a number of S9 signals arriving from that area, and on the 19th G2NH (New Malden, Sy.) was S9 during his midday sked., with G2XC (Portsmouth) a good S7. GM3OL was last worked on July 17—for the sixth time—when the Scottish station was putting in a steady S7 signal for more than an hour. We also noticed that on August 15 conditions were good towards the S.W. from Tunbridge Wells, G3DEP (Ryde, I.O.W.) coming in at S7 for almost all positions of the beam. On the 16th, however, that station was only S3, and beaming sharply in the correct direction. This was the first time for a considerable period that the Ryde station had been heard, and strangely enough no other signals from that direction were heard at the same time. GW2ADZ (Llanymynech) is trying a "4 over 4" stacked array in an attempt to bring in the PA's which he can hear East Coast stations working. So far no Dutch signals have got through to him. We are asked to mention that he is now only some 200 ft. a.s.l., and *not* sitting on top of a mountain as some operators seem to think; also that he will be pleased to send cards to those requiring them in respect of contacts with his previous address.

"Surging" noise—thought to be due to solar activity—was not uncommon on the five metre band at times, and 'ADZ reports hearing a good sample at 1300 B.S.T. on August 21. Have other operators noticed this?

Rutland was put on the two metre map by G6LX, operating portable at a site 620 ft. a.s.l. just south of Oakham on August 22 and 23. Some screening was present towards the west and north-west, but this did not prevent 45 stations being worked, and many more heard, during the two evening sessions. 'LX describes his experience as resembling more an A.R.R.L. C.W. Contest than V.H.F. operation! He certainly took steps to cope with the expected onslaught, and employed the novel scheme of a C.C. converter fed into two parallel I.F. amplifier channels with one operator on each, searching the band between them. The transmitter consisted of a



G3BUR operating portable from Walton Hill, Worcester, during the 420 Mc/s. tests on August 21, 1949.

6J6 C.O. and tripler, a 6C4 doubler and an 832 P.A. feeding a 4-element wide spaced beam.

Continental Activity

Some pretty intensive DX working is being carried out between OH and SM, with OH1NA, 2NY and OK representing Finland and SM5ABC and VL Sweden. The accent is definitely on the receiving equipment, which so far as OH2OK and the two SM stations are concerned comprises a converter with a 6AK5 (triode connected) plus a 6J4 in the *Wallman* cascade circuit followed by a 6AK5 second R.F. stage, a triode mixer *cum* cathode follower for I.F. coupling employing a 6J6 and a two valve C.O./multiplier. Power in the region of 120 watts is used on the transmitters, and SM5VL's aerial consists of two stacked 5-element beams with a measured gain of 15 db. over a dipole. Contacts between Stockholm and Helsinki—some 250 miles—are quite regular but signals are weak. The two SM stations have arranged skeds. with G2XS (Kings Lynn) and G5US (Aldershot), whose frequencies are 144·26 and 144·24 Mc/s. respectively. Times are 2200 to 2220 G.M.T. daily except Wednesdays and Saturdays. We understand from G5US that OH2OK was heard at S6 at 2100 G.M.T. on July 4 by ON4CC and that skeds. are being arranged.

DL2GB (Helmstedt) who, by the way, is BRS181, worked DL1HC at Torfhaus in the Harz Mountains twenty times in three weeks between June 19 and July 7 using cross-band 2 and 80 metres 'phone. DL2GB will be on 144·91 Mc/s. shortly.

The Commercial V.H.F.'s

BRS4029 (Plymouth), who is concerned with police radio, mentions that *Messrs. Pye* of Cambridge are now producing a V.H.F. receiver for the police bands with 14 valves and a super-regenerative second detector. This would appear to be on the lines of what the A.R.R.L. referred to as the "Infradyne" some ten or twelve years ago. It appears that the super-regen's discrimination against ignition interference, together with its good A.V.C. action has been allied successfully to the superhet's selectivity and sensitivity.

Choice of TV Frequencies

In a letter in our June issue G3FIP, referring to reception of Alexandra Palace signals in South Africa, expressed the opinion that there was little danger of interference with our present TV service by European signals and stated that such interference arriving by Sporadic E reflection would be of infrequent occurrance. SM5VL (Stockholm) sends some data which he has accumulated from observations on signals from A.P. over a considerable period from which he concludes that Sporadic E was responsible for extremely high field strengths in that country for approximately 50 hours per month during June/August, 1948, with signal strengths of approximately 80 db. above the noise level of a receiver with a measured noise factor of 5 db., or an estimated field strength of 450 v/m. It appears that the Stockholm experimental F.M. transmitter, which operates with 750 watts to a horizontally polarised aerial with 5 db. gain, was obliged to alter frequency from 41·5 to 41·7 Mc/s. in order to avoid interference with the A.P. sound channel in this country.

R.S.G.B. Band Plan

MEMBERS who have not yet received the R.S.G.B. Band Plan, printed in card form, are invited to send a stamped addressed envelope to Headquarters for a copy. In addition to giving full details of the plan, as published in the April, 1949, issue of the BULLETIN, the complete RST Code is set out on the reverse together with some suggestions for "Good Operating," making the card a useful source of reference for all amateurs.

Amateur Radio Exhibition

THE General Secretary will be pleased to hear from members who are willing to undertake stand duty during the period of the forthcoming Amateur Radio Exhibition to be held at the Royal Hotel, London, from November 23 to 26, 1949. Times and dates available should be stated.

Broadcasting Committee, 1949

THE Broadcasting Committee under the Chairmanship of the Rt. Hon. The Lord Beveridge, K.C.B., F.B.A., to consider the constitution, control, finance and other general aspects of the sound and television broadcasting services of the United Kingdom (excluding those aspects of the Overseas Services for which the B.B.C. are not responsible) and to advise on the conditions under which these services and wire broadcasting should be conducted after December 31, 1951, held their first meeting on June 24, 1949.

The Committee will be glad to receive from organisations and individuals, representations on any matters falling within their terms of reference. These representations should be sent in writing to the Secretary, Broadcasting Committee, General Post Office Headquarters, London, E.C.1, not later than October 1, 1949.

MONTH ON THE AIR—*Cont. from Page* 81.

BERS195

This old stalwart now in Melbourne comes along with lots of "gen" from the Pacific area. He has checked that VR4SI/VR1 was unknown to the G.P.O. Says RV2/FO8 near Tahiti, W6YAW/AK in Korea, and FK8AC are all O.K. Gives QTH of VR4AA as ex VK3TD, J. Davies, Honiasa, Solomon Islands.

On 7 Mc/s. he has heard GC2BMU and G2FIY/P. QSL's for VK1VU should go to VK3MM and VK1RA and FE to VK3UM. CR10AA is active around 1100 G.M.T. at the low end of 14 Mc/s. but he has no information.

There are three stations now active on Norfolk Is., *viz.* VK9GM, 9NR and 9RH.

Tailpiece

More reports please. Not so much lists of stations worked or heard as items of interest, queer happenings, etc. This is *your* feature. We don't make it up ourselves so it depends on you.

LEADING "A" STATION
Jack Sharples (G3FJ) at the key of G6PR/P helping to raise the total for the Slough "A" station to 469 points. *Photo by R. S. Williams, Slough.*

NATIONAL RESU

WINNING GROUP: EAST MOLESEY (G6
RUNNERS-UP: COVENTRY (G3FAB/P and
LEADING "A" STATION: SLOUGH (G6
LEADING "B" STATION: EAST MOLES

NATIONAL FIELD DAY, 1949, will long be remembered for its perfect weather, its good conditions and its high scores. These and other high-lights of those 24 hectic hours which began at 1700 B.S.T. on June 11 have already been reported in the July issue of the BULLETIN. In announcing the results this month, the Contests Committee wishes to congratulate the leading stations on their excellent performances and to thank all those members who co-operated in making this one of the most popular N.F.D.'s ever held.

How did the leaders do so well? An analysis of the logs suggests that the answer is to be found in good operating procedure, logical choice of frequency band at any given moment and the use of simple but reliable apparatus. Rarely indeed can there have been so many contacts per watt-hour as were accomplished that week-end. The 5-watt limit placed a premium on good aerial equipment but it is noteworthy that the leading high frequency station employed Windom aerials and *not* a rotary beam.

Equipment

The equipment used by this year's winners—the East Molesey (Surrey) Group—consisted of a V.F.O.–P.A. transmitter at the "A" station,

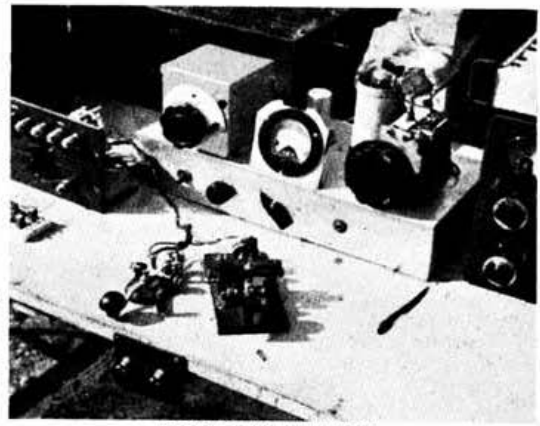
G6NB/P, CHOBHAM COMMON, SURREY.
Part of the team which helped to place the East Molesey Group at the top of the 1949 N.F.D. table. Left to right, G2AVC, G2KI, E. Todd, G6NB, G3ENY, G2BPC, W. Hope, G8IP and G5HB.

Psn.	Town or Area	"A" STATION		"B" STATION		Combined Score
		Call Sign	Pts.	Call Sign	Pts.	
1	E. Molesey	G6GB/P	428	G6NB/P	486	914
2	Coventry ...	G3FAB/P	417	G2FTK/P	433	850
3	Cheltenham	G5BK/P	406	G5BM/P	398	804
4	N. Ireland	GI2HLT/P	370	GI5UR/P	417	787
5	Croydon ...	G2FWA/P	385	G6LX/P	398	783
{6	Cambridge	G4MW/P	431	G8PB/P	327	758
{6	Derby ...	G3ERD/P	379	G5YY/P	379	758
8	Slough ...	G6PR/P	469	G6CJ/P	278	747
9	Chingford...	G8JM/P	430	G8AL/P	311	741
10	Ealing ...	G8IH/P	434	G3CBX/P	302	736
11	Brentwood	G4AG/P	358	G8RC/P	370	728
12	Forfar ...	GM6RI/P	374	GM2DRD/P	343	717
{13	Boston ...	G6LH/P	378	G4GI/P	338	716
{13	Edgware & Hendon ...	G2IM/P	336	G2AJ/P	380	716
15	Burnley ...	G8TD/P	376	G3SJ/P	335	711
{16	Chelmsford	G5RV/P	396	G2AJF/P	314	710
{16	Medway Towns ...	G6KT/P	360	G6NU/P	350	710
18	Coulsdon ...	G2DN/P	310	G5BT/P	388	698
19	Bristol ...	G6RB/P	324	G6GN/P	362	686
20	Cardiff ...	GW8NP/P	353	GW5BI/P	330	683
21	Dulwich & New Cross	G3CU/P	380	G3ACC/P	300	680
22	Bromley & Beckenham	G6HD/P	329	G4AU/P	348	677
23	Sheffield ...	G8NN/P	348	G5TO/P	324	672
24	Neath & Pt. Talbot ...	GW4NZ/P	376	GW2FRB/P	292	668
25	Brighton & Hove ...	G3DEU/P	366	G3YY/P	298	664
26	Loughboro'	G4MM/P	364	G4BI/P	298	662
{27	Bury ...	G2GA/P	409	G3BRS/P	246	655
{27	Worthing ...	G3FRG/P	348	G4NY/P	307	655
29	Kirkcaldy	GM4GK/P	306	GM3CVL/P	342	648
30	Guildford ...	G3ARM/P	340	G8TS/P	305	645
31	Blackpool...	G5WM/P	294	G8GG/P	349	643
32	Hayes (Middx.)...	G2FMF/P	406	G8FA/P	227	633
33	Hull ...	G2KO/P	343	G2XA/P	275	618
34	Reading ...	G8TH/P	307	G6WO/P	307	614
35	Ashford (Kent) ...	G2JF/P	345	G2QT/P	267	612
36	Aberdeen ...	GM3ALZ/P	225	GM2FHH/P	386	611
37	Barnes & Richmond	G6RC/P	326	G4GD/P	273	599
38	Southampton ...	G2KC/P	404	G5OB/P	192	596
39	Bolton ...	G2BTO/P	275	G2HGR/P	312	587
40	Grimsby & Cleethorpes	G2AJB/P	225	G8PV/P	354	579
41	Flintshire...	GW4CK/P	332	GW4CX/P	241	573
42	Manchester (N.E.) ...	G8QS/P	338	G3RP/P	232	570
43	Wirral ...	G8NH/P	348	G3CK/P	220	568
44	Gravesend & Cray Valley	G6BQ/P	286	G2DS/P	269	555
45	Hoddesdon	G3AAN/P	263	G4HJ/P	289	552
46	Scarborough	G8KU/P	262	G5MV/P	286	548
47	Stroud ...	G5HC/P	291	G5WA/P	256	547
48	Bradford & Halifax ...	G2PC/P	264	G2DJS/P	278	542
{49	Banff ...	GM3ATV/P	224	GM3DPK/P	317	541
{49	Ilford ...	G8TL/P	327	G2QI/P	214	541
51	Nottingham	G6CW/P	343	G8QZ/P	190	533
52	Cranwell ...	G6PZ/P	181	G2LR/P	351	532
53	Leicester ...	G2RI/P	302	G3BU/P	227	529
54	S. Shields & Sunderland	G3DDI/P	233	G3CSR/P	295	528
55	N. Devon..	G2DOW/P	218	G6GM/P	305	523
56	Gloucester	G3MA/P	279	G2RT/P	239	518
57	Plymouth...	G5ZT/P	329	G3TX/P	184	513
58	Liverpool ...	G8DI/P	184	G3DPZ/P	324	508

FIELD DAY
JLTS

B/P and G6NB/P)	...	...	914 points
G2FTK/P)	...	...	850 „
R/P)	...	...	469 „
Y (G6NB/P)	...	...	486 „

Psn.	Town or Area	"A" Station		"B" Station		Combined Score
		Call Sign	Pts.	Call Sign	Pts.	
59	Rugby ...	G3GG/P	352	G4KK/P	155	507
60	Oxford ...	G8PX/P	387	G3ADD/P	114	501
60	Stourbridge	G8GF/P	283	G3BQB/P	218	501
62	Southend-on-Sea ...	G5QK/P	206	G5VQ/P	293	499
63	Monmouthshire ...	GW8CT/P	284	G4GR/P	211	495
64	St. Albans & Welwyn Garden Cy.	G8TK/P	206	G2CN/P	285	491
65	Falmouth...	G6LV/P	264	G8AW/P	225	489
66	Sutton & Cheam ...	G8DF/P	308	G6HC/P	177	485
67	Ipswich ...	G8MU/P	281	G2AN/P	201	482
67	Swindon ...	G8HI/P	264	G4AP/P	218	482
69	Darlington	G8IA/P	224	G3DT/P	255	479
70	W. Cumberland ...	G6WR/P	228	G3BW/P	248	476
71	Tonbridge & Tunbridge Wells ...	G4FB/P	263	G4IB/P	212	475
72	Montrose ...	GM3KC/P	406	GM4MQ/P	36	442
73	N. Bucks ...	G3AZ/P	441	—	—	441
74	Lowestoft...	G3DMA/P	215	G2CPL/P	221	436
75	Dunfermline	GM3CIG/P	123	GM3ENJ/P	307	430
75	Huddersfield	G8NF/P	430	—	—	430
77	Parkstone	G4IX/P	171	G3ABH/P	247	418
78	Luton ...	G2COU/P	180	G5RZ/P	211	391
79	Portsmouth	G6SS/P	201	G6WS/P	165	366
80	Christchurch	G3CSX/P	240	G8DL/P	119	359
81	Glasgow ...	GM3CSM/P	163	GM6MS/P	192	355
82	Reigate & Redhill ...	G5LK/P	174	G2AJS/P	164	338
83	Stockport & district ...	G3AYT/P	176	G2BJT/P	159	335
84	Exeter ...	G5QA/P	150	G3MU/P	177	327
85	Woolwich, Plumstead & Abbey Wood ...	G3EIW/P	322	—	—	322
86	Cannock ...	G2YV/P	266	G3CLR/P	53	319
87	Eastbourne & District	G4FV/P	307	—	—	307
88	Daventry ...	G5NH/P	280	—	—	280
88	Romford ...	G4KF/P	280	—	—	280
90	S.W. Ayrshire ...	GM4PW/P	272	—	—	272
91	High Wycombe	G2RL/P	264	—	—	264
92	Barnet ...	G3EVR/P	75	G6CY/P	179	254
93	South Birm'ham	G3AAH/P	137	G6KI/P	104	241
94	W. Wiltshire ...	G2PS/P	235	—	—	235
95	Middlesbrough ...	—	—	G3CFC/P	229	229
96	Dorchester & Weymouth ...	G5UF/P	225	—	—	225
97	Great Yarmouth	G3AMK/P	222	—	—	222
97	Preston ...	G4QH/P	222	—	—	222
99	Darwen & Blackburn	G2HW/P	221	—	—	221
100	East Ham	G2ZZ/P	159	G3CJQ/P	59	218
101	Southport	G2MJ/P	193	—	—	193
102	York ...	G3DQR/P	66	G5KC/P	126	192
103	Carnarvonshire ...	—	—	GW4MZ/P	157	157
104	Peterboro'	G3EEL/P	112	G3BHD/P	30	142
105	Dorking & Leatherhead ...	G3ASV/P	141	—	—	141



LEADING "B" STATION

Close-up view of the transmitter at G6NB/P. This EF36 (V.F.O.)—EF50 (B.A./F.D.)—807 (P.A.) rig was used with four Windom aerials to gain the leading total of 486 points on 7 and 14 Mc/s. for the East Molesey Group.

G6GB/P, with a 260 ft. centre-fed aerial with tuned feeders. Their "B" station, G6NB/P, comprised an EF36 V.F.O.—E.F.50 B.A./F.D.—807 P.A. with four Windom aerials. At both stations, two H.R.O. receivers were employed, power being derived from accumulators by means of rotary convertors giving an output of 220 volts A.C. Their combined score of 914 points is 140 above last year's record total set up by Edgware and Hendon—a remarkable achievement.

Coventry, the runners-up, with a combined score of 850 points, also handsomely exceeded last year's winning score. The "A" station, G3FAB/P, consisted of a 6J5—TT11 (V.F.O.—PA./P.D.) transmitter, a long wire end-fed aerial and two BC312 receivers. The "B" station, G2FTK/P, also employed a two stage transmitter, in this case a 6F6—807 combination, with half-wave dipoles on both bands and an additional full-wave co-ax. fed aerial on 14 Mc/s. Two *Eddystone* 640 receivers took care of the incoming signals while at both stations rotary converters were run from accumulators to provide the power.

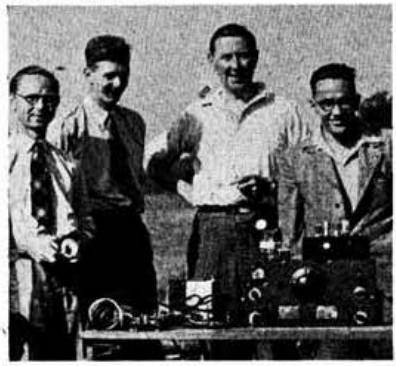
For the second year running, Slough produced the highest "A" station score. The equipment at G6PR/P included a V.F.O.—B.A./F.D.—P.A. (807) transmitter, a BC342 receiver and a 264 ft. aerial tapped at 88 ft. with a single wire feeder. A vibrator pack powered the receiver and a rotary converter was used with the transmitter.

G6PR/P, TAPLOW, BUCKS

In this group, taken outside the "A" station tent, can be seen: (left to right) *standing* G2HOX, BRS15966, BRS (?), G4MR, G3XH, G2BAL, G3AHB, BRS (?), BRS 11312, BRS (?), G3EPA and G2DDG; *seated* G3FJ and G2SR (T.R.). *Photo by R. S. Williams, Slough.*

Comments

Comments from those who took part indicate that the rules of the 1949 event proved satisfactory to the majority of entrants. However, the Contests Committee will be glad to receive the views of town groups particularly in regard to the power limit for next year's event. It is hoped to give information of any major changes at an early date in order to facilitate advance planning. Incidentally, have *you* discussed with your T.R. what alterations, if any, you consider desirable ?



Members of the Christchurch Group appear well-pleased with the results they obtained on 14 Mc/s. only, using the compact transmitter seen here dwarfed by the HRO on which it stands. Operators included G3CSX and G8DL.

While many of the logs were very neatly compiled and comparatively simple to check, in others a serious number of inaccuracies was noted, due apparently to undue haste in operating and in the clerical work ; call-signs wrongly recorded, RST reports wrongly received or entered ; illegible entries and even the frequency bands shown wrongly. The advice given to those who aspire to a leading position next year is to pay even greater attention to the clerical side. Good paper work is worth at least five places in the final list. Remember that in an emergency communication network reliability of operating and careful attention to record-keeping would be of the utmost importance.

A group taken at the Hull " B " Station G2XA/P. Among the operators who participated were G6OY, 2XA, 3ADJ (all at extreme left), 2BIP, 3AES and 3PL (centre and right of tent).

ZB1AU/P with 3·2 watts to an 832 P.A. was the overseas portable station which contributed most points to stations taking part in the event. The co-operation of many other Empire and foreign stations is gratefully acknowledged by the Committee. The following stations are thanked for submitting check logs : DL4KW/P, F9DW, G2BP, 2BPW/P, 2MI/P, 2QB, 2UX/P, 3CYY, 3EOO, 3NT/P, 3VB, 5JL, 6QM, 6UT/P, 6ZN/P, 6ZT/P, HB1GA, OK1QZ, PA0TG/P, PA0UB, ZB1AU/P and ZB1FK/P.

Three logs were received after the closing date and have therefore been omitted from the list of entries.

R.N.V.W.R. makes Good Progress

THE post-war Royal Naval Volunteer Wireless Reserve, details of which were given in the January, 1949, issue of the R.S.G.B. BULLETIN, is now firmly established and provides a comprehensive training for radio operators and technicians. Although rapidly approaching " establishment " strength, additional volunteers will still be welcomed. The training given is not only aimed at bringing all recruits to a high degree of proficiency but is also designed to be as attractive as possible ; it includes the organisation of visits to H.M. Ships of the Fleet, the issue on loan of radio equipment (including HRO receivers and 35-watt C.W. transmitters), week-end cruises to the Continent and a chance to operate and maintain the most modern Fleet equipment.

Present requirements are for Radio Operators (Telegraphists) and Radio Electricians, and although the Reserve is anxious to attract men with previous naval service in these branches the primary qualifications are keenness and enthusiasm. Many transmitting amateurs, including a number of pre-war " pioneers " of the old R.N. Wireless Auxiliary Reserve, are already in the Reserve as a direct result of the publicity given by the R.S.G.B. The Royal Navy stand at Radiolympia will be showing a typical R.N.V.W.R. station in a Reservist's home equipped with radio gear provided on loan.

Full details of the R.N.V.W.R. may be obtained from : The Admiral Commanding Reserves, Admiralty, St. James's Park, London, S.W.1.

Radio Amateurs' Examination, 1949

FIGURES just released by the City and Guilds of London Institute show that of the record number of 885 candidates who sat for the May, 1949, examination, 628 were successful. Although the number of candidates who passed the 1949 examination was 109 greater than in 1948, the percentage of those who were unsuccessful showed a slight rise. Comparative figures for the two examinations are as follows :

	No. of Candidates	No. of Passes	No. of Failures	Percentage of Failures
1949	885	628	257	29
1948	688	519	169	24·5

A copy of the paper and the examiner's comments on each question will appear in an early issue.

GB3RS/A

THE G.P.O. have granted permission for the Headquarters' call-sign GB3RS to be used at the Manchester Amateur Radio Exhibition. The suffix /A will be used to indicate that the call is being employed at an alternative address.

Only specially authorised members will be permitted to operate the station.

Saying it with Words

STAND-BY is one syllable shorter than Q–R–X. WAIT is still shorter. STATIC is faster to say than Q–R–N, and has the advantage that it escapes confusion with the phonetically similar QRM.—*QST*.

THE MONTH ON THE AIR

By ARTHUR MILNE (G2MI)*

Piracy

NUMEROUS complaints are reaching us of the misappropriation of call-signs and it does seem as if this particularly mean form of "false pretences" is on the increase. To be active on all bands seems the best protection. Vigilance on the part of licensed stations to note when a new call appears in their district and is listed as being elsewhere will also do much to help.

Much of the trouble could, in our view, be overcome if the P.O. ceased to regard the official list of call-signs and addresses as confidential. It should be one of the obligations in taking out a licence that one's full name and address is published.

The following licencees complain that their calls are being pirated: G3BKS on 14 Mc/s.; GM3AKM on 7 Mc/s., who has actually heard the offending station speaking with a Scottish accent, the genuine 3AKM is English; G3CND, whose call has been consistently pirated for three years; and G3EGR, who lives at a hotel on the Broads. His pirate has actually started inviting his contacts to come and stay in Norfolk. Presumably at the genuine G3EGR's expense. If this miscreant could be found there would be strong grounds for legal proceedings against him. Will members please keep an ear open for "G3EGR" and if he seems to be unduly local and not in the Norwich area, please write, giving full details to G3EGR, Royal Hotel, Mundesley, Norwich.

Notes and News

G2EC who has heard FY8UD on the low frequency end of 14 Mc/s. in the mornings, tells us that ON4QF/LX1QF hopes shortly to be operating as PX1QF.

VK2DI says cards are now coming through from FU8AA and that FK8AC, Box 104, Noumea, New Caledonia, is now active. VR4AA has appeared again on 14·1 Mc/s. and QSL's. VK2DI is another who wonders how one obtains a card from ZD1LQ! Try sending cards to EL3A where ZD1LQ now is.

VP8AD has left South Georgia and is now living in Buenos Ayres, Argentina. VP8AP has been active recently.

With reference to the recent paragraph on S.S.S.C., G2AKR reports that he worked W5NRP in New Mexico on 28 Mc/s. S.S.S.C. and was instrumental in helping him to make the first S.S. W.A.C. This was reported in *QST* for March, 1949.

We are advised that the call-sign ZD2FB is unknown to the Nigerian P.M.G.'s Department.

BRS11494 of Whitefield, Manchester, points out that the extra I.F. stage effect, referred to last month can now be obtained free of charge under the National Health Service! His best for the month are: on 14 Mc/s. HP1BR at 0615, VP5AX at 0630, HS1SS (worked by G8IG) at 1945, 14150, KP6AA at 1320 on 14250 kc/s. Others heard include EL5B, KH6PZ/KG6, VP2JX portable and KR6BD, BR and ED all around 1330.

VQ8AX (L/Cpl. T. Davis, Area Signal Troop, c/o Post Office, Vacaos, Mauritius) is a new one.

BRS17335 of Chelmsford has been busy with an *Eddystone* 640 receiver and has produced the following on 28 Mc/s.: KD4KC, KP4JV, TI2AB, TI2RC, VK6, VP6SZ, VQ4, VS7, VU, ZD4AH, ZC1AZ and a goodly bunch of ZS's. 28 Mc/s. opened up suddenly on August 25 around 2200 B.S.T. with W6's like locals on top band. ZL's have been worked the long way round, G2IT of Reading having worked several, including ZL4FO and 4HP.

ZL4HP's signal at S9 + 40 on 14300 is something worth hearing. It's the G's he works who sound like the DX! What you can do with a rhombic when you have the space.

GW5SL offers a 90 minute W.A.C. on 14 Mc/s. with the following: ZD2RGY at 2045, UA9CA at 2105, PY4NK at 2130, GW6OK at 2140, VK2AGW at 2210 and W1KTG at 2215 on August 7. He has worked LUCA/MM, who gave his QTH as *S.S. Santa Maria* bound from New York to Havre. Position 1,050 miles from Ushant.

Apropos QSL's from FA, G3AQN says FA3DS is O.K. for a card. What about FA8BG and FA8IH? We can't even get a card for a QSO on 1·7 Mc/s. from the former.

BRS689 is active again after losing his shack and all his gear during the Bristol blitz. Glad to see you back O.M.

GM3FPG, ex-MB9BG offers to re-QSL to anyone still requiring his MB9 card.

ZS5BW is one of the many still waiting for a card from AP2H. We have hundreds of cards waiting for him too.

G3GLV of Crosby, Liverpool, asks us to say that he is quite genuine and not to be confused with the P.O. coast station GLV less than ½ mile distant. A particularly unfortunate choice of call-sign we think.

FRS212 in Luneburg, Germany, has been keeping close watch on 28 Mc/s. and from July 1–25 heard CE, CX, HC, HK, LU, OQ, PY and ZS, which also goes to show that this band never really folds up completely.

BRS18017 of Coventry has heard I1BCB/TR who claims to be in Libya.

ZC1AR is John Berry, c/o Cable & Wireless, Amman, Transjordan. His G call is 3DHT. BRS14261 reports a nice bag on 14 Mc/s. with CR6AI, EA8AA, ET3AM, FQ8SN, F9QU/FM8, HS1SS and PJ5KO. On 28 Mc/s. VQ5ALT, DES, PBD, ZC6UNJ, HP1WM, FQ8SN, PK4DA and 4KS.

EA8AO is in Rio de Oro, a new country, so keep a look out for him.

HZ1KE who is working on 3·5 Mc/s. from about midnight until 2 a.m. B.S.T. has worked G6ZO, G2PL, G6GM and G8JR. He hopes to be active on top band with a vertical aerial from a balloon during the winter.

G2FTK has worked ZC6DZ and says he gave his name as Richard Lennon of the American Consulate and a member of U.N. We do not know if this is a second operator to Peter Keller. Any information please?

Cyprus

Further to our remarks last month, Bob Honey, ex-MD7RH, tells us that MD7RH, operated by him was the first licensed station. He was on for a short period in August, 1947, before leaving for MD5. A few days later came MD7EL and MD7RJ who were active for a longer period. An accurate log was maintained at 7RH and every contact was confirmed. Duplicate cards will be sent to those who did not receive one. QSL to G3FKE. Bob, like many others, is puzzled about the official attitude to Amateur Radio in the Island. We are making enquiries to see if anything can be done about it.

MD7GR, Sgt. Rathbone, Evridiki St. 28, Famagusta, Cyprus, has just appeared and he QSL's.

(*Continued on Page* 77).

* *29 Kechill Gardens, Hayes, Bromley, Kent.*

Radio Society of Great Britain

NATIONAL CONVENTION

MANCHESTER, 1949

Programme of Events

Friday, October 21st

From 12 noon		Registration at the Grand Hotel, Aytoun Street. (*Members of the Convention Committee will be in attendance.*)
3 p.m.	..	Amateur Radio Exhibition, Corn Exchange, Hanging Ditch. The Lord Mayor of Manchester (Alderman Robert Moss, J.P.) has kindly consented to open the Exhibition. (*Admission by Catalogue obtainable at door, price* 1*s.*)
7 p.m.	..	Theatre Visit. (*Tickets* 7*s.* 6*d.*)
7.30 p.m.	..	Model Aerials Demonstration by Mr. F. Charman, B.E.M., G6CJ. College of Technology. (*Admission Free by Ticket. Accommodation for* 120 *persons.*)
7.45 p.m.	..	Visit to Kemsley Press. (*Admission Free by Ticket. Accommodation for* 50 *persons.*)
9 p.m.	..	Exhibition closes.

Saturday, October 22nd

11 a.m.	..	Exhibition opens.
12.30 p.m.	..	Luncheon, Tudor or York Room, Belle Vue Gardens. (*Admission by Ticket only, price* 6*s.*)
2 p.m.	..	Visit to Manchester Ship Canal. (*Fare* 2*s., payable on day. Accommodation for* 80 *persons.*)
2.30 p.m.	..	Visit to and Demonstration at Central Fire Station, Manchester. (*Admission Free by Ticket. No limit to accommodation.*)
2.30 p.m.	..	Visit to B.B.C. North Regional Transmitting Station, Moorside Edge. (*Fare payable on day. Accommodation for* 30 *persons.*)
2.30 p.m.	..	Film Show. College of Technology. (*Admission Free. Accommodation for* 120 *persons.*)
4.30 p.m.	..	Buffet Tea. College of Technology. (*Admission by Ticket only, price* 2*s.* 6*d.*)
5.30 p.m.	..	Model Aerials Demonstration by Mr. F. Charman, B.E.M., G6CJ. College of Technology. (*Admission Free by Ticket. Accommodation for* 120 *persons.*)
5.30 p.m.	..	Free period for those not attending lecture.
9 p.m.	..	Exhibition closes.

Sunday, October 23rd

11 a.m.	..	Exhibition opens.
12.30 p.m.	..	Convention Luncheon. Belle Vue Gardens. (*Admission by Ticket only. See application form.*)
2.15 p.m.	..	Group Photograph.
2.45 p.m.	..	Business Meeting.
4.30 p.m.	..	High Tea or Buffet Tea. (*Admission by Ticket only. See application form.*)
5.30 p.m.	..	Draw for Prizes.
9 p.m.	..	Exhibition finishes.

Buses (Nos. 107 and 108) ply between Belle Vue and Victoria Street, adjacent to the Exhibition.

Reservations for all events must be in the hands of the Convention Secretary, Mr. H. Cox, 4 Boardman Road, Higher Crumpsall, Manchester, by not later than October 1st, 1949. After that date no applications will be considered.

(*A loose leaf application was inserted in every copy of the August issue of the R.S.G.B. BULLETIN. Additional copies available from R.S.G.B. Headquarters on request.*)

REPRESENTATION 1950-1951

Regional Representatives

IN accordance with a recommendation adopted at the Regional Representatives Conference held in Birmingham last April, the Council has decided to exercise its right to nominate Corporate Members for the office of Regional Representative in the undermentioned Regions. Accordingly the following names are put forward for the consideration of the Corporate Membership in the respective Regions. The Council has made no nomination in the case of Regions 6, 7 and 9.

Region	1	Mr. G. Webster, G5GK
,,	2	Mr. C. A. Sharp, G6KU
,,	3	Mr. D. A. G. Edwards, G3DO
,,	4	Dr. E. S. G. K. Vance, G8SA
,,	5	Mr. S. Granfield, G5BQ
,,	8	Dr. W. P. Cargill, G5LR
,,	10	Mr. D. Alan Dyer, GW8UH
,,	11	Mr. F. G. Southworth, GW2CCU
,,	12	Mr. J. Douglas, GM2CAS
,,	13	Mr. W. Baker, G3AFL
,,	14	Mr. D. R. Macadie, GM6MD
,,	15	Mr. N. H. Lowden, GI2HLT

Not later than October 31 next, any five Corporate Members resident in a particular Region may nominate any other duly qualified Corporate Member resident in that Region for the office of Regional Representative, by delivering their nomination in writing to the General Secretary, together with the written consent of such person to accept office if elected. Each such nominator shall be debarred from nominating any other person for the current election of Regional Representatives.

County, Town and Area Representatives

Not later than October 31 next, any five Corporate Members resident in a particular County, Town or Area may nominate any duly qualified Corporate Member resident in the particular County, Town or Area for the office of County, Town or Area Representative, by delivering their nomination in writing to the General Secretary, together with the written consent of such person to accept office if elected.

In the case of the City and County of London, Area Representatives may be nominated for groups of Postal Districts.

In the case of certain other large towns, Area Representatives may be nominated on a geographical basis, *viz.* North Birmingham, South-East Manchester.

Period of Office

All Representatives will hold office for a period of two years as from January 1, 1950.

VACANCIES

In the event of no nomination being received prior to November 1, 1949, from the Corporate Members resident in any Region, County, Town or Area, the Council reserves the right to make an appointment.

Confirmation of Appointment

County Representatives will only be confirmed in their appointment if the total membership in the County, or Group of Counties, they propose to represent is in excess of 25.

Town or Area Representatives will only be confirmed in their appointment if the total membership in the Town or Area they propose to represent is in excess of 10.

Resignations

The Council reserves the right to call upon any Representative to resign his office if, in their opinion, he is considered to be unsuitable or unsatisfactory.

Regions

The following is a list of the Regions and the Counties or Areas forming them :—

Region No. 1 (*North Western*) : Cheshire, Cumberland, Lancashire (East), Lancashire (West) and the Isle of Man, Westmorland.

Region No. 2 (*North Eastern*) : Durham, Northumberland, Yorkshire (East), Yorkshire (North), Yorkshire (West).

Region No. 3. (*West Midlands*) : Herefordshire, Shropshire, Staffordshire, Warwickshire, Worcestershire.

Region No. 4 (*East Midlands*) : Derbyshire, Leicestershire and Rutland, Lincolnshire, Northamptonshire, Nottinghamshire.

Region No. 5 (*Eastern*) : Cambridgeshire, *Essex, Huntingdonshire, Norfolk, Suffolk.

Region No. 6 (*Home Counties*) : Bedfordshire, * Buckinghamshire, * Hertfordshire, Oxfordshire.

Region No. 7 (*London*) : London North, London South, London East, London West.

Note.—The London Region covers all territory within 25 miles radius of Charing Cross.

Region No. 8 (*South Eastern*) : * Berkshire, Hampshire and the Isle of Wight, *Kent, *Surrey, Sussex.

Region No. 9 (*Western*) : Cornwall, Devonshire, Dorsetshire, Gloucestershire, Somerset, Wiltshire.

Region No. 10 (*South Wales*) : Brecknockshire, Carmarthenshire, Pembrokeshire and Cardiganshire, Glamorganshire, Monmouthshire.

Region No. 11 (*North Wales*) : Anglesey, Caernarvonshire, Denbigh and Flintshire.

Region No. 12 (*North Scotland*) : Aberdeenshire, Banffshire and Kincardineshire, Angus and Perthshire, Morayshire, Nairnshire, Inverness-shire, Rossshire, Sutherland, Caithness, Orkney and Shetland.

Region No. 13 (*East Scotland*) : Berwick, Peebles, Roxburgh and Selkirk, East Mid- and West Lothian, Fifeshire and Kinross.

Region No. 14 (*West Scotland*) Argyll and Dumbarton, Ayrshire, Bute, Dumfries, Kirkcudbright and Wigtown, Clackmannan and Stirlingshire, Glasgow (City of) Postal Districts, Lanarkshire, Renfrewshire.

Region No. 15 (*Northern Ireland*) : Antrim, Down.

Channel Islands

Corporate members resident in the Channel Islands may nominate Members for the offices of Group and Islands Representatives.

Resignation after Appointment

If for any reason a Representative wishes to resign his office he should notify Headquarters who will advertise the vacancy in the R.S.G.B. BULLETIN.

Local members cannot automatically appoint another member to undertake the duties of a Representative who has resigned.

Local Societies

It is not permissible for local Societies, whether affiliated to the R.S.G.B. or not, to nominate members to serve as R.S.G.B. Representatives.

Present Representatives

In the past, certain Representatives have assumed that they are entitled to continue in office without being re-elected. This assumption is incorrect.

All present Representatives go out of office on December 31st, 1949.

**Outside the London Region*

EX-GOVERNMENT STOCK DISPOSAL!

VALVES
6H6, 3 for 4/-; 6SH7, 3 for 5/-; 7193, 3 for 5/-; 5U4G, 3 for 16/-; 6K7, 3 for 12/6; 6G6, 3 for 12/6; 6Y6, 3 for 18/-; 3Q5, 3 for 12/6; 2051, 77, 78, 6K8, 807, 6V6, 7/- each; VR150, 6X5, 6AG5, 6AG7, 7V7, 713A, 6SA7, 6/- each; 6SK7, 6S17, 6S57, 955, 12SG7, 12SH7, 12A6, 12J5, 5/- each; VS70, 3/- each.

The finest RADIO VALUES ever offered!

SATISFACTION GUARANTEED OR MONEY REFUNDED

CHOKES L.F. 4 H., 150 mA., 3/6. 4 H., 250 mA., 5/6. 10 H., 100 mA., 6/-. U.S.A. 15 H., 100 mA., 7/6, U.S.A.

VIBRATORS. 12 V. input 250 V. 60 mA. with amplifier and two valves, OZ4 Rectifier and 6K6 output. 15/-.

MICROPHONES. Throat type carbon, 1/-. Button type carbon, 1/6. Hand carbon with press switch, 2/6.

METERS. 5 A. R.F. T.C. 2½" square, 3/6; 1 A. R.F. 2½" round, 3/6; 50 mA. 2½" round, 5/-; 100 mA. 2½" round, 5/-; 5–0–5 mA. 2½" round, 6/-; 14 A. D.C. with shunts 5" round, 15/- (basic 75 mV. F.S.D.); 500 mA. 2½" round, 4/6; 15 V. A.C. D.C. M. Iron 2½" round, 4/6; 600 V. and 15 V. twin scale (500 μA. F.S.D.) 2½" round, 6/-; 8 A. R.F. 2½" round, 4/6.

TRANSFORMERS. Auto mains 230/115 V. 100 watts, fully shrouded, 14/-. Mains 230 V./250–0–250 60 mA. 5 V. 2 A. 6·3 V. 3 A., half shrouded, 15/-. 230 V./350–0–350 100 mA. 5 V. 2 A. 6·3 V. 4 A., half shrouded, 20/-. 230 V./300–0–300 150 mA. 5 V. 3 A., 6·3 V. 7 A., fully shrouded, 27/6. Output type for P.P. 6L6's 15 watts 3 and 15 ohms matching, 12/6. Small Multi-Ratio Inter-Valve Driver, open type R.C.A. with C.T. Primary. Secondary Ratio 2, 3 and 5 to 1. Price 2/6 each.

AMPLIFIERS. R.C.A. 7-valve P.P. 6L6's Hi Fi with gram., microphone input, output socket 5, 7½, 15 ohms for speaker, genuine 20 watt with on-off switch, tone and volume controls and indicator light, £17. Worth £50. Twelve only.

LOUDSPEAKERS. 5½" Plessey with transformer, 11/-. 8" Truvox, 13/6. 10" Truvox, 19/6. 12" Truvox, 42/-.

DIALS. Fast and slow motion with Vernier 200–1, 4/-.

COVERS. First quality Egyptian cotton, approx. 7 to 10 sq. yds. area, 12/6 each. Worth 60/-.

PUSH-BUTTON UNIT. Five way, new, 1/6.

PHANTOM AERIALS. Type A98, 1/6.

FANS. ¼" bore with securing bolt, 4 blade alloy. Size 4½", 2/-.

MORSE PRACTICE SET. Inc. buzzer and key. Wooden base, 3/-.

CABLE. Twin rubber cab. tyre 9/·012 5 A. rating. 12 yds., 3/6, or 25/- per 100 yds. Twin P.V.C. bell, 12 yds., 1/-.

CONDENSERS. Bath tub types, enquiries please.

U.S.A. OIL. ·1/6000 V. D.C., 6/-. 4/600, 4/-. 2/600, 2/6.

BRITISH OIL. ·1/4000, 3/6. 2/4000, 5/-.

HEADPHONES. S.G.B. 2000 ohms, 4/-. S.G.B. 4000 ohms, 5/-. U.S.A. H.S.23 2000 ohms with rubber caps, 6/-.

ELECTROLYTIC CANS. 25/25, 1/-, 32/350, 1/6; 8" x 8" x 8"/400, 3/-; 8" x 16", 3/6.

VARIABLE CONDENSERS. ·0002 two gang, 2/6; ·0003 three gang, 3/-.

HYDROMETERS. Lead acid, 1/9.

INSULATING TAPE. Large rolls, 1/-.

CONTROL UNIT. Type 108 with ·5 mA. meter and 20 V. meter and three-pin 5 A. plug, etc., 10/-.

TELE-MICROPHONE CORDS. 5½" extension cords, 6 for 2/-.

WELDED STEEL CHESTS. 24" x 15" x 15" with two carrying handles and hasp for lock, 40/- each.

WOODEN TOOL BOXES. 16" x 14" x 12" with snap-on lids, 12/6 each.

WOODEN TOOL CASES. 40" x 24" x 20" with carrying handles and hinge lid and interior sections. High grade job. Worth £10, only 50/- (U.S.A. Green).

CHASSIS ONLY. R9B receivers with host of useful T.V. spares, 12/6.

ANTI-VIBRATION MOUNTS. Box of four, 2/-.

RUBBER SQUARES. Sorbo type, 5" x 5", six for 2/-.

ENGINEERS' STEEL SQUARES. 4", 2/6.

FLEXIBLE DRIVE. For Command receivers BC453/4/5, 5/- each.

D.C. ROTARY CONVERTERS. 28 V. 250 V. 60 mA., 6/-. 27 V. 60 V. 2·5 A., 10/-.

HEADSET ADAPTORS. From high to low impedance or reverse, 1/- each, or 3 for 2/6.

CRYSTAL MULTIPLIER. 39/6, few only left.

CONTROL UNIT. 2305 with G.P.O. type dial, selector, morse key and press-to-talk microphone, 12/6.

RELAYS. U.S.A. gold contacts 24 V. 200 ohms 4 way or 2 way, 3/- each.

ROTARY SWITCH. On-off Yaxley type, 1/6.

10 M/C CRYSTAL. Brand new with ceramic socket, 15/-

BAKELITE ANGLE BANDS. 2" x 2" x 19", 1/6 each.

CORK SHEETS. 24" x 36" x 3/32", 2/6 each. Astounding value.

ZIP FASTENERS. 8" lightweight, many uses, 1/- each, or 5/- doz.

DOT THE EYE FASTENERS. Wonderful value, 2/- per doz.

PILOT'S COCKPIT LAMP HOLDER AND SHADE. 3 for 2/6.

CORK MATS. 5½" dia., ¼" thick, six for 2/-.

FAMOUS MONSTER ELECTRONIC PARCELS. "A," 40/-; "B," 20/-. See June and July adverts.

MODULATOR UNIT. W6332A, 7-valve, new, 20/-.

RECEIVERS. BC357 2-valve, 10/-. R.F. unit type 24, 12/6; BC.AR.429 5-valve, 30/-; R1147A 6 V. U.H.F., 50/-. All new.

IN STOCK—RECEIVERS. BC348, BC312, R1155, FREQUENCY METER BC221, SIGNAL GENERATOR 1-72-J. Enquiries first please. Also large assortment resistors, power resistors, potentiometers, etc., etc., your requests please.

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FORTHCOMING DX CONTESTS

DURING the last month, information relating to three major DX Contests has been received at Headquarters: the VK/ZL International DX Contest, the All-European DX Competition (organised this year by the Czechoslovakian Society C.A.V.) and *CQ's* World-Wide DX Contest. To publish full details of these contests would require more than three pages of the BULLETIN, and it is, therefore, only possible to provide a short summary of the more important rules.

B.E.R.U. Contests 1950

January 14/15	First Section Telegraphy Contest.
January 21/22	Experimental Telephony Contest.
January 28/29	Second Section Telegraphy Contest.

Details to be announced shortly.

VK/ZL International Contest, 1949

Dates

1401 G.M.T., September 30, to 1359 G.M.T., October 2 (C.W.).
1401 G.M.T., October 7, to 1359 G.M.T., October 9 (Phone).
1401 G.M.T., October 14, to 1359 G.M.T., October 16 (C.W.).
1401 G.M.T., October 21, to 1359 G.M.T., October 23 (Phone).

With the exception of the serial numbers which have to be exchanged, and minor modifications to the scoring system, the rules are similar to those for the 1948 contest. Entrants should refer to page 70 of the September, 1948, issue of the BULLETIN. The contest is organised this year by the W.I.A. and there are again three sections: (*a*) Transmitting C.W., (*b*) Transmitting Phone, and (*c*) Receiving (Phone and C.W.).

Serial Numbers

Rule (8). Each participant will assign himself a serial number of three figures. When two or more operators work from the one station, each will assign himself a different serial number. This serial number must remain unaltered for Phone and C.W. operation.

Rule (9). Serial numbers to be exchanged during the Contest will be as follows. The FIRST three numbers are those chosen in Rule (8), and will be retained throughout the contest; and the SECOND three numbers will commence 000 for the first contact, and for subsequent contacts will be the FIRST three numbers of the station of the *previous* contact.

It will thus be seen that a six figure serial number is exchanged *in addition to the RST report.* This year no points may be claimed unless the exchange of serial numbers is completed by both stations, when three points may be claimed. Multipliers are the same as in 1948 with the addition of the new prefix VK1. Stations entering the open (all bands) sections will add together VK/ZL districts worked on each band. Logs, awards and rules for the receiving section are the same as for the 1948 contest. Entries endorsed "VK/ZL Contest" should be forwarded to reach the W.I.A., Box 2611 W, G.P.O., Melbourne, Australia, by January 16, 1950.

Third All-European Competition

Dates

0001 G.M.T., November 26, to 2400 G.M.T., November 27 (C.W.).
0001 G.M.T., December 3, to 2400 G.M.T., December 4 (Phone).

The basic rules for this contest are similar to those of the first All-European DX Contest organised during 1947 by V.E.R.O.N., details of which will be found on page 71 of the October, 1947, issue of the BULLETIN. In operation it is similar to the A.R.R.L. DX Contests with the roles of European and North American stations reversed. A limited number of leaflets giving full information are available at Headquarters and will be forwarded upon request to early applicants on receipt of a stamped addressed envelope.

General Rules

Operation may be on any band from 3·5 to 50 Mc/s. and the object for European amateurs is to work as many stations in the remaining five continents as possible. On C.W. a maximum of three different stations may be contacted in any one country (or W/VE licensing area) on each band; there is no such quota for the Phone section. Certificates will be awarded to the first three amateurs in each country in both sections. The scoring and multiplier system is the same as for the 1947 contest. Serial numbers are similar to those in the A.R.R.L. contest, *i.e.* three self-assigned figures which remain the same throughout the contest are added to the RST or RS reports. Entries must be postmarked not later than December 31, 1949, and sent to: C.A.V., P.O. Box 69, Praha 1, Czechoslovakia.

Each entry must contain the following signed declaration: "*I certify, on my honour, that I have observed all competition rules as well as all regulations established for Amateur Radio in my country, and that my report is correct and true to the best of my belief. I agree to be bound by the decisions of the C.A.V. Award Committee.*"

CQ Magazine World-Wide DX Contest

Dates

0200 G.M.T., October 29, to 0200 G.M.T., October 31 (Phone).
0200 G.M.T., November 5, to 0200 G.M.T., November 7 (C.W.).

Details of this contest were given in the August, 1949, issue of *CQ*. Copies of the country and zone list as well as contest log sheets are available from the *CQ* Editorial Offices, 342 Madison Avenue, New York 17, N.Y., U.S.A., providing that a self-addressed envelope and *unattached* postage stamps are enclosed with the request. It is believed that reprints of the rules are also available. The contest is limited to 7, 14 and 27/28 Mc/s., and entries may be submitted for single or "all-band" working. Contacts between stations on different continents count three points; between different countries within the same continent one point; contacts with stations in the same country are permitted for the purpose of obtaining zone and/or country multipliers, but no points may be claimed. The serial number consists of the RST (or RS) report plus a two figure zone number (01–40); British Isles zone 14. Two types of multipliers will be used: a multiplier of 1 for each zone contacted on each band; and a multiplier of 1 for each country worked on each band. The final score will be the sum of all contact points multiplied by the sum of the zone and country multipliers.

FORTHCOMING R.S.G.B. CONTESTS

October 1–2 Low Power (3·5 Mc/s.)
November 5–6 "Top Band" (1·8 Mc/s.)

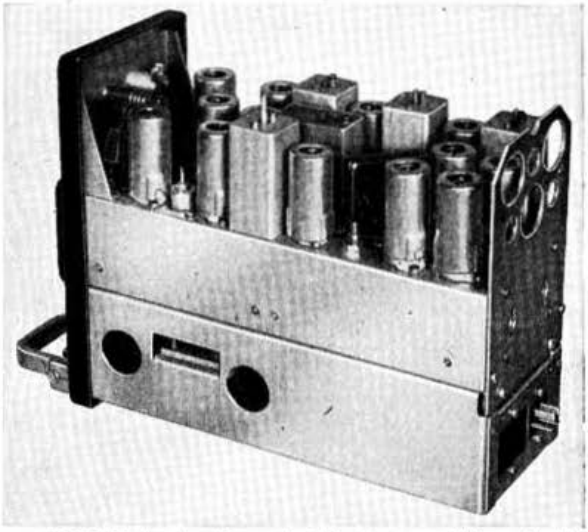
OUR FRONT COVER

OUR front cover this month shows the sealing of the vacuum in one of the thousands of Magnetic Cathode Ray Tubes manufactured weekly at the Brimsdown Works of The Edison Swan Electric Co., Ltd.

The tubes are mounted in ovens (to assist the exhaustion of air and occluded gases) and connected to mercury vacuum pumps. As soon as the limit of low pressure is reached, as shown by the McLeod's gauge in the foreground, each Cathode Ray Tube is sealed by the skilful severing of the glass outlet tube.

New G.E.C. V.H.F. Equipment

A NEW single-channel V.H.F. transmitter/receiver (BRT 600) has been designed by the *G.E.C.* to provide privately-owned aircraft with a simple but reliable means of communication with the ground and also to give intercommunication facilities between pilot and passenger. Of the eleven valves, four are used during both transmission and reception. These are the crystal oscillator and multiplier stages which serve as a local oscillator for the receiver; and the two audio-frequency stages which combine the duties of modulator and receiver amplifier. The output circuit of the oscillator is tuned to four times crystal frequency and is followed by a tripler stage. An eddy-current tuner, adjustable



Transmitter/receiver (upper chassis) and power unit (lower chassis) assembled for installation.

from the front of the unit, is provided in the output stage, and pre-set inductive coupling is used to the coaxial aerial socket. In the "receive" position, a crystal, spaced one-twelfth of the I.F. from the operating frequency, is switched into circuit, and H.T. is removed from the transmitter output stage.

The equipment can be set up for operation on any frequency in the range from 117·9 to 131·9 Mc/s., and therefore covers the general R/T guard frequency of 118·1 Mc/s. The transmitter power output is 0·25 watts and the total weight of the unit is only 8·2 lbs.

Radiolympia

MR. HERBERT MORRISON, M.P., Lord President of the Council and Deputy Prime Minister, will open the 16th National Radio Exhibition on the afternoon of September 28. The exhibition will remain open until October 8.

The Royal Navy, the Army and the Royal Air Force will be exhibiting their radio and radar equipment at Radiolympia for the first time since the war. In addition the Department of Scientific and Industrial Research, various research establishments of the Ministry of Supply, the G.P.O. and the Ministry of Civil Aviation will give demonstrations. Mobile and "business radio," the transmission of newspaper photographs by radio, the use of radar and other navigational aids and electronic industrial equipment will be demonstrated by leading manufacturers.

British Radio and Television for the World

A BELIEF that British television still leads the world is expressed by Sir Edward Appleton, in a booklet which the Radio Industry Council has sent overseas to prospective visitors to Radiolympia.

While the British television industry is able to manufacture any type of equipment irrespective of the technical type of service now enjoyed in Great Britain, Sir Edward points out that if television is to become a service for the many, receivers must be capable of being mass-produced at a low cost, and a balance must therefore be struck between three important factors: economy, the overall definition of the picture (which is dependent on more than just the number of lines) and the number of available radio channels.

Other contributors to the booklet include Dr. R. L. Smith-Rose, who writes on radar and navigational aids, and Mr. W. E. Miller, who discusses electronics in industry. Five well known radio journalists review manufacturing progress in communications and broadcasting transmitters, radio and television receivers, sound equipment, electronics in industry and radio components and test gear.

Copies are available from the Radio Industry Council, 59 Russell Street, London, W.C.1.

Scientific Observations—Dutch Tests

THE Dutch U.R.S.I. Tests referred to in the April, 1949, issue of the BULLETIN and organised by B. Van Dijl of Noordwijk, were due to commence at 21·20 G.M.T. on September 1, 1949. In these tests a Dutch amateur has scheduled contacts with an English colleague, in the 7 Mc/s. band, during the periods when signals are appearing, in the morning, as the M.U.F. rises, or disappearing in the evening, as the M.U.F. between the two stations falls below their working frequency.

U.R.S.I. require information on the times of appearance and disappearance and of the occurring maxima and minima in signal strength accurately observed, in order to check the accuracy of the predictions made by various organisations and to provide other information of scientific interest.

It is not certain that signals from both sides will "skip away" at exactly the same moment and in order to obtain further information in this respect it is of importance that both stations switch frequently from transmit to receive during the period when the signal is disappearing.

Obviously the tests will be more successful if other amateurs recognising the following calls of participating stations would avoid operation on their frequencies during the test periods. Regular reception reports would be welcome.

Participating stations are as follows:—

G3AAU	Enfield, Middx.	PA0IF	Haarlem
G3CSC	Prescot, Lancs.	PA0MM	The Hague
G3YH	Bristol	PA0DV	Amsterdam

G6DH

U.S. Publications

THE Society is glad to announce that the Board of Trade, Import Licensing Department has renewed the authorisation issued to the Society to accept subscriptions for U.S. technical publications. The present authorisation expires on October 31, 1949, after which the position will again be reviewed.

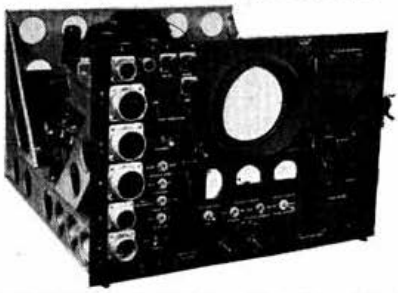
It is a condition of the authorisation that subscriptions must not be remitted for periods exceeding one year.

Television Licences

IN Great Britain and Northern Ireland at the end of July, 1949, 155,150 television licences were current—an increase of 7,250 over the previous month.

Outstanding Offers for the discerning Amateur

40 VALVE RADAR RECEIVERS.



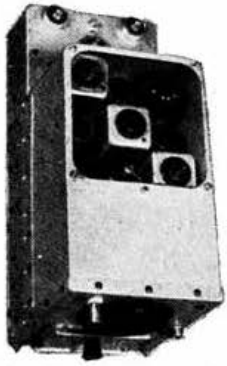
Type R-31 APS-2E. A magnificent instrument. Absolutely brand new and unused in original manufacturer's packing cases. Fitted two Cathode Ray Tubes. One type 5FP7 5" diameter Magnetic deflection and one 2API 2" electrostatic. Valves fitted comprise 8 6L6G, 13 6SN7, 1 2X2, 2 6H6, 2 6X5, 8 6AC7, 3 VR105, etc. Has Blower motor cooling fan, 3 panel meters and a fabulous quantity of components. Input 115 V 400 c. Size 26" × 19" × 12" housed in a fine black crackle case.
Original cost approx. £150 each. A few only available and offered subject to being unsold at **16 gns.** each. Carriage 10/- extra. Available in British Isles only.

BC454B (The Famous "Command" Communications Receiver). Fitted 6 valves, types as follows: 3 12SK7's, 1 12K8, 1 12SR7, 1 12A6. Frequency Range 3-6 Mc/s. (50 m.–100 m.). I.F. value 1415 kc/s.

BC455B. Exactly the same specification but Frequency Range 6–9·1 Mc/s. (30 m.–50 m.) I.F. value 2830 kc/s.
Brand new in sealed cartons. **Unbeatable Value.**

Each **30/-** Post 1/3.

Full Circuit Diagram 1/-.



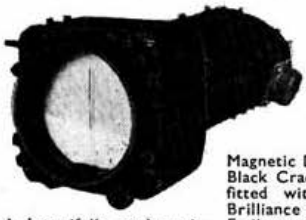
Either set convertible to Medium Waves with our Special Coil Assembly, Price 10/-, including Diagram of Connections. Special Press-in Tuning Spindle and Knob, 2/6.

Control Box for BC453/4/5. **7/6.** Post 1/4. **Dynamotors** for BC 453/4/5, 28 V. **7/6.** Post 1/-.

AERIAL UNITS

Size 16" × 8" × 8". Black Crackle Cabinet. Aerial Loading variometer, 3-pole 5-way Ceramic Switch. 4 porcelain lead-through insulators. Precision slow motion dial. 3 6,000 V. 80 $\mu\mu$f. block condensers. **Brand new, 10/-** each. Carriage 2/6.

5FP7 CATHODE RAY TUBES



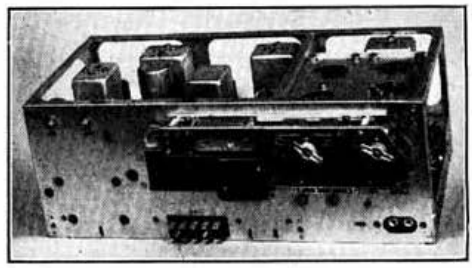
A beautifully made unit. Magnetic Deflection. Complete in Black Crackle Mu Metal Shroud, fitted with deflector coils and Brilliance Control. Easily worth 15 gns. by to-day's standards **Our Price, 3 gns.** Carriage 2/6. Guaranteed brand new and unused.

TUNING CONDENSERS. Brass Vanes, capacity approx. ·0003. Ideal for TX or RX operation. **2/-** each. Post 6d.

5,000 V. CONDENSERS. ·01, ·02. Mounted in pairs. (2 of ·01 or 2 of ·02). Ideal for Television applications. **5/-.** Post 9d.

2 METRE ENTHUSIASTS ! ! !

BC624 Receivers part of SCR522. Brand New.



Easily converted to cover 2 metre band. 10 valves. 9003 1st R.F., 9003 Mixer, 12AH7 Crystal Osc., 9002 Harmonic Gen., 9003 Harmonic Amp., 12SG7 1st I.F., 12SG7 2nd I.F., 12SG7 3rd I.F., 12C8 2nd Det., A.V.C. 1st audio, 12J5 2nd audio, I.F. 12 Mc/s. Power required 300 V. at 60 mA. and 12 V. 1·7 A. Conversion details supplied. **Outstanding value 39/6.** Carriage and packing 5/-.

Do not overlook these offers!

EF50 Valve Holders **3/-** doz. VCR97 Holders, **4/-.** VCR97 Cathode Ray Tubes, **37/6.** 5,000 V. ·01, **2/6.** Headphones, LR, **3/6** pr. Bell Transformers, **4/11.** Class B Amplifier fitted with 220b valve, **10/-.** Tuning Condensers, 0003 Brass vanes, **2/-.** Mains Interference Suppressors, **10/-**, 2μf. **4/-** doz. New 2 waveband AC/DC Receivers, List 11 gns., **£5/10/-.** RF26 Units Brand New in sealed cartons, **39/6.** Silver Mica Condensers, 5 to 100pf., **7d.** each. 140 to 500pf., **8d.** 600 to 1,000 pf. **9d.** 2,000, 3,000, **11d.** Book "Inexpensive Television Receiver," **1/6.** New boxed Valves: at **2/-**, 4D1, 6S57, 12J5, 7193, 6H6, 6G6, 6SH7; at **4/-**, 6B8, 6SJ7; at **6/-**, IN5, 6K7, 6AC7, 6D6; at **8/-**, 5Z4, 6F7, 6F8, 6K8, 5U4G. BC624A Receivers, 10 valves, **39/6.**

All goods despatched within 24 hours.

Satisfaction Guaranteed.

MAINS RADIO Interference Suppressors, **10/-.** Post 1/-.

DUAL RANGE COIL UNITS for BC AR299/429. 201–398 kc/s., 4150–7700 kc/s. Brand new in cartons. **7/6** each. Post 9d.

SUPER SENSITIVE Midget Relays, DP., 200 ohms. **3/6.** Post 6d.

TRANSMITTER TUNING UNITS TU5B. **22/6.** Carriage paid. TU8B in new condition. **12/6.** Carriage paid.

New 2 waveband AC/DC RADIO RECEIVERS. Well known make. **£5-10-0** each. Carriage 3/6. A few only. Originally 11 gns.

MAINS TRANSFORMERS, 28 V. L.T. 220–0–220, 80 mA. **25/-.** Post paid.

PROMPT DELIVERY AND SATISFACTION GUARANTEED AS ALWAYS

H. P. RADIO SERVICES LTD.

Britain's Leading Radio Mail Order House

55 COUNTY RD., WALTON, LIVERPOOL, 4

Established 1935 *Telephone : 1445*

STAFF CALL SIGNS **G3DLV, G3DGL**

Low Power Contest

BY popular request the 1949 Low Power Contest will be reduced to a maximum of 24 hours duration from 2300 G.M.T. Saturday, October 1. Because of this change the main handicap of previous years—the efficient use of one 120V. H.T. battery—has had to be replaced by a new system of scoring.

This year, up to 5 watts input to the P.A. can be used, but with the maximum permissible power the points per contact will be low.

Any well-smoothed power supply which will keep the input within the stated limits can be used; this feature will be welcomed by those who considered the cost of an H.T. battery to be somewhat prohibitive.

M.C.W. and telephony are not permissible in this contest.

Rules

1. The contest is open to all fully paid-up Corporate members of the Society resident within the British Isles and the British Zone in Germany.

2. The British Isles for the purpose of the contest include England (G), Scotland (GM), Northern Ireland (GI), Wales (GW), Channel Islands (GC), and the Isle of Man (GD).

3. The contest will commence at 2300 G.M.T. on Saturday, October 1, 1949, and continue until 2259 G.M.T. on Sunday, October 2, 1949. Competitors *must record the closing time of their last contact* to establish this rule.

4. Entries will be accepted only if submitted in the form set out below :—

Low Power Contest 1949

Name ..... *Call Sign* .....

Address ..... *County No.* .....

.....

Transmitter ..... *Aerials* ..... *Receiver* .....

Date and Power	*G.M.T.*	*Call Sign Worked*	*RST Sent*	*RST Rcvd*	*Points*	*County Code No. of Stn Worked.*

Points

Total ... ...

..... Counties Worked X 10 _____

Grand Total ... ... _____

Declaration; I declare that my station was operated strictly in accordance with the rules and spirit of the contest, and I agree that the ruling of the President of the R.S.G.B. shall be final in all cases of dispute.

Date ..... *Signature* .....

5. No entry form postmarked later than Monday, October 10, 1949, will be accepted.

6. *Full* circuit details of the transmitter and power supply must be given on a separate sheet, signed by the competitor.

7. All contacts must be made between 3,500 and 3,600 kc/s. with stations located in the British Isles or British personnel in Germany.

8. Only one transmitter may be used by the competitor throughout the contest.

9. The contest is confined to two-way telegraphy contacts and any competitor receiving consistent tone reports lower than T8 will autmatically be disqualified.

10. Only one contact will be allowed with any given station unless that station also operates /A or /P, or both, and in such cases only one contact may be made with that station while it is located in any one particular county.

11. Power input, in watts, to the P.A. stage must be recorded in the first column, at the time of contact.

12. No preceding stage may have a power input in excess of that to the P.A.

13. Scoring will be as follows :—

Watts input to the P.A.	Up To 0·5	To 1	To 2	To 3	To 4	To 5
Points per contact ...	20	10	5	3	2	1

14. If different power is used at various times during the contest, the scoring must be altered accordingly.

15. Ten points should be added to the score for each new County worked (there is no multiplier).

16. Competitors must use the code numbers of their County whilst calling, *e.g.* CQ CQ CQ de G.....17 AR. An exchange of RST and Code Number—both of which must be acknowledged by the signal R—will be required before points can be claimed, *e.g.* RST 579 NR 17. Where non-competitors do not give a county number, this may be inserted provided that this fact is indicated on the log sheet.

18. Proof of contact may be required.

19. Contacts with unlicensed stations will not be permitted to count for points.

20. Only the competitor may operate a specific station during the contest period.

21. Entries must be addressed to the Hon. Secretary, R.S.G.B. Contests Committee, New Ruskin House, Little Russell Street, London, W.C.1.

A list of County Code Numbers is set out below :—

ENGLAND (G).

1. Bedford	15. Hereford	28. Nottingham
2. Berkshire	16. Hertford	29. Oxford
3. Buckinghamshire	17. Huntingdon	30. Rutland
4. Cambridge	18. Kent	31. Shropshire
5. Cheshire	19. Lancashire	32. Somerset
6. Cornwall	20. Leicester	33. Stafford
7 Cumberland	21. Lincoln	34. Suffolk
8. Derby	22. London (Postal Districts)	35. Surrey
9. Devon		36. Sussex
10. Dorset	23. Middlesex	37. Warwick
11. Durham	24. Monmouth	38. Westmorland
12. Essex	25. Norfolk	39. Wiltshire
13. Gloucester	26. Northampton	40. Worcester
14. Hampshire	27. Northumberland	41. Yorkshire

SCOTLAND (GM).

42. Aberdeen	53. East Lothian	64. Peebles
43. Angus	54. Fife	65. Perth
44. Argyll	55. Inverness	66. Renfrew
45. Ayr	56. Kincardine	67. Ross & Cromarty
46. Banff	57. Kinross	68. Roxburgh
47. Berwick	58. Kirkcudbright	69. Selkirk
48. Bute	59. Lanark	70. Shetland
49. Caithness	60. Mid-Lothian	71. Stirling
50. Claekmannan	61. Moray	72. Sutherland
51. Dumbarton	62. Nairn	73. West Lothian
52. Dumfries	63. Orkney	74. Wigtown

WALES (GW).

75. Anglesey	79. Carnarvon	83. Merioneth
76. Brecknock	80. Denbigh	84. Montgomery
77. Cardigan	81. Flint	85. Pembroke
78. Carmarthen	82. Glamorgan	86. Radnor

NORTHERN IRELAND (GI).

87. Antrim	89. Down	91. Londonderry
88. Armagh	90. Fermanagh	92. Tyrone

CHANNEL ISLANDS (GC).

93. Alderney	95. Jersey	96. Sark
94. Guernsey		

97. ISLE OF MAN (GD) 98. BRITISH ZONE OF GERMANY (DL2).

More about The Clapp Oscillator

DEAR SIR,—In reply to Mr. McMillan's letter in the August issue the *Collin's Co.* of Cedar Rapids, Iowa, U.S.A., placed a permeability tuned V.F.O. on the American market some two or three years ago. I have not had the chance of inspecting or handling one, but there is no reason why this type of variable inductance could not be used. We may assume that the manufacturers have successfully overcome the mechanical difficulties.

With regard to Mr. McMillan's second suggestion, this seems to be practicable, and would have the advantage of very good thermal isolation between the tuned circuit and the valves or other heat-producing components. The disadvantages from which the scheme is most likely to suffer are firstly that the high capacity of the coaxial cable may cause difficulties unless the length is kept very small; and secondly that moving the tuning unit about may cause frequency shift due to alteration in the capacity of the cable when bent or twisted. Nevertheless, the idea is attractive and worth a trial.

Yours sincerely,
A. G. DUNN (G3PL).

Hull, Yorks.

Bandspreading the Clapp Oscillator

DEAR SIR,—Would not a variometer provide a satisfactory solution to the problem of varying the inductance without introducing the difficulties associated with a sliding contact on the coil? Possibly quite a small number of turns on a well made rotor near the "earthy" end would be sufficient to give full bandspread, while the 5 $\mu\mu$F. condenser could with advantage remain variable for "micro" changes in frequency.

Yours faithfully,
GEORGE F. BLOOMFIELD (VS2CQ).

Kuala Lumpur, Malaya.

The Future of N.F.D.

DEAR SIR,—May we, the Loughborough Group, endorse the views expressed by Mr. J. H. Hum (G5UM) concerning National Field Day and comment on the trend of development in that direction?

N.F.D. is no longer THE social event of the R.S.G.B. year, instead it is a trial of strength where the balance is heavily weighted in favour of the big town group. Whilst admitting that we had a good time this year we feel that "portability" is a term that has become out-dated under the present system.

We congratulate those groups which had sufficient resources to produce the very fine rotary beam arrays we read about but they are hardly the things that would be used in an emergency—the underlying idea behind pre-war N.F.D. events.

With the benefit of the low power restriction, the other troubles attendant thereon are a severe drain on small groups like our own; to go in for higher power and to keep pace with the "Aerial Farms" which now seem to be necessary, would be too much. We say, therefore, let us keep to 10 watts or less and let us carry out the contest in the way it was originally intended—under emergency conditions.

One other suggestion: insist upon a period of silence immediately before the start—say for at least 15 minutes. This year we heard many stations testing right up to the commencement and in some cases overlapping the actual starting time. One would be hard pressed to say when these transmissions ceased to be tests and became actual scoring contacts.

We trust these suggestions will bear fruit. Here's to next year when we hope to do still better.

Yours faithfully,
L. PHILPOTT, G4BI, T.R.

Walton Le Wolds, Leics.

In a Big Way—Continued

DEAR SIR,—Like G5JU I have always dreamed of spacious H.Q. with a large technical library and something really super in the way of an amateur station. We all have these day dreams. They are food for the mind and an ever increasing incentive to progress. BUT are we—as a Society—really in a position, at the present time, to launch out on such a grandiose scheme? We are not! Each one of us knows the problems surrounding our daily lives. Times are hard and money is short. There are many in our ranks who—with all their other commitments—are not in a position to pay a higher subscription. Readers of *QST* will have seen the letters from A.R.R.L. members following increased rates. These should be taken as a guide in our own case.

By and large, it is my own belief that the majority of members join the Society for mutual co-operation, through meetings and the columns of the BULLETIN. This being so, any proposed changes in subscription or H.Q. accommodation MUST be put to full membership vote.

G5JU's proposal to move H.Q. from London, would be a great mistake. Geographically, London is not the centre of the country but it is the commercial centre. Visiting amateurs from overseas come to London and know where to find H.Q. Again, Society affairs with the G.P.O. and numerous business houses must be conducted in London. In case I am accused of being "one of the London Gang" I would add that I last visited H.Q. in 1936, when the QTH was Victoria Street!

No doubt larger premises to accommodate H.Q. will have to be considered but to contemplate the purchase of a "mansion" surrounded with rotary beam arrays and the like would—at this time of inflated property figures—be folly. Until better times this must remain as something to dream about and to work for.

In supporting G2ZF's plea for a more "ambitious BULL." I believe this is the most important point of all. Improvements in its general presentation during the last few months indicate that something is already being done. H.Q. staff responsible for its publication had to work under serious difficulties and these remarks are in no way intended as derogatory to their efforts.

Subject to paper becoming available—I cannot believe that, with to-day's large membership and the present subscription rates, a bigger and better BULLETIN is out of the question.

To epitomise. Let it not be thought that I am too pessimistic. We must progress—this is certain—but let us do so with caution. Before embarking upon promises of better things to come—through increased subscriptions—let us examine things as they stand at the moment.

To set one's house in order can be the first step towards a more ambitious future.

Yours truly,
JAMES N. ROE, M.I.R.E., G2VV.

Hampton-on-Thames, Middlesex.

Headquarters' Station

DEAR SIR,—The present use of GB1RS as a band edge marker is to my mind somewhat of a waste of excellent equipment. Apart from its frequency not being an exact multiple of 100 kc/s. its function can be easily dispensed with by the purchase of a 100 kc/s. crystal, the accuracy of which can be readily checked with the Light Programme of the B.B.C. on 200 kc/s. or with WWV.

Could not GB1RS be now more on the lines of W1AW? Operation could be confined to the 3·5 Mc/s. and 7 Mc/s. bands for a few hours in the evenings. Bulletins could be transmitted each evening covering important items such as frequency allotments authorised by the G.P.O.; openings of amateur frequencies, particularly V.H.F., for DX working; reports of "pirate" operation; and items of general interest sent in by Society members.

Frequency measuring apparatus and a C.R.O. coupled to a receiver should enable station operators to supply all the information a station working GB1RS might require. The finding of operators to run GB1RS on these lines is, of course, a problem, but in view of the large number of amateurs in the London area no doubt there would be several who would be prepared to go on the air from GB1RS for the odd evening rather than from their own station.

Run on these lines I think GB1RS would provide an ever-present link between Headquarters and the Society's members—a link which at the moment is only opened up once a month on receipt of the BULLETIN.

Yours faithfully,
J. L. TOWNEND (G3BBD).

Lofthouse Gate, near Wakefield, Yorks.

[*As stated in the January, 1949, issue of the* BULLETIN, *space and staff problems at present prevent an expansion of services. There is, for instance, insufficient room at Headquarters to establish a communications type of amateur station. The equipment shares an office which is in use daily and on several evenings a month for Committee meetings; with, of course, members of the staff in attendance.*

Increased use of the equipment, if that were possible, would mean increased maintenance.

These various difficulties all point to the finding of some competent member who is prepared to live with and look after the station at a site, preferably outside the Central London area.

The A.R.R.L. Headquarters' station is operated from a separate building in a rural area some miles from West Hartford where a staff of operators is employed to operate a round-the-clock service.

The G.P.O. is unable to allow the Society to use the Headquarters' station for the transmission of news bulletins. Such a facility would, in the view of the G.P.O., be tantamount to granting the Society a licence to broadcast.—EDITOR.]

Hospitality Appreciated

DEAR SIR,—During my recent visit to England I had the pleasure of visiting R.S.G.B Headquarters as well as meeting quite a number of amateurs in the Newcastle and London areas. For the welcome I received, the hospitality and friendliness I met—all of which contributed to make my stay in your country such a wonderful holiday—I wish to express my sincere and cordial thanks.

Yours sincerely,
KARL SVENSSON (SM3ZF).

Vigge, Sweden.

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Representation

The following are additions or alterations to the list of Representatives published in the February, 1948, and subsequent issues :—

Town Representatives

Region 2.
Yorkshire West—
Pontefract ... ... A. Welburn, BRS13092, 11 Gillygate.

Region 7.
London North—
Welwyn Garden City J. Hum, G5UM, Wyldes, Bulls Green, Datchworth.

Changes of Address

Region 2.
Yorkshire West ... J. P. Featherstone, 208 Psalter Lane, Ecclesall, Sheffield, 11.

Region 8.
Hampshire ... ... K. D. Jackson, G3KJ, 153 Bishops Road, Itchen, Southampton.

Slow Morse Transmissions

There are no changes this month from the list of Slow Morse Transmissions as published on page 54 of the August, 1949, issue of the R.S.G.B. BULLETIN. Further volunteers to cover outlying districts are invited to write to Mr. C. H. L. Edwards, G8TL, 10 Chepstow Crescent, Ilford, Essex.

Grafton Radio Society

Mr. R. S. Biggs, G2FLG, will lecture on transmitting aerial systems at a meeting of the Society to be held on September 30 at 7.30 p.m. A practical demonstration of various types of aerials including the dipole, the W8JK, the W3EDP and the three element beam will be given by Mr. F. C. Judd, G2BCX. For the demonstration scale models operating on a frequency of 144 Mc/s. will be used.

The Society meets at the Grafton School, Eburne Road, London, N.7 (one minute from Nag's Head, Holloway) and refreshments are provided free. All R.S.G.B. members will be warmly welcomed.

Luton and District Radio Society

Meetings of the above Society are held at 7.30 p.m. on Monday evenings at Surrey Street School. Now in its third year the Society has a membership of 40. Interested non-members are always welcome.

Spen Valley Radio & Television Society

A varied and comprehensive programme extending to the end of next May has now been arranged. The series opened on September 14 when Mr. P. A. Briggs of *Messrs. Ferranti, Ltd.* spoke on "Electronics in Industry." On September 28 the Regional Representative, Mr. C. A. Sharp (G6KU) will speak on "Oscilloscopes." Exchange visits are planned with the Bradford Group.

South-West London Letter Budget

It is proposed to organise a Letter Budget for the benefit of B.R.S. and Associate members resident in the S.W. 12, 17 and 18 districts of London. Interested members are invited to contact Mr. F. A. Herridge, 95 Ramsden Road, Balham, S.W.12 or the Area Representative, Mr. A. R. Dyer, 28A Isis Street, Earlsfield, S.W.18.

No. 1 Signals Depot—R.A.F. Reunion

Mr. H. Cocker, 18 Beechdale, London, N.21, will be glad to hear from any member who was associated during the war with the Test Department of No. 1 Signals Depot, West Drayton.

A Reunion is to be held at 7 p.m. on October 8 at the Paxtons' Head, 153 Knightsbridge, London, S.W.1.

Silent Keys

With great sorrow we record the passing of yet another veteran member of the Society, and a pioneer of the Amateur Radio movement—Mr. G. F. Gregory, M.I.E.E., A.M.I.Mech.E. (ex-G5PZ) of Ilford, Essex.

First licensed in 1920 "Greg" was very active in the early days. He served on the Council of the Society for a number of years and was Honorary Secretary in 1929.

In pre-war years he operated mostly on the lower amateur frequency bands where his cheery voice was known to a wide circle of friends.

His retirement from a busy professional career—he was Ilford Borough Electrical Engineer—was expedited by ill-health brought about by the shock of losing his son while serving in the R.A.F. during the recent war.

To his surviving relatives and close friends we extend heartfelt condolences.

* * *

It is also our sad duty to record the passing of Mr. Gwyther Eastlake (George) Prance, G5RN, of Torquay.

A native of St. Budeaux, Mr. Prance had been connected with the theatrical and cinema world in Devon and Cornwall all his life. He was licensed in 1923 and operated regularly on 3·5 and 28 Mc/s. until his last illness. His sense of humour was renowned.

His death will be mourned by a wide circle of friends who offer to Mrs. Prance and her three sons their heartfelt sympathies. G2GK.

* * *

We also record with deep regret the deaths of Mr. G. R. Lewis, BRS.6341, of Altrincham, Cheshire, a member of the Society since 1943, and Mr. C. E. Moule, BRS.16945, of Sheffield. Mr. Moule, who was 21 years of age, lost his life as the result of a motor-cycle accident.