

R.S.G.B.

JOURNAL OF THE RADIO SOCIETY OF GREAT BRITAIN

Bulletin

Vol. 31 No. 3

SEPTEMBER, 1955

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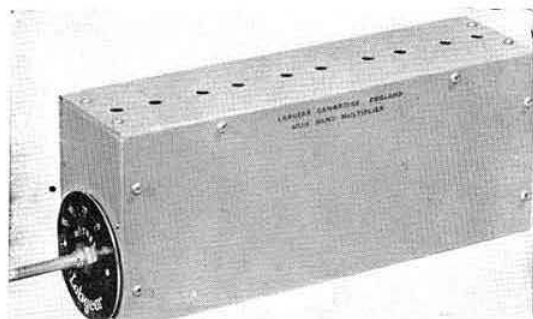
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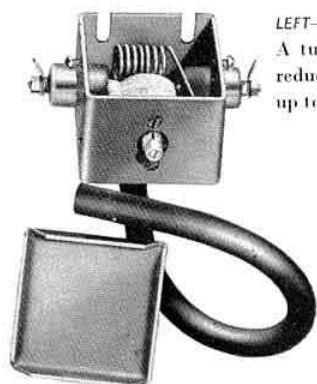
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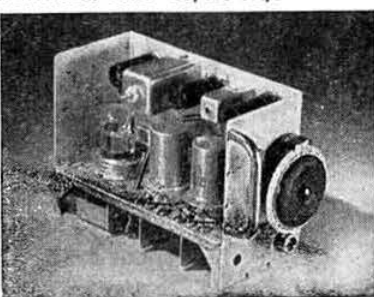
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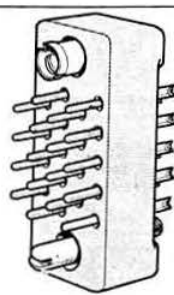
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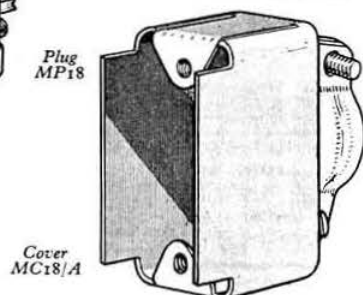


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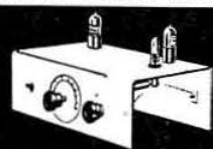
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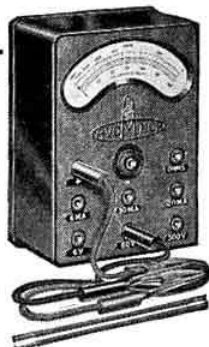
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0-250 "	0-500 "
0-500 "	
D.C. CURRENT	RESISTANCE
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R.S.G.B. BULLETIN

Devoted to the Science and Advancement of Amateur Radio

Vol. 31, No. 3

September, 1955

EDITOR: JOHN CLARRICOATS, O.B.E., J.P., G6CL

ASSISTANT EDITOR: JOHN A. ROUSE, G2AHL

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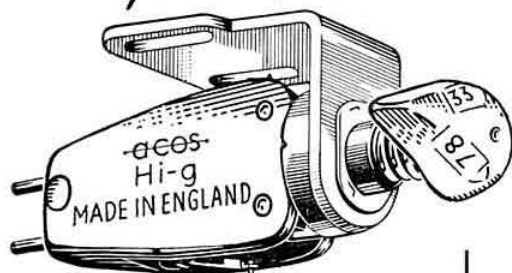
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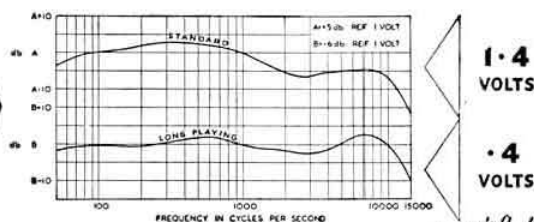
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HGP
59-1

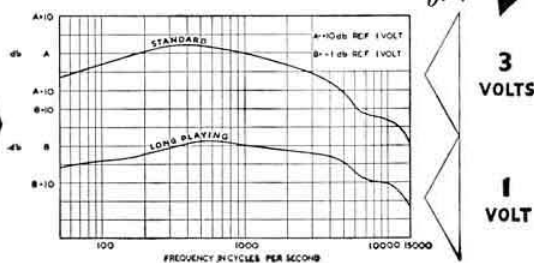


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HGP
59-3



3
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Current Comment

An R.S.G.B. News Bulletin Service

MOST members know that plans to inaugurate an Amateur Radio News Bulletin service have long been cherished by the Council. Also, they will have realized, had they given the matter detailed thought, that some pretty formidable difficulties beset the project.

For a start, there was the licence regulation that allows British amateurs to engage in communication with one another but does not permit broadcasting in the accepted sense; and a special dispensation from the Post Office had to be secured to regularize the position. Several other "political" factors had also to be discussed and resolved at the same time.

Then there were the numerous particularized problems involving such things as where, when, by whom and on what frequency?

Equally important was the value such a service would have for its listeners; all the effort put into its organization would be as naught if, after the first fine careless rapture, the service lost its audience. This could easily come about if it ceased to be "newsy" or failed to retain week after week the interest of those who looked to it for up-to-the-minute information.

Members will like to know that the Council has appointed a small *ad hoc* committee charged with the duty of watching all these things (two of its three members are Past Presidents, by the way).

A great deal of thought has preceded the start of this service. The waveband and time chosen for the weekly broadcasts are calculated to provide the best possible coverage of the country. The frequency selected, 3600 kc/s, allows the use of both telegraphy and telephony without shifting, yet without departing from the European Band Plan. The text of each broadcast will receive prior formal approval from the G.P.O.

Even so, the service will be regarded as experimental during its first weeks, and improvements will be made to it in the light of experience. Members' comments will be of great help.

With the inauguration of news bulletins another ambition of the British Amateur Radio Movement has been achieved. May they prove to be of real use! And may 3600 kc/s be kept open for them during those few minutes of each week when they take place!—J. H.

"Le Snobisme"

THE improvement in conditions, especially on the very high frequencies, is a good reason for us to take a look at a certain trend that seems to be establishing itself among workers on the very high frequency amateur allocations. It is seen expressed in a mild aura of exclusiveness which some of the addicts choose to place around themselves. The French have a phrase for it, "Le Snobisme."

Snobbishness in any shape or form, whether in Amateur Radio or out of it, is one of the less desirable of human characteristics. It is anti-social in this respect; if an individual believes he possesses some gift or form of knowledge greater than that of his fellow men, then the thing to do is to share it as widely as possible with them, rather than clutch it unto himself with the "holier than thou" mentality.

Amateur Radio is by no means free from this menace, and it has developed sundry little coterie which, far from possessing the "ham spirit," more often than not tend to stifle it simply because "Le Snobisme" is all too easily detected in their activities. There are the exclusive nets. There is the "my frequency" man. There is the "wolf-pack" operator who will stop at nothing to show that he is "better than you are." There is the superior v.h.f. worker who professes to have no truck with people who operate on what he calls "the boys' bands." These can be met on the air. Plenty of little groups where "Le Snobisme" is rife can be met off it; for example, few things are more irritating or more tedious to a modern-minded post-war radio operator than to hear a bunch of old-timers indulging in a self-congratulatory session about the good old days. "Le Snobisme," indeed!

Groupings of one type or another are inevitable as Amateur Radio becomes increasingly specialised. More power, then, to bodies such as London's U.H.F. Group, who are only too willing to share by means of printed circulars the information denied to those who cannot attend their meetings. And more power, too—even though it be restricted to 10 watts!—to the nation-wide body of keen c.w. operators whose one desire by sending slow Morse is to bring in many newcomers who cannot quite get to that 12 w.p.m. More power, in fact, to any and every such organization which has as its major aim the wider dissemination of knowledge that is given in the best traditions of "ham spirit."—J. H.

Spare a Thought!

A Plea for Station Planning

By BASIL WARDMAN, M.Brit.I.R.E. (G5GQ)

The constructional season will soon be in full swing once again. But, as the author so ably suggests in this provocative article, a little thought before getting out the soldering iron, pliers and screwdriver, will pay handsome dividends both in cash and convenience.

MOST amateurs regard the commercial engineer with pity, indeed if not with scorn. For does not the poor fellow have to design his station for a particular purpose, plan every detail so that it can be installed quickly and smoothly, be maintained or improved easily and, most important, keep within a certain price limit. The amateur, they claim, is free, able to wander from design to design, completely untrammelled by such sordid commercial considerations. Or isn't he?

Let's have a closer look. In the Amateur Radio movement there is more literature, more ideas, more information than ever before both to teach and confuse the reader. He reads up the elementary principles in the handbooks, and is then bewildered by all the conflicting ideas put forward in the constructional articles, conflicting because they are meant for different purposes. In other words, the amateur grasps the basic principles of theory, and the final detailed applications; but far too often the all-important in-between stages of practical considerations, planning the station to suit the individual need, are missing.

We've all got very little money. We want to spend it carefully and get the best for our efforts. We want economy, reliability, and flexibility to try other ideas. That means a bit of thinking, a bit of common-sense. It means thinking about what we really want, what points we should consider first. Circuitry is only a detail; it's akin to the wallpaper in a room, you've got to have the room first before you can paper it and, even in this crazy world, we don't see people wandering round with pieces of wallpaper asking for rooms to match them! So before rushing into a complete new rig, or a new circuit, just stop for five minutes and "Spare a thought."

General Requirements

First of all, in thinking about a rig, think about what you want; that's very different from adapting yourself to some design. You must be the master, not the servant of your gear. The old adage "A problem known is a problem already half-solved" is so true; note down your requirements honestly on paper and you will begin to see daylight.

In a transmitter there are four main parts, viz.:

Power Supply.	Drive Unit.
Power Amplifier.	Modulating Equipment.

Always keep these separate. You may want to try out a different p.a., you may need to use the modulator for something else; you will certainly want to use your power supply for all sorts of purposes. From the very start, make these flexible so that a unit can be used for any purpose that occurs, and so that it can be removed physically whenever necessary. Remember that an amateur station is a one man outfit, without a team of mechanics to help haul the gear around; make sure

that you can get at that unit and lift it out for servicing on your own.

Power Supply

The most expensive item in a transmitter is the power supply. Therefore, first of all decide on the power you intend to use. Do you intend to use 25 watts, 50 watts or 150 watts? Decide first and plan accordingly.

Suppose you decide on 150 watts. That means a whole choice of power supplies. For your p.a. stage you can have, for example:

750 V at 200 mA	1,500 V at 100 mA
1,000 V at 150 mA	2,000 V at 75 mA

Taking generally available components, the first is probably the cheapest for a transmitter not intended for anode high level modulation; that is for a c.w. rig, or one using efficiency or narrow-band frequency modulation. Whilst good voltage regulation is always most desirable, the requirements can be relaxed for straight c.w. and possibly n.b.f.m. working; this means using "hard" rectifiers, or metal rectifiers, with a simple brute-force filter, i.e. condenser input, one choke and condenser output (Fig. 1). Obviously, choke input would be better, not only for regulation but also for longer component life; but it means a sacrifice of effective volts and must be weighed up accordingly.

If high-level anode modulation is contemplated, then first-class voltage regulation is vital. On theoretical grounds it may be possible to have a lower standard of voltage regulation for efficiency modulation methods, but in practice other difficulties may well occur which would be more expensive to solve than regulating the power supply properly in the first place. Therefore the modulated p.a. should have first-class voltage regulation, and this will normally entail using mercury vapour rectifiers which have a constant voltage drop of 16 V compared with the variable voltage drop of other rectifiers. This does not mean that it is impossible to use metal rectifiers; it only means that the comparable filter costs, etc., to get the same voltage regulation are likely to be much higher. That may be offset against permanence.

So far we have only considered the voltage regulation of the rectifier/filter system. But the transformer itself is not 100 per cent perfect; many are far from it and make results infinitely more difficult to obtain. Therefore, when buying a transformer, find out what its regulation is and make certain that shillings saved on it are not swamped in needless pounds spent in the filter circuits.

With high-level anode modulation, power must be provided for both the p.a. and the modulators; instead of 200 mA we shall require 400 mA at 750 V, well regulated. Bearing in mind the voltage regulation of the transformer, work out which is cheaper, two separate supplies, or one supply giving the full 400 mA. The argument may seem strongly in favour of a single supply; all it means is a larger transformer, because the same mercury vapour rectifiers can easily carry that load. But what about the chokes? They have to be very large to carry 400 mA continuously and to smooth properly at the same time. Then there's the question of weight; a 400 mA transformer and two 400 mA chokes

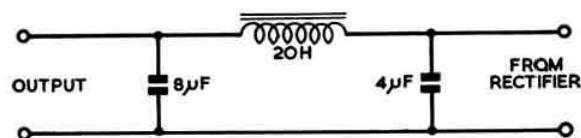


Fig. 1. Brute force filter.

would be in the 100 lb plus class. A separate modulator power pack may well prove the more practical answer.

Turning to higher voltages, you would need 200 mA at 1,500 V, which might be an easier proposition. Transformers for this can be picked up fairly reasonably, and a pair of 866s are just as good at 1,500 and indeed at 2,000 V as at 750 V. The p.a. valve would cost a bit more, being possibly in the 813 class instead of two 807s in push-pull or parallel.

What is dead certain is that the chap who starts off with the simple 750 V, 200 mA supply will find it pretty expensive if he wants to use high-power phone later on. So again, spare a thought.

Finally, a personal and controversial view on the subject of power supplies: I personally do not favour these multiple types which, from one transformer, give a whole range of outputs from, say, 250 to 1,250 V. In fixed applications, yes. But in amateur transmitters, where we are always fiddling about, they can be dangerous. When I am testing a new drive unit, or a new speech-amplifier which is supposed to be running from a 350 V supply, I like to know that there is definitely only 350 V about, and not a loose 1,250 V also waiting to catch me if I make a mistake. On safety grounds, it should be possible to use only the voltage required; with all others shut off absolutely and completely.

Modulation

We've mentioned modulation; now let's get down to details. Decide at the very start whether you are: (a) Definitely going to use c.w. only. (b) Definitely use 'phone only. (c) Maybe use both 'phone and c.w. Having worked out your answer to that one, and possibly decided that 'phone may enter your life, then start looking at the various possibilities.

For general amateur purposes there are three distinct forms of modulation, viz.:

(i) High-level anode modulation of the p.a. Now mainly accomplished by class B modulators. Under this system your modulation adds power to the p.a. The p.a. runs in class C operation, which is the usual mode for high-efficiency c.w. work. Proper class C operation implies that the p.a. valve will take double the anode current as the anode volts are also doubled. Thus, if it is taking 100 mA at 1,000 V, i.e. 100 W, then it should draw 200 mA if the volts are raised to 2,000 V, i.e. it should take 400 W. In plain English, a class C p.a. should act just like a resistance placed across a voltage.

Therefore one of the most important attributes of a class C modulated p.a. is its ability to behave like that; it must have adequate emission to cope with the peaks of modulation, otherwise it just can't operate properly at high modulation levels and spills over all round the band.

Under this system, modulation adds power to the p.a. Simply expressed, the speech is translated into extra volts for the p.a., and the p.a. immediately draws more current, i.e. more power, the additional power varying with the speech content. Since so many amateurs have trouble getting high-level modulation to work properly, let it be stressed in passing that the real secret is ensuring the p.a. valve has adequate emission (check second-hand ones for this) and that the power supply can also give the peaks freely and adequately; either of these factors can make apparent full modulation impossible. What happens if they are wrong is that the system works properly up to, say, 70 per cent modulation and then, because either the valve or power supply has reached its limit, the p.a. chokes off into a class B form of operation; hence turning up the speech gain does no good, it only adds distortion and splatter.

Apart from emission limitations, also make certain that the p.a. valve will take the peak modulated voltages. Some of you may remember that, about 20 years ago, I produced a design using a double triode valve, one-half of which was used as a crystal oscillator, the other as a high-level modulator, using the Heising method. This thing worked perfectly on 350 volts, using a 6A6. The end of the story was never told but what happened was this. We tried 500 volts on it, and it went better than ever on c.w. Then we turned over to 'phone, and on the first word the peak modulated voltages flashed right across the oscillator electrodes, blowing the valve to pieces.

Properly designed, the high-level modulated system is the best solution for the man who wants the highest output efficiency in both worlds, those of c.w. and 'phone. To change over all that is necessary is to switch the modulator on or off; no other adjustment should be required. But, and it's a big but, the larger power requirements and the modulators are expensive items.

The whole purpose of pumping in modulation is for it to be heard at the other end. On comparative terms, very roughly it can be assumed that the speech, under this system, should be heard at a slightly higher intensity than the carrier.

(ii) Narrow Band Frequency Modulation. This is another system which permits changing from c.w. to 'phone without altering the p.a. adjustments. In this, the frequency itself is varied in sympathy with our speech, modulation being applied to the v.f.o. itself in most cases, and this means that only a receiving valve is used for modulation up to normal amateur power limits. Whilst reception on an f.m. receiver gives the best results, most communication receivers of normal type are quite capable of receiving it. From experience, the effective comparison is that the speech is a fraction weaker than the c.w. carrier strength.

(iii) Efficiency Methods. This covers all methods in which power is reduced (as compared with c.w.) under modulation, and it includes such methods as grid, cathode, and screen modulation, and low-level modulation followed by linear amplifiers. In the linear amplifier system, modulation is applied at low level, usually at the penultimate stage; for example, it is clearly quite easy to anode modulate the three-watt straight amplifier stage driving an 807 or 813 final (Fig. 2). The p.a. then acts as a straight amplifier for both radio and audio frequencies, and so must not be allowed to run into grid current, otherwise terrible distortion will occur. To grasp this, remember that in some ways the linear amplifier is acting rather like a single-ended normal audio amplifier, and then the reason for avoiding grid current becomes apparent. Similar reasons limit it to

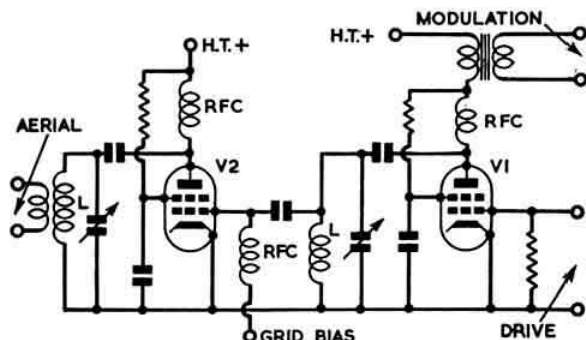


Fig. 2. Linear amplifier. V1 = 3 watt stage, V2 = 150 watt p.a., both on the same frequency.

about 25 per cent efficiency, i.e. what one saves on the modulator, one loses on the p.a.

Because the linear amplifier is used so rarely for amateur purposes, few bother to examine its principles and limitations. But once they are grasped (and because it is a very normal type of amplifying circuit, they are so easy to understand broadly) it becomes quite straightforward to appreciate the limitations of grid, screen, cathode, clamp, and the other forms of efficiency modulation which depend on the same basic conditions.

Claims have been made for higher efficiencies by the use of saturated reactors, additive clamp valves, etc., but these do not affect the basic principles. In general, such devices mainly act as power boosters above a certain level, in some cases being even comparable with switching in a parallel valve. Circumstances alone can justify whether and when they should be used; for example, in mobile equipment operating on a fixed channel, they can give higher modulated output per lb weight than many other systems. Some methods are so critical that even changing frequency within the band may mean re-adjustment; others are less critical but more expensive in equipment. On analysis it becomes a question of performance/ease-of-handling/cost.

Of all the efficiency methods, one system is worthy of more attention than it is receiving at present; it is the suppressor modulation method, applicable to pentodes specially designed for that purpose. In pre-war days the RK.20 valve gave extremely good quality with a minimum of adjustment; simply switching the suppressor volts from positive (c.w.) to negative for 'phone.

For simplicity, modulation methods can be tabulated as follows.

Method	Comment
<i>High-level anode modulation.</i>	Uses class C p.a. exactly the same for both c.w. and 'phone. Requires high-power modulator and well-regulated power supplies. Can be used with either crystal or with v.f.o. drive systems. Speech level slightly above carrier level.
<i>Narrow band frequency modulation.</i>	Uses class C p.a. exactly the same for both c.w. and 'phone. Requires only 2-3 watts audio. Extremely simple to use with v.f.o. drive, but extremely complicated to use with crystal drive. Speech level slightly below carrier level.
<i>Low-level efficiency modulation.</i>	Uses class B p.a. quite different from normal high-efficiency class C used for c.w. Can be used with v.f.o. or with crystal drive. Requires only 2-3 watts audio. Speech level slightly lower than equivalent n.b.f.m.

As a generality (always dangerous) it may be taken that efficiency modulation methods are best suited to telephony only transmitters; the re-adjustment of both operating conditions and loading which is necessary to change from c.w. to 'phone has not the simplicity of the anode or narrow band frequency modulation systems. Effectively, the received speech will be about one "S" point weaker than an equivalent n.b.f.m. signal of similar input.

Bands

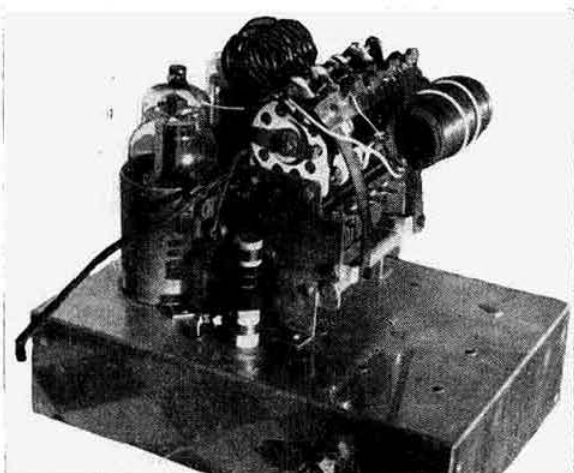
How many bands are to be covered, and which method is to be used? There is no technical reason why

the rig should not be able to cover all bands from 1.8 to 28 Mc/s; it's only a matter of desirability. Of course there is no sense in putting in bands which are not going to be used. Therefore the p.a. design must depend upon its intended purpose. Again examine the various possibilities.

- With a single-ended p.a., such as an 813 or 807, band switching is relatively easy; it is possible to cover all the bands mentioned with a 2 pole, 6 way switch using harmonic suppression methods such as pi-coupling.
- With a push-pull p.a., switching is very much more complex, probably requiring a 5 pole switch which, over 50 watts, is pretty expensive. With switching, balancing the circuit is not too easy at the highest frequency bands. Therefore the relative merits of switching and of plug-in coils should be considered.
- When using cheap, single-ended p.a. stages, it is worth examining the cost of a separate one for each band to be used. A simple plug system can pick up the power and drive from the other units.
- Don't forget that two valves in the p.a. don't make it a double-ended stage. If the valves are in parallel, it's single-ended; if they are push-pull, it's double-ended.
- Parallel operation accentuates even harmonics, i.e. a 14 Mc/s p.a. will give a strong harmonic on 28 Mc/s and a comparatively weak one on 42 Mc/s.
- A push-pull stage accentuates the odd harmonics, i.e. a 14 Mc/s p.a. will give a strong harmonic on 42 Mc/s but a comparatively weak one on 28 Mc/s. Watch this point for TVI.
- Although theoretically the same, in practice (owing to circuit difficulties) parallel operation is about 5 per cent lower in output and requires about 20 per cent more drive than push-pull with most valves at frequencies above 10 Mc/s.

The Drive Unit

After reading the average run of articles, most readers will think it rather extraordinary to start with the p.a. and then go back to the drive unit—that's where most



The complicated switching involved in a push-pull switched amplifier can be seen in this picture.

designs start. But we are only concerned with r.f. power, and that means the p.a. stage; earlier ones are just a necessary evil. Therefore the drive unit should be designed to meet the requirements of the p.a., and not vice-versa as is too often the case.

In assessing the p.a. drive requirements, the usual figure to start with is the manufacturer's rated drive power, or drive volts, as the case may be; some give both. This means the actual figure obtained between grid and cathode under working conditions; that is quite different from the power required to develop that amount. For example, a p.a. valve may only require 1 watt drive, but to develop this an output of 5 watts may be required from the actual driver.

To express this very complex matter simply is most difficult, but the following analogy may help. On the one hand we may have a drive unit which gives an effective output of, say, 1 watt from 3.5 to 30 Mc/s. On the other hand we have a p.a. stage which requires an effective $\frac{1}{4}$ watt drive. But it isn't just a straight, any old $\frac{1}{4}$ watt that this stage requires; it must be at a certain voltage. Now at 3.5 Mc/s, the input circuit might just allow the 1 watt output from the driver to develop the right sort of $\frac{1}{4}$ watt at the p.a. grid, so that everything works well. But round about 14 Mc/s, and certainly at 21 and 28 Mc/s, other factors start rearing their ugly heads. The inter-electrode capacities of the p.a. valve assume greater percentage proportions, making a higher C circuit in which it is difficult for the driver to develop the required voltages. For this reason it is customary to allow plenty of reserve driver power: 3 watts driver output on all bands for a pair of 807s, slightly higher for an 813.

Undoubtedly, the best method of all is to build the p.a. and then test out its drive requirements with an experimental version of the drive unit; indeed, a simple low power oscillator is most informative. The simplest possible equipment, as shown in Fig. 3, will enable a vast amount of information to be obtained. It uses the principle of the p.a. valve acting as a rectifier.

Without any h.t. to the p.a. (i.e. heater and bias only), apply drive at, say, 7 Mc/s, noting the approximate

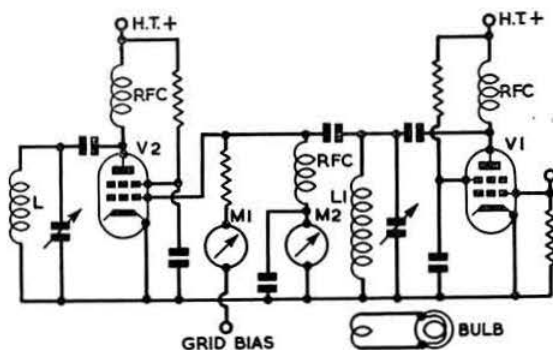


Fig. 3. Grid drive requirements. M1, 5-10 mA meter; M2, 250-500 volt meter; V1, driver valve; V2, p.a. valve.

driver output by means of a flashlamp loop coupled to L1 to give maximum brilliance in the bulb, M1 is the conventional p.a. grid current meter, and M2 is a high resistance voltmeter with scales of 250 and 500 V. Even with quite a small driver valve, such as an EF50, it is surprising the comparatively high voltage and current which will be obtained. Try the same thing at 28 Mc/s and, even though the drive output bulb may glow just as brightly, it is extremely improbable that anything like the same voltage/current readings will be obtained. By careful adjustment of the coupling between driver and p.a., improved results will be obtained, but the drop in effective power at the p.a. grid will be most marked. The reason for measuring the comparative grid volts in that way (it is not necessarily the quantitative figure) is that a current difference of between 4 and 5 mA is very small on the meter, whilst in contrast the voltage difference is very much higher; with a pair of 807s normally biased a drive of 4 to 5 mA will give a reading in the 200 volt range.

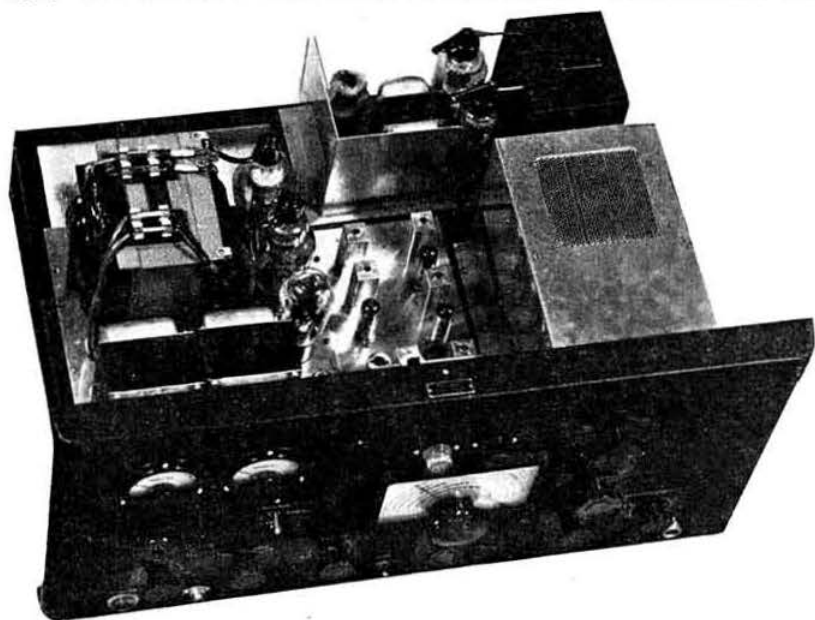
As soon as h.t. is applied to the p.a., it will assume its normal operating impedance and act as an additional resistance shunted across the drive, so reducing both drive volts and current. A usual sort of figure is about 33 per cent. This means that if the p.a., without h.t., has a grid current reading of 6 mA, it may be expected to drop as low as 4 mA when h.t. is applied; therefore if 4 mA drive under operating conditions is required, one must plan for 6 mA under static conditions, i.e. for 50 per cent more current, which is quite a lot more power.

What does all this apparent digression add up to in planning equipment? It means that, at the higher frequencies, it is one thing to produce driver power, but quite another to develop it at the p.a. input. Indeed, at 28 Mc/s anything from 10 to 20 times the nominal drive power may be required to develop sufficient at the p.a. grid!

At lower frequencies, progressively less power is re-

An excellent example of unit construction in a modern table top transmitter. Each section—exciter, p.a., modulator, speech amplifier and power supply—is on a separate sub-chassis.

(Photo by courtesy of the Minimixer Co.)



quired, as these simple tests will prove. Therefore a drive unit designed to give ample output at 28 Mc/s will most surely give far more than is required on other bands and, unless effective output power control is included, can add materially to the TVI harmonic problem. The place to develop power is at the p.a. stage, not in the earlier ones.

Of recent years there has been a tendency to develop complex driver units having a number of isolator/buffer stages. Properly designed, properly built, and perfectly tested and aligned, they can give a wonderful performance. But it is not every isolator which acts as it should; most of them are prone to self-regeneration which is held down during most of the cycle by damping methods but which breaks out over a few undetectable degrees to give key-clicks or barely-noticeable reduction of speech quality. This also happens far too often with frequency-multipliers, which like to produce these effects on quite different frequencies. All these things add up to more TVI. Therefore, from the start use a driver unit which you are sure you can build, align, maintain and handle. One of the best 28 Mc/s signals I know comes from the rig of a well-known commercial engineer who uses a 28 Mc/s fundamental v.f.o.

Turning to the oscillator, each type has its fanatics. Broadly speaking, there are only two general classes, the simple triode type and the electron-coupled versions of them; the separation of the electron-coupled version is always well worth-while. But as regards the individual circuits, whether it be Hartley, Clapp, Colpitts, Meissner, Ultra-audio, or what you like, there is very little between them if they are designed and built properly. Depending on purpose, it must be decided whether it is easier to use an inductance splitter method or a capacity one. For one-band jobs, the inductance split methods are most useful; for multi-band switched units, then working out the correct tapings may be more difficult than using a split capacity circuit like the Clapp.

Summing up oscillators, the design rule to remember is this:—oscillator stability is 99 per cent construction and 1 per cent circuit. Therefore use the oscillator best suited to the constructional possibilities.

The purpose of the v.f.o. is to produce a control frequency of adequate stability during the period of the transmission involved. This means that if you turn it on to, say, 14120 kc/s on Saturday afternoon, and you stay on the air from 14.00 to 17.00, then it should stay within ± 2.5 kc/s throughout the entire period. Note that warming up time is excluded; only operating time counted.

This is short-term stability, which is the true v.f.o. requirement. The next time it is used it should again stay within close limits of the frequency to which it is set for the required operating time. But whether or not its calibration stays the same from day to day is another matter; it is relatively unimportant whether it still has the same dial reading for 14120 kc/s for days or months. The instrument to check frequency is a frequency meter, and a v.f.o. should always be set against one and not used as a combined v.f.o./frequency meter.

The true requisites of a v.f.o. are these; it should reach operating temperature as quickly as possible and maintain stability thenceforth for a reasonable number of hours. With it, a close tolerance maintained for 3 or 4 hours is adequate for average purposes; on the other hand a close tolerance of hundreds of hours is required from a frequency meter.

In dealing with the v.f.o., the design pointers to watch are, firstly, mechanical detail. Next, heating/capacity

effects; to reach operating temperature quickly, use of a larger type valve is worth considering, etc. Once it has reached operating temperature, this should be kept as stable as possible. During "stand-by" periods it does no harm to cut off the oscillator provided it still runs at the same dissipation, i.e. total cathode amount is reduced to one-quarter during non-oscillation periods. Finally, the fundamental frequencies. If, for example, n.b.f.m. is planned, then using reactance modulation a four-to-one multiplication is advisable between v.f.o. and output; for 1.8 Mc/s operation the v.f.o. is best on 430 kc/s. This ratio is best kept constant right throughout the bands used if simple, good quality n.b.f.m. is wanted.

Conclusion

From planned thinking comes the expensive-looking, efficient station; it's the unplanned, inefficient station that costs the money. So, spare a thought!

New Electron-image Tube

A NEW electron-image tube that can translate coded signals from tape, keyboard or radio into clearly-defined letters and figures at speeds up to 100,000 words per minute for high-speed photographic recording has been announced by the Radio Corporation of America.

The new tube, developed at the David Sarnoff Research Centre of R.C.A., fills an acute need for high-speed printing devices operating directly from data in coded form. When it achieves commercial form, its initial application is likely in electronic message transmission and computing systems. Further development is expected to fit it for wider application in general printing as an electronic means of type-setting.

The new image tube is 25in. long and resembles in appearance a cathode-ray tube. (From the *RCA News Letter* quoted by the *I.T.U. Journal*.)



Six members of the Gough Island Expedition with their leader (holding the Expedition cat "Thomas"). Grouped in front of the tent (left to right): Roger Le Maitre (geologist), Nigel Wace (botanist), P. J. Mullock, G3HPM/ZD9AD (radio operator), Martin Holdgate (invertebrate zoologist) and John Heaney (organiser); standing: Robert Chambers (leader) and James Hall (cinematographer).

(Photo by courtesy of the Cheltenham Newspaper Co., Ltd.)

Fifteen Watt Modulator

By O. M. DERRICK (GM3OM)*

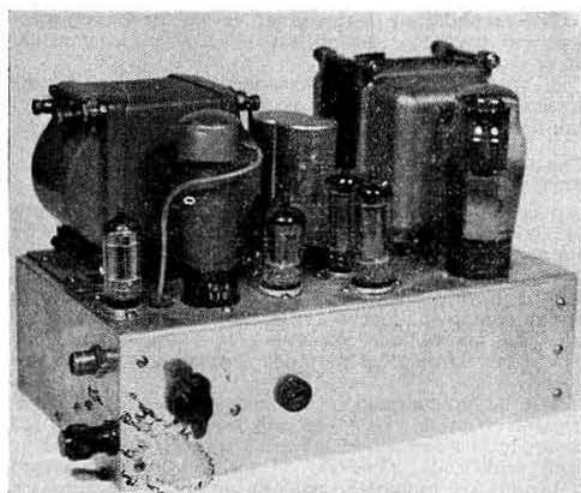
THE modulator to be described is capable of anode and screen modulating an r.f. input of up to 35 watts. Alternatively, it may be used as a speech amplifier to drive a larger modulator.

In designing the equipment it was borne in mind that there should be adequate gain to allow the use of a good quality microphone with the control set well below maximum. In addition, it was considered good practice to make it self-contained and compact. This has been achieved using miniature valves where possible on a chassis measuring only 10in. x 6in. x 3in. Octal based equivalents can be used if desired.

The Circuit

In the circuit diagram, Fig. 1, V1 is the microphone amplifier, its grid being loaded with a resistor R to suit the microphone in use. A crystal type requires a value of 3 Megohms or more, while a moving coil type, with its own associated transformer, should be shunted with a resistance of 220,000 ohms. The following stage V2 employs an EF37A (noted for its low hum and noise level), the gain control being in the grid of this valve. This stage is followed by the phase splitter—a high μ double triode—which drives the two beam tetrodes in the output stage. The coupling condensers between V1, V2 and V3 are of low value in order to reduce the low-frequency response. However, the overall response is relatively flat above 1000 c/s, gradually falling off above 5000 c/s.

Originally, an l.f. choke was used in the h.t. filter



General view of 15 watt modulator. On the left, microphone input socket and earth terminal. The gain control is on the front of the chassis with the pilot light to the right.

circuit but during test considerable trouble was experienced from 100 c/s hum. This was completely cured by substituting a resistance (R21) for the choke, which, in so compact a unit, was inducing hum. R21 comprises two 1000 ohm 10 watt resistors in parallel, supported on insulated tags under the chassis, while R19 (which tends to run warm) is mounted outside the rear wall and is protected with a piece of expanded metal. This arrangement avoids under chassis heat which could be detrimental to other components.

*261 Main Street, Larbert, Stirlingshire.

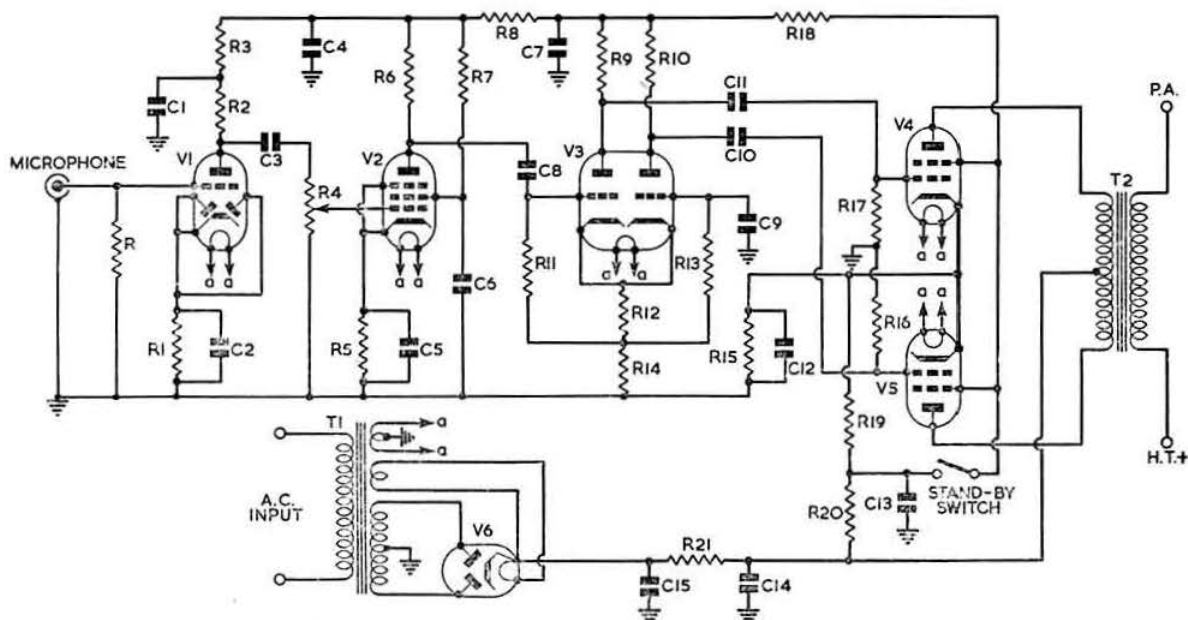


Fig. 1. Circuit diagram of the 15 watt modulator. C1, 4, 7, 13, 8 μ F electrolytic, 500 V wkg.; C2, 5, 25 μ F electrolytic 25 V wkg.; C3, 300 μ F mica; C6, 0.1 μ F paper; C8, 0.005 μ F paper; C9, 10, 0.01 μ F paper; C12, 50 μ F electrolytic, 50 V wkg.; C14, 15, 32 μ F electrolytic, 50 V wkg.; R, see text; R1, 3300 ohms; R2, 6, 220,000 ohms; R3, 14, 47,000 ohms; R4, 1 Megohm potentiometer; R5, 1000 ohms; R7, 11, 13, 1 Megohm; R8, 47,000 ohms 1 watt; R9, 10, 100,000 ohms \pm 5 per cent; R12, 2000 ohms; R15, 240 ohms 5 watt; R16, 17, 220,000 ohms \pm 5 per cent; R18, 22,000 ohms 1 watt; R19, 18,000 ohms 10 watt; R20, 1500 ohms 5 watt; R21, two 1000 ohms 10 watt in parallel. (All resistors $\frac{1}{2}$ watt unless otherwise stated.) T1, 350-0-350, 100 mA, 5V 2A, 6.3 V 3 A; T2, modulation transformer; V1, 6AT6 or 6J5GT; V2, EF37A; V3, 12AX7 or 6SL7GT; V4, 5, 6BW6 or 6V6GT; V5, 5, 6BW6 or 6V6GT; V6, GZ32 or 5R4GY.

The modulation transformer is an ex-Government type but any other component of suitable rating would serve as well.

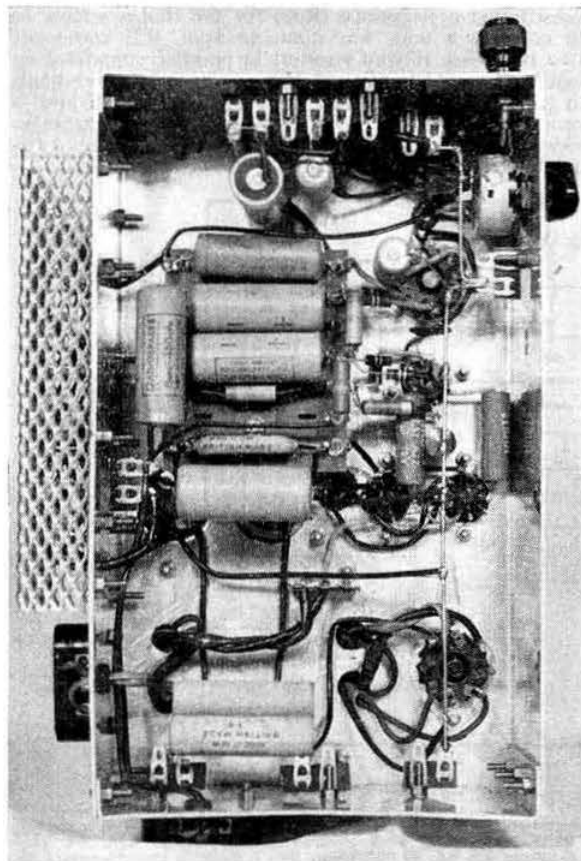
A stand-by switch is provided so that h.t. to the screens of the output valves and the speech amplifier can be switched off on "receive."

Construction

The general layout which is perfectly straightforward can be judged from the photographs. All earth returns are taken to a bus-bar made of 12 s.w.g. copper wire supported on insulated tags and connected to the chassis only at the input end. This method avoids the possibility of earth loops which can be most troublesome in audio equipment. A co-ax input plug and socket are used for microphone input to give complete shielding. The earth terminal is mounted immediately below this socket.

The larger components are assembled on tag-boards but the coupling condensers and grid resistors are wired direct to the associated valveholder pins, thus avoiding long grid leads. The two 32 μ F can-type condensers (C14, 15) are mounted vertically on top of the chassis; all other components (other than the modulation and mains transformers) are below chassis.

The modulator provides excellent speech quality and is easily constructed.



An underchassis view of the 15 watt modulator. R19 is enclosed in the metal guard on the outside of the chassis with the mains input block adjacent to it.

London Members Luncheon Club

THERE was a gathering of twenty under the chairmanship of Stanley Vanstone (G2AYC) at the Luncheon on August 15. The club was pleased to welcome and listen to MP4KAC (ex-VE1FF), now returned to England and awaiting his G call, and R. R. Thorogood, soon to be a VP6.

The next meeting will be on September 16 at the Bedford Corner Hotel, Bayley Street, off Tottenham Court Road, and a warm welcome awaits all who telephone either Ruislip 2763 or HOLborn 7373 to book their luncheon.

Newcastle Radio Amateurs Luncheon Club Proposed

IT is proposed to inaugurate a Newcastle Luncheon Club, open to all radio amateurs who can find it convenient to attend, and who work in or near Newcastle-upon-Tyne. The suggested date is the first Friday in the month, at 1 p.m., in the Crown Hotel, Clayton Street. It is not the intention to impose any restrictions or charge membership fees. The purpose of the club will be to stimulate interest among fellow amateurs, have lunch together and then disperse back to work again. The only cost will be for the lunch. Interested members are asked to contact Mr. W. Dennell (G3ATA), 12 South Frederick Street, South Shields (Phone: St. Hilda 4107), who is handling the arrangements.

Amateur Television Convention

THE Amateur Television Convention to be held at the Bedford Corner Hotel, Bayley Street, London, W.C.1, on October 1, is the second organised by the British Amateur Television Club. The first was held in 1951. Donald Reid, Assistant Secretary of B.A.T.C., points out that an Amateur Television Exhibition was held as far back as 1930 when a number of amateurs demonstrated closed circuit television systems of 30 line definition.

Yet Another Phonetic Alphabet

IT is understood that the following phonetic alphabet is to be introduced shortly by NATO Forces:—

Alfa	Juliet	Sierra
Bravo	Kilo	Tango
Charlie	Lima	Uniform
Delta	Mike	Victor
Echo	Nectar*	Whisky
Foxtrot	Oscar	X-ray
Golf	Papa	Yankee
Hotel	Quebec	Zulu
India	Romeo	

*Subject to possible amendment, new phonetic word for N may be NUTS!!

R.A.F. Kenley Arts and Crafts Exhibition

G6JJ/A will operate on 2 metres at the above Exhibition from 14.00-19.00 B.S.T. on September 28. Telephony contacts will be welcomed.

Mobile Rally

PERCH INN, BINSEY, OXFORD
2.30 p.m., October 9, 1955

Rally Stations

G3GJX/P—1900 kc/s G3GCS/P—3700 kc/s
G8PX/P—145.350 Mc/s

Further details of the Rally, organized by Oxford and District Amateur Radio Society, are given on page 87 of the August issue, and page 120.

The R.S.G.B. at Earls Court

ONE of the outstanding attractions at the 1955 National Radio Show was the Society's stand, on which Ralph and Jeremy Royle (G2WJ/T), assisted by Ian Waters (G3KKD/T) and other R.S.G.B. and B.A.T.C. members operated a complete closed circuit Amateur Television station. The pictures "transmitted" were shown on Pye television receivers; floodlighting was provided by G.E.C.

Every demonstration was watched by large crowds, proof that working exhibits are excellent publicity at such shows. Apart from straightforward pictures, the demonstrations illustrated the uses of the equipment and the effects of adjustments in laymen's terms. Scores of members of the public were "televised" as well as Miss Shirley Abicair, the Australian TV star, and Miss Helen Bailey, one of the R.I.C. Studio announcers. Much of the interviewing was done by Jimmy Hunter (G6HU).

At the opposite end of the stand was staged a replica of an N.F.D. station, complete with tent, receiver, transmitter, hurricane lamp and petrol generator (staged by Norwood Group). This exhibit also aroused great interest. Attention was drawn to the Slow Morse Practice Transmissions by G3IIR's Top Band transmitter, complete with automatic tape equipment which was used to key an audio oscillator.

Many hundreds of publications were sold but the real worth to the Society lies in the large number of personal contacts made with the general public in answering the multitude of questions on every conceivable aspect of Amateur Radio. To all who formed the "Brains Trust" which so ably answered those questions and to those who helped in one way or another to make the Amateur Radio section a worthy part of the National Radio Show, the thanks of the whole Society are due.

The Society's stand in the gallery at Earls Court was one of the outstanding features of the National Radio Show. In this picture, the closed circuit Amateur Television station is in the background (left), the tent housing the mock N.F.D. station to the right and the Top Band Slow Morse station to the left. Conveniently situated in the centre of the stand is the sales counter.



Science Museum Station

GB2SM, the Amateur Radio station at the Science Museum, South Kensington, is now active on 14 Mc/s. The present equipment includes G.E.C. BRT400 and Eddystone 680X receivers and a Labgear rack-and-panel transmitter. A temporary aerial suspended about 100ft above ground between two buildings is in use.

The station may be seen in operation in the Demonstration Room in the Communications Gallery, but members will appreciate that it will be some months before it is completed and fully operational.

I.T.A. Test Transmissions

TEST transmissions from the London I.T.A. station will take place daily until programmes commence on September 22 from 9.30 a.m. to 12.30 p.m., 2 to 5.30 p.m. and 7.30 to 8.30 p.m. On Saturday, September 17, there will be a transmission from 10 a.m. to 1 p.m.

Radio Interference

THE Postmaster General, the Rt. Hon. Dr. Charles Hill, M.P., presided at a Press Conference on August 30 when the implications of the new regulations dealing with radio interference were discussed.

During the Conference it was made clear that, whilst the P.M.G. has no powers to make regulations about interference from television sets, nevertheless if a person has a set which is causing interference and refuses to take reasonable steps to suppress the interference, his licence will be withdrawn.

The new regulations, which apply to nearly all types of appliances incorporating small electric motors under 1 h.p., do not cover interference to the B.B.C. v.h.f. sound broadcasting service or to the I.T.A. television service. It was explained at the conference that at present there is insufficient technical data concerning the effects of interference at frequencies of this order but the problem is being studied.

VK9OK. VQ8AG is around the c.w. end about 03.45. **B.R.S.20317** (Bromley) added new ones UA0GF, XW8AB and LA7XE (if in Spitzbergen — but why there?), with FF8, FQ8AG, HE1OP, PY3QX (his first), ZL2LU, VSI, 6 and ZD6RM—all on the key. KJ6GAB and KM6AX were being called and AC3SQ, VS4CT and C3WV were also around. A QSL is to hand from FY7YE. **B.R.S.20249** (Sutton) coped manfully with phone QRM from II and DL4 to emerge with a ZC4, LX1JW, YN1RA, HR3HH, TG9MB, VQ5FS and CR5NC (St. Tome Is.). The latter struggles mightily with the English language, but gets the vital information across in the end! **B.R.S.20135** (Newport, I.O.W.) logged phones YI2AM, MP4KAB, WIKGH/VE8 and TF2WAF, while nearby **R. J. R. Crocker** (Plymouth) mentions VS4CT, FM7WQ, ZS7C (So Pikwan has a modulator, now!), PJ2CH, KH6, KL7, W7, VU2RC, 9S4BN, HB1OP/HE, MD5GP, VE7JB, ZD9AC, ZD4BF (s.s.b.), TI2BX (calling VP1AD), VK7AZ and W5 and 7.

G3ATU added a length of wire at right-angles to each leg of his Vee beam, which now has the appearance of a squashed rhombic. Instead of putting a good signal out in two directions, it seems that a weak one is being radiated in all directions. At any rate, VP8AQ and ZS8L were worked off the side, with XW8, VP3, DU9JO (17.45) and VU2. The signal strength on 63 Mc/s is not yet known! ZS8L has been coming through both mornings and evenings and seems easier to work in the early morning quiet. FD4BD is active on 14020 kc/s, usually from 17.30 and is weak but workable. Call him on 14015 kc/s or lower. PX1EX (F8EX and party) had a busy time in Andorra and provided numerous QSOs on various bands, despite the usual gang of hopefuls making frenzied noises on his frequency. KC6CG is often a good signal as late as 18.00. He seems to favour 14001, but moves around on occasion. OQ0CZ has been heard on c.w. and various people have been calling VQ8AX, FO8AM and VR5AB, while a W8 appeared to be getting a big kick out of working

TU3MB for his first "TU"! (One dit missing, Magnus!). UA6KOB was delivering a lengthy "CQ ZA only" one evening, but not surprisingly, nothing happened (apart from replies from almost every other European country), so he reverted to WSEM. **G2DHV's** collection of cards from islands is increasing, with recent QSLs from CE0AA, TI9MBH, HH3DL and AC3SQ (via W9KOK). He hopes soon to have a personal QSO with Bob Ford (AC4RF).

Fifteen Metres

Conditions have been patchy of late and short skip has proved troublesome at times, but at least there is something doing, which is more than could be said a year ago!

G8DR (London, N.W.2) finds his nightly sked with VP6 quite reliable, despite conditions and in addition, he has had phone QSOs with HK3, TI2, HR, FF, CR6, HC, CE, LU, PY, OQ5, VQ4, EA9 and ZD2. **GW3AHN** (Cardiff) finds that out of 2,000 QSOs on the band, 1,000 were made during the past year. 126 countries in all (with 105 on phone), have produced 105 confirmations; 85 have been worked in the last six months with 60 watts and a 68 ft. Windom. The DX of late includes CP5EK, FM7WQ, HE1OP, MP4BBV, MP4KAC, PZ1RM, VP4LL, VP8AQ, ZD9AC, ZS3, VP7NG and the "usual" W, OQ5, etc.—these on phone. C.w. accounted for FF8, KP4, OA, PJ, ZP6CR, ZD6RM, YN1AA, VO1 and JA3AH. **G3AAE** allowed phone to play second fiddle to c.w. one Sunday, when he worked JA1CR, VS6CL, ZS5V, ET3AH, KT1OC, ZC4CK, CE6AB and KH6AFS, all on the key. **G3IKA** started on the band a few weeks ago, using 35 watts and a 102 ft. centre-fed aerial. So far, phone QSOs include OQ5, VQ4s SS, RF, FO, VQ5EK, VQ2AS, ZE, ZS2, ZS5 and VP6FR. On phone, **B.R.S.20106** heard KL7ZG (who is interesting for the band), ZS9G, YN1AA, ZD4BQ, W6YME and lesser lights on phone and lists HE9LAA, ET3AH and W0 on c.w. **R. J. R. Crocker** listened to VP2GG (18.00), KZ5s, HB1OP/HE, FY7YE,

Frequency Predictions for September, 1955

PREPARED BY J. DOUGLAS KAY (G3AAE)

BAND	NORTH AMERICA	CENTRAL AMERICA	SOUTH AMERICA	SOUTH AFRICA	NEAR EAST	MIDDLE EAST	FAR EAST	AUSTRALIA
28 Mc/s	1600	1930	1800—1900	1700—1830	1200	1200	1130	0830
21 Mc/s	1600	1300—2100	1000—2130	0800—2030	0830—2000	0900—1600	1000—1300	0800—0900
14 Mc/s	1100—0000	1000—2300	0800—2300	0730—2100	0530—2300	0500—2030	0600—2000	1100—1700
7 Mc/s	2300—0800	0000—0700	0000—0600	2100—0400	2200—0500	2000—0300	2200—0200	1600—2200
3.5 Mc/s	0430	0600	0400	0300	0100—0300	0200	0100	1800

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

It should be noted that between May and September propagation by sporadic E may result in short skip contacts on the 14, 21 and 28 Mc/s bands. The incidence of sporadic E is unpredictable but is most pronounced around midday and dusk.

EL12A and W6YYP/MM (11°N-78°W). **B.R.S.20135** heard CE, 4X4GB, CN2AD, EL3A, ZE3JJ and maritimes K2BBB, W4DGG and W1RZA.

Ten Metres

Here the story is mainly of short skip, but by now, better things may be upon us. **G2FQR** (Walsall) used 110 watts, a home built superhet and a rotary dipole to work ZD3BFC (21.30) and Europeans on phone, while on c.w., he heard CX4CS. **GW3AHN** worked the CX, CN2, FA, LU3, 5, 8, 9, OQ5 and ZB1JRK on phone and an OQ on c.w. **G3AAE** has it that 9S4AX uses 5 watts on phone. **G8AO/MA** has been on, as has **G8AO/MM**.

Other Bands

G3KJX is the call-sign allotted to Brian Alderson, who was the first to operate ZC1AZ (R.A.F. Amman). He is on eighty only, but hopes to be on other bands ere long. He would be pleased to hear from people he QSO'd from Amman. His address is The Lodge, Patrick Brompton, near Bedale, Yorks. **B.R.S.20106** listened on eighty c.w. and picked out PX1EX, 4X4AM and nine W novice stations. **G3ATU** tuned around for PX1EX, heard him for a split second before he vanished beneath a mass of callers, shuddered and switched off. **B.R.S.20106** found forty c.w. far from dead and logged ZLs 1AH, 2SX, 2ASA, 3FF and 3GU, W5s MNR, FVU, AUA, BPH, VIR and UXP, TI2PZ, VO6AE, CO8 and LU. FG8T and FS8E, working one another, are presumably two of "those things." Incidentally, Norman heard a DL working VR2CG on 21 Mc/s phone. The VR was just not readable at the time, but it's nice to know he's on the band.

Overseas and Allied News

GW8WJ (Hon. Secretary, Tops C.W. Club), relates the plight of G3HYM, now VSIGX, who applied for a VS licence, then realised he had mislaid a chit given him by the U.K. G.P.O. Arguments with Authority ensued until he remembered his Tops membership card. This was promptly accepted as proof that he had in fact held a G call and all was well! GC2CNC, G3ABG and G3CKL were recently elected to the Tops committee. G8PG remains president.

Etienne Heritier, Editor of the U.S.K.A. Journal *Old Man* sends news that HB9KB and two or three others will visit Monaco and put a 3A2 call on all bands, c.w. only. The call will be issued on their arrival and if all goes well (customs!) the station will take the air about October 6, for two weeks.

From **G2MI**, there is news that the QSL Manager for VP2 is now H. Brough, **VP2KB**, Fortlands, Basseterre, St. Kitts, B.W.I. **Norman Webber** writes G2MI from Sarawak, where he awaits his call. He is ex-MP4BAB and ST2NW and although he worked over 100 countries from each, he is still short of cards for his DXCC. From ST2NW, he needs but three confirmations to make the 100C and among QSLs for phone QSOs he would be more than happy to see cards from EI5B, EI5I, EI9A, XZ2KN, GD2FRV—all 1953—and VP2GW, VQ6LQ for QSOs made in 1954. Cards do go astray sometimes, so perhaps another could be sent? Ex-DL2VM has arrived in Tripoli after a tour in Korea. He works from 5A4TZ and is hoping for his own call before long.

W6YY (La Canada, Cal.) once again is full of news. John says 21 Mc/s has been staying open in W6 as late as 07.00 G.M.T. with KA, VK6, VS6 and CR9 abounding. He heard a W5 call KS6AB on 14140 kc/s. XZ2AD appears regularly on A1 (T8) on 14090-5 w.p.m. AC5PN has been on 14090, but no W QSOs. VK1DC (Macquarrie) operates A3 near 14150-06.00. Thirty watts to a long

wire makes him weak in W6. VK1ZM is also active. KC6AA operates on 7116 kc/s A3 around 06.00 (if we hear him in G we'll be lucky!). KC6AJ is active from Yap. C3WV is ex-C3AR and may be reissued with that call. He operates from the U.S. Embassy, Taipei. BV1US is 150 miles south of him. VS1CZ says the latest from AC5PN is that he is on 14100 kc/s daily, 07.00-19.00 L.S.T. CE0AD (Easter Is.) comes on the air each Friday at 04.00 G.M.T. on 14098 kc/s, phone and c.w. Summertime influx of questionable characters seems to be the rule again. KR4AK says he is undercover. ZC6AA still peaks 090 degrees from W6. AC0AA showed up on c.w. and declared himself to be in Sinkiang. VS6CG is reputed to know something of this gent: whether good or bad is unknown. John, '6YY, finally got up a 40 metre 2 element shortened beam. This makes four beams on one pole; 10, 15, 20 and 40!

The Southern California DX Club's *Bulletin* reveals CR10AN is active occasionally on 14070 kc/s. His name is Dick, and address, Box 24, Dilly (Dili?). We understand from W8BKP that people in Kabul knew about YA6GAL. He could be OK but undercover. A letter from YJ1DL says that seaplane airmail has been discontinued. All future QSLs will go by boat. Last, but by no means least, the DX'ER of the Northern California DX Club proclaims W6SR QSO'd XW8AB, who said he would be in Laos until April next, or longer "if his health remains good." Danny, VP2VB/P was due to leave KV4 during July. He expected to clear KZ5 around August 8 for a long trip to many Pacific spots. From VR3A: there is a new operator on Fanning whose name is Deane and he expects the call VR3B to be issued to him soon.

* * *

Which writes finis for the moment. This month could see DX breaking through even on Top Band, so keep listening and please send your findings to arrive by September 20. Good hunting and 73.

International DX Contest

THE operating periods for the International DX Contest, 1955 (formerly the World Wide DX Contest), are as follows:—

Telephony Sections: 02.00 G.M.T., October 22, to 02.00 G.M.T., October 24.

Telegraphy Sections: 02.00 G.M.T., October 29, to 02.00, October 31.

Serial numbers to be exchanged will consist of the RST (or RS) report, followed by the number of the Zone in which the competitor is located. Stations in Zones 1 to 9 will prefix their Zone number with zero, i.e., 01, 02, etc. Contacts may be in any band from 1.8 to 28 Mc/s. Three points will be scored for contacts between stations in different continents and one point for contacts with stations in the same continent. Contacts between stations in the same country score no contact points but may be made for the purpose of obtaining Zone and/or country multipliers. A multiplier of 1 is allowed for each Zone contacted on each band and a multiplier of 1 for each country worked on each band.

The contest will be divided into the following sections:—(a) single operator phone; (b) multi-operator phone; (c) single operator c.w.; (d) multi-operator c.w. There will also be an inter-club competition in which club scores will be the combined scores of members participating.

Entries, which must be postmarked not later than December 15, 1955, should be addressed to the International DX Club, P.O. Box 100, Buchanan, Michigan, U.S.A., from whom further details may be obtained.

TWO METRES AND DOWN

By F. G. LAMBETH (G2AIW)*

A FEW words must be said in praise of those operators who have been carrying the banner of Amateur Radio to the tops of the hills in various localities and who have been instrumental in giving their confrères contacts from "rare" counties. The recent activities of G5KW/P/M who, in England, Scotland and Wales recently helped to make 2 m history—as did G6AG/P/M on a similar expedition by a somewhat different route—are too well known to need any further appreciations from this column; but we must also remember the pioneers like G5MA/P, G3DA/P and many others who have done much to foster activity on the band by their operations in the open air (and sometimes the weather!). They are doing a grand job—and get a lot of fun from it. They greatly deserve the good will of us all.

The period under review contained the week-end with the best all-round conditions on 2 m for a very long time. It is generally agreed that the openings to Scotland, Northern Ireland, Eire and Scandinavia were the best ever. Norwegian and Swedish stations were worked by people who "hadn't a hope" of ever doing so, and the superlative conditions must have given great pleasure to all who were able to take advantage of them.

After July 24, which was the peak of the period, conditions gradually fell off, and although on many days since conditions have been fair to good by old standards, they were poor by comparison with the previous 2-3 weeks. Seventy centimetre enthusiasts shared in the foregoing to a lesser degree, but some unexpected contacts were made, including at least one "first" (G-EI).

Second Two Metre Field Day

The Second Two Metre Field Day was blessed with good weather but in the South conditions did not appear to be very good. Contacts over about 150 miles were difficult, to say the least, and although activity was quite good nothing spectacular was achieved. In the Midlands and North, however, things appeared to be very different, and it is from there that the higher scores are to be expected. Much adverse criticism was voiced by portable stations regarding the National Grid Reference requirement, which was very unpopular and may have kept many portables off the air on this occasion. It seems to us that the task of working out perhaps 100 distances from N.G.R.s is a quite unnecessary punishment for entering the contest.

Activity in Hungary and Bulgaria

Certain Hungarian stations have been licensed for operation on 2 m. Their call signs begin with the National prefix HG and not HA. HG5KBC and '5KBB are on twice weekly (with musical programmes and club news!). LZ2KST is active in Bulgaria.

Two Metre Portables and Mobiles

G5KW/P/M (Ken Ellis under the various disguises G5KW/P/M and GW5KW/P), complete with Hamobile, undertook a history-making tour to Rox-

burgh, Midlothian, Fife, Perth, Kincardine, Aberdeen, Ayr, Kirkcudbright, Dumfries and Wigtown. Over 200 contacts were made, many of over 500 miles. Stations in eleven countries or call-sign areas were worked: DL, EI, F, G, GM, GW, GD, GI, OZ, ON and PA. Four stations (G3GDI, '5YV '6TA and GM3FGJ) were worked whilst actually moving near Stonehaven on the way to Cairn o' Mount in Kincardineshire, with GM2FHH as second operator. F8MX (St. Valery-en-Caux) and G2AIW heard some of these contacts. From Cairn o' Mount conditions were excellent to the South and East, and many Gs and continentals had their first GM QSO in consequence. S9+ reports to and from Southern England were commonplace—outstanding was G6WU/P (1½ W input). Ken apologizes to stations not worked but there were so many calling at the peak period that it was just impossible, even by keeping QSOs short. No Gs were heard from Perthshire and only GM3DDE, '3EGW and '3FGJ were worked. GM3EGW and '6XW were worked whilst '5KW was aloft on the Forth Ferry.

From Wales, QSOs were had with five countries from Denbigh, Merioneth, Montgomery and Radnor. Conditions were fair to average. '5KW considers the best site in Denbigh to be near the "Sportsman's Arms" (over 1,500 ft. a.s.l.) where there is a good take off in all directions. The same site was used during the Two Metre Contest by GW3BOC/P, who was heard well in Kent by G5KW, but not worked. G5KW has now operated in twenty countries or call-sign areas since the war and needs something really exotic for the pontoon!

G8KW (Wilmington, Kent) operated portable from Gloucestershire, Somerset, Wilts., Berks., Hants. and Bristol from June 18-25. Since then many journeys have been made locally, on one of which G6AG/P (Westmorland) was looked for unsuccessfully, but SM6ANR and OZ1PL were worked! G8KW, with '5KW and '6AG had a three-way mobile QSO on July 19. This seems like a "first". The contact started between '6AG/P and '8KW/P; whilst they were checking the band, '5KW/M was heard en route from Folkestone. The three-way QSO ensued, and ended by all three converging on the "Bull Inn" at Swanley, where presumably the batteries were re-charged. '8KW reminds all /M and /P operators to be sure to carry their licences, when more operating time will be available, police visitations being of shorter duration!

G6AG/M/P started from Bexley early on July 16 and reached Bedford by 09.30 B.S.T. The first CQ brought back G6XM (York)—a wonderful signal for mile after mile. G2ATK/M put the Midlands on the map with a fine QSO. Later, going over Buxton, G3EPW (Bury) was worked at S9+. On three nights, G6AG was in operation from near Windermere, Westmorland, a rare county even to Midland and Lancashire stations. With only just over an hour's operating each evening it was impossible to work all who called—apologies to those who were missed. Later, three short spells of operation from Scotland, two from Burrow Head and one from Mull

*21 Bridge Way, Whitton, Twickenham, Middlesex.

of Galloway (Wigtown) provided many excellent contacts. Four stations were outstanding from the South—G6NB, '5TZ, '6TA and '3DGI. The equipment used was a G6AG mobile transmitter/receiver (phone only) using 25 W to a QV03/20, modulated by p.p. 6BW6s and a crystal microphone. The receiver is a double superhet with a 6AM4 g.g. r.f. stage. The equipment is designed to fit the car radio space in a Hillman Minx. The aerial was a "quick-erect" 4 element Yagi, 20 ft high, fed with 75 ohm co-ax cable to the folded dipole driven element.

G3FKO/P (Bath) joined forces with '3FIH for the Second Two Metre Field Day and went to a new site in the Quantock Hills, 6 miles north west of Taunton. This is clear all round from a height of 1,198 ft a.s.l. and although conditions were only fair, they increased their best distance to 195 miles solid copy with 559 c.w. each way (G5YV, Leeds). The rig has a 6AK5 p.p. a. running 4 watts input. Of thirty-four stations worked, only thirteen were portables; some of those out /P in May were conspicuous by their absence. Only G6RH was worked in the London area; only '2AIW and '6OX were heard. GW3GWA/P was heard at S7 during the last four hours and called many times without success.

G2HIF/P has recently made five portable expeditions—two locally to a site 4 miles west of Wantage, Berks., another to a point 5 miles south of Swindon, Wilts., and to Garncuby Hill, 14 miles east of York. During the Two Metre Field Day he operated from 5 miles north north west of Blandford, Dorset, with the assistance of Bournemouth radio friends G3HLW, '3JAU and '3JIH and many other willing hands for logkeeping, aerial turning etc. Very variable conditions were experienced. Although many familiar stations were heard from the North, fading was so severe that QSOs were impossible. G5YV was the longest DX signal heard with G4JJ/P (nr. Buxton) a good second. Only four others were worked over 100 miles, although some were called repeatedly. The disadvantage of a site in the south west of England under poorish conditions was demonstrated all too clearly, says '2HIF, and he accordingly made analyses back to 1950. As a result, the Midlands seem to be most favourably placed, and '2HIF is therefore planning a 16 element stack and Zone E site for next summer. As he says "if winning the Contests were the be-all and end-all, which it is not".

G3BOC/P has been out to some purpose also, and since June has visited Devon, Cornwall and Sussex with a Hamobile and a 4 element Yagi; since then he has been operating in Wales and thinks there is nothing like /P working!

Station Reports—Two Metre

G8LN (Plumstead) seems to be unlucky when DX is about, as he is either absent or screened, his home being in a valley. He pleads for the local small man, and to some extent deplores DX hunting; Field Days and contests generally, however, will always place some emphasis on DX. Remember, on 2 m you are always DX to someone! '8LN also remarks on the emptiness of the band during TV hours and says it is simple to construct a TVI proof c.w. transmitter without any special screening precautions if care is taken in matching and avoiding 48 Mc/s. Field Day was uneventful at '8LN, the longest distance worked being Wokingham (Berks.). Very little DX was heard, but a happy party was noted at G3FD/P (Danbury, Essex) with G2CD present. August 16 was good from Essex to France, G3ANB (Brightlingsea) worked several French stations. **B.R.S.19162** (Dewsbury) has been having aerial fixing trouble and is now looking into the potentialities of slots. The fact that they do not need insulation is an

advantage. **B.R.S.6327** (Earlsfield) found conditions about the same as last month, although listening time was restricted. The list of stations heard, however, includes all the highlights of the July 24 opening, so that '6327 doesn't seem to have missed much.

G8IL (Winterslow, nr. Salisbury) has settled down in his new QTH and is now fully operative with a 4-over-4 at 55 ft and 100 W, at a location 500 ft a.s.l. and clear in all directions. Ten countries, forty counties, and fourteen R.S.G.B. Regions have been worked in one month. On the famous "GM" Sunday, GM6AG/P and '5KW/P were worked, but GM3BDA/A was called for hours without success. During the Two Metre Field Day, G12FHN/P was similarly called, but did not appear to hear anything above the l.f. quarter of the band. No SM, LA or OZ stations were heard during July 16-23. DL1FF was the only DL, and ON4BZ (often heard) was on this occasion worked at poor strength. One PA0 in north-east Holland was heard but French stations came in well over the whole period. Apparently, suitable conditions reach the Western Counties relatively infrequently. **G3WW** (Wimblington) worked G6AG/P on July 19 (Cumberland) and from Westmorland on the 21st. July 22 was outstanding, with three SM7s, one PA0, three DLs and an ON4 worked. On the 23rd, '3WW fitted a mains driven auto search sweeper to his 2 m converter (see QST, July, 1955) GW3DA/P was worked in Montgomery on the 24th; on this occasion a 70 cm QSO was attempted, but although '3DA/P heard '3WW 339, '3WW could not hear '3DA. '3WW also worked GM5KW/P (Kincardine) and '3BDA/A (N. Berwick) and F3LP (S9). GC3EBK was heard (S9) but could not be raised. Since then, many DX stations have been worked and heard, but the band seems to have returned to its "spring condition" and the activity has lessened considerably.

B.R.S.16075 (Southampton) reports that there are three similar converters in use in the Southampton area (G3BHS, '5OB and '16075) all employing 6BZ7 direct coupled cascode r.f. stages and 12AT7 mixer oscillators. G5OB is now active on 2 m. TV oscillator trouble is still rife and may lead to v.f.o. working in order to find a part of the band free from television receiver "blips". The wonderful conditions to the North and Europe pleased the Southampton gang, some of whom heard their first GM. **EI2W** (Dublin) noted the main feature of the period as being the consistent signals of the better known stations, such as G5YV, '6XM, '5TZ, '6NB and '3GPT. On July 16, '5TZ was received in Dublin all evening at great strength, no other stations between the I.o.W. and Dublin being heard. The same thing happened on the path G6NB/Dublin and G2ADZ/Dublin—strong signals from these stations but nothing else. Conditions on July 20 were reasonably good, but there was little or no activity. G3DMU (Crowle, Lincs.) was an excellent signal from the East Coast—G2AIW was worked for the first time. The R.S.G.B. Field Day on August 7 was not good for DX work, but EI2W worked eleven stations during two hours. The best of these was GM3EGW (Fife). A new station, GM3BYC/A, was worked from the centre of Glasgow! Although it was raining in Dublin on the night of August 8, there was plenty of G-DX coming through, notably G3CCH, '6NB, '5TZ, and '2ADZ. August 10 was noticeable for the strength of the Scottish stations, GM6KH and '3IBV being worked for the first time this year. EI2W's QSO with GW3GWA/P during the month was the 250th different contact from his QTH. Total stations now worked stand at 258—94 per cent. of these outside Ireland. G6NB (Brill) is easily the strongest and most reliable signal and is readable in Dublin under any conditions at 255 miles.

G3EMU (Canterbury) says that when hams visit him he can never hear a 2 m signal; he has made some good recordings of Continentals "roaring in" to let them see what the converter can do. He also soothes himself with them sometimes! **G2DHF** (Blackheath, S.E.13) has worked **GC3EBK** (200 miles), **G5YV** and **'6XM** with a 4 element Yagi indoors. **G3HBW** (Bushey Heath), in a new QTH, is using a poorly-matched 3 element Yagi in a confined roof-space, but has worked thirty-nine counties and eight countries in twelve weeks. At the old location, with a well-matched aerial 45 ft up he managed similar results in four-and-a-half years!

GW3GWA (Wrexham) had a hectic month, during which he worked Somerset, Devon, Suffolk, Sussex and Wiltshire for new counties, with **GC3EBK** and **F8MX** for new countries. July 24 was the best day '3GWA has ever heard. The 2 m Field Day was marred by the usual spell of bad conditions, although the weather was fine. Only one station below Worcestershire was heard, i.e. **G5OB/P** (nr. Southampton). Apart from this station and **EI2W**, all others worked were the "usuals". '3GWA is temporarily using an indoor beam, as the outdoor feeder is broken, but hopes this will be rectified soon. It is thought that the absentees from 2 m can sometimes be found on Top Band! **G5BM** sending his last report from Cheltenham said that his QTH is now Highnam (Glos.). All his recent activity has been /P, and good conditions have been missed through inability to check the band at home. Out of ten portable expeditions the best conditions were noted on July 16 when **GC3EBK** was worked, **ON4PA** and **ON4CP** being heard. On the 24th, **GC2FZC**, **F8GH** and **DL6EHP** were good signals. On both occasions many G stations were worked, the most distant being **G6XM**, who is the most consistent northern station, being closely followed by '5YV, '3GPT and '3EPW. The site was Kilkenny, Glos., 940 ft a.s.l. On July 21, **GI3GQB** was heard at 569, but could not be raised. A holiday journey to Devon was disappointing, some locals being worked; the lack of activity in the early evenings was amazing! Conditions were poor, and only a few G-DX stations were heard.

G5MR (Hythe, Kent) has received a QSL card for his contact with **LX1AS** who confirmed that it was the first G/LX QSO on 2 m. **G5TZ** was the second, and '6NB was heard. **LX1AS** says there are eight stations in Luxemburg equipped for 144 Mc/s, but only '1AS and '1SI are really active. '1AS hoped to take part in the European Two Metre Contest. **G5MR** wishes the rules for this contest could be published in full. **G8PX** (Oxford) missed the good conditions, and worked a few northern stations only. On August 1, '8PX went out with a new /P rig with 2½W input to a 12AT7, which was enough to raise **G5YV**, '3EPW and '3DLU, among others. **G3NT** (Northallerton) who reports for the first time, has been on 2 m since May, 1954, but has recently been getting out much more successfully.

News from Scotland

GM3BDA/A has been working at Bonnington, a farm near North Berwick, the site being 240 ft a.s.l. '3BDA has received sterling assistance from the farmer in beam raising and other necessary jobs. The site is an excellent one, and although it is usually rather late when '3BDA arrives, there is generally some interesting stuff to be worked and heard.

The big story this month started as soon as the 16 element stack was erected. After trouble with the mast, this was left with the aerial only 20 ft up. Operations began on July 20, and on the 21st DLs were heard and worked. **SM6ANR** was heard on the 22nd. On the 24th, 18 Gs, mostly southern, were worked in quick-

fire order and two F stations (believed to be '3LP and '8MX) were audible, as also was an unidentified GC station. Later, **OZ2IZ** was contacted, after he had signed with **GM5KW/P** and **GM6ZV**. The OZ was on phone, and just like a local. July 25 was PA0 night; nine were worked in a row, mostly on c.w. Two outstanding ones were **PA0YT** (Leeuwarden) using 50 watts to an indoor folded dipole, and **PA0TAU** with a quarter watt from a small v.h.f. v.f.o. **G5YV** also worked this fly-power station; **PA0TAU** has QSLd. Almost unbelievable! After that a couple of DLs were contacted, but conditions gradually deteriorated. The good conditions seem to have favoured Eastern Scottish stations. **GM6KH**, who was on holiday at St. Monace (Fife), just across the Forth from North Berwick, could hear the Continentals on simple portable gear, and worked two of them. Although Edinburgh is not well placed for DX working **GM3FGJ** raised some of the PAOs on the 25th. In the Clyde Valley and the West generally, the E-DX was not so well received. **GM6ZV** had a QSO with **OZ2IZ**, and '3IBV (Larkhall, and better placed than most) was hearing most of the stronger DX signals. Many of them seemed to emanate from stations not more than 20 miles from the European coast and seemed also to attenuate very quickly between east and west Scotland. The absence of QSB, when signals were at their best, has been widely noted. The absence of ocean swell, indicating windless conditions for several hundred miles out in the Atlantic was also noted, and led to the hope that W or VE stations might be received, but as far as we know, none was heard. Apart from the above, Scottish activity continues much as usual, but there are still far too many counties without 2 m activity, except for the occasional enterprising portable station.

GM6WL (Glasgow) also reports much of the above activity, and says Glasgow is extremely happy to have had a first Continental QSO (**GM6ZV/OZ2IZ** mentioned above). '6ZV has lately been in contact with **GM2FHH** (Aberdeen) and with '2DRD (Forfar) who has re-appeared on 2 m. **GM2HCJ/P** (from Lancs.) has been much in evidence, and was at Lowther Hill, Dumfries, on Field Day. August 4 was good, and **GM6WL** worked **G5BD** and '6XX. **GM3FOW** worked **G5YV** and '3GPT.

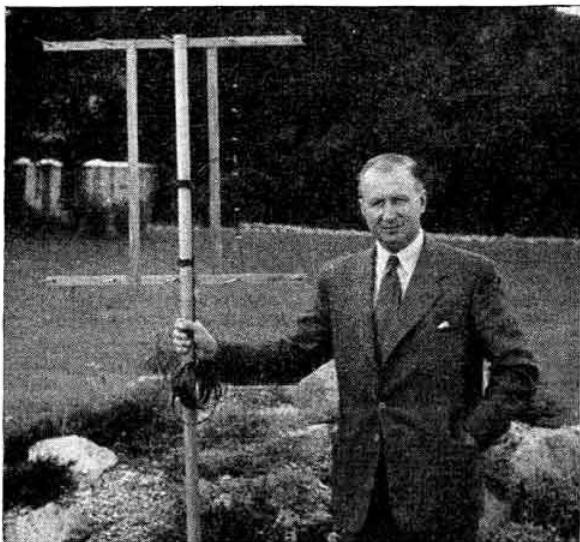
GM3EGW (Dunfermline) had several QSOs with '5KW/P including the "maritime" mobile one on the Ferry, and considers the whole thing a valiant effort. DLs were audible on July 22, but none was worked; on the 22-23 conditions were good to the south; several G stations and **EI6A** were collected. July 24 looked like good conditions, and when '3EGW arrived home that evening he was soon told by **G6XM** (S9++) what he had missed! **F8MX** (nr. Dieppe), a new country, also told '3EGW what he had missed, and so did many others, including **G3DOV**, **PA0BX** (who had himself worked a string of Gs) and **ON4BZ**. July 25 was marred by feeder breakage, but not before another new country (**DL1LB**) had been added. **G3GPT** has been an outstanding signal lately, and **G3KFD** has been called ... and called. **GM2FHH** (Aberdeen) after being with '5KW/P at Cairn o' Mount ("astounding") found the following night (July 25) excellent, and again worked many Gs including '5TZ (I.O.W.), the best G-DX so far.

LONDON U.H.F. GROUP

will meet at the Bedford Corner Hotel, Bayley Street,
Tottenham Court Road,
at 7.30 p.m., October 6, 1955.
All u.h.f. enthusiasts welcome.

Hertfordshire Two Metre Net

This net was informally inaugurated on July 18 by four members of the Welwyn Garden City Group. Crystals for the spot frequency of 145.8 Mc/s have been purchased in quantity from Whittaker of Burnley and the transfer of the Mid Herts Net from Top Band to 2 m is proceeding apace. Believed to be the first of its kind, it should be fully operative by the time the winter QRM makes Top Band so difficult. It would be pleasant to think that other R.S.G.B. Groups will be starting similar Nets, each being about 20 kc/s, removed from its neighbours. A list of suggested frequencies would be useful.



THE AERIAL THAT MADE HISTORY

ELI2W with the 5-over-5 Yagi used by him in making the first 70 cm contact between Ireland and England (G5YV).

Seventy Centimetre News

G2QY (Pinner) asks why no mention of G2XV's terrific 70 cm signal on July 16. Sorry, OM we don't seem to have had a previous report of this, but are now happy to oblige. '2XV usually comes in to Pinner from the south, and then only rarely, due to hill screening, but this time the signal was from the correct direction. F9CQ was received on August 3 at S9/4 for one-and-a-half hours, having converter trouble, in QSO with G2DDD. On the 5th and 17th his signals were at S5. Earlier in the month F9CQ was heard on 436 Mc/s but on August 17 changed to 435.1 Mc/s. G2XV (Cambridge) worked GW3DA/P (Montgomeryshire) on July 24. Modifications have been made to the converter which, it is hoped, will prove of value in the 70 cm contest this month. '2XV says local activity has reached an all time low which at least takes care of the QRM question. G3WW (Wimblington) recently called G2WJ without success, but worked G5AM who said he had been calling CQ almost fruitlessly.

G2DDD (Littlehampton) has had an eventful time on 70 cm. G5YV has been copied twice, but so far no QSO has resulted. On an arranged test on July 24 '5YV was again copied, but could not hear '2DDD. F9CQ has been worked at 50 miles several times at S9 and has been audible with the aerial completely disconnected

from the change-over panel, leaving only one foot of 300 ohm line on the converter. F3LP (Le Havre) was given his first 70 cm contact at S9 phone (both ways) on August 15. '2DDD did quite well on 2m also, and worked 16 new stations in Lancashire, Cheshire and Aberdeen for new counties, and, of course, Scotland for a new country. G2DSP (Bognor Regis) and '2DDD would particularly welcome 70 cm skeds with stations along the South Coast. In addition, '2DDD always (weather permitting) calls CQ Northward on Wednesdays, Saturdays and Sundays at 19.00 hours clock time, and at noon on Sundays. G8PX (Oxford) has completed his G2DD-type converter, while a new transmitter of the G8SK-type is under way—this uses a 6J6 as a power doubler. It is hoped to go /P "on a bump" in this month's tests. The QRO rig is having an overhaul, '8PX will work from home or /P, depending on the weather. G5UM (Knebworth) tells us that the Mullard QOV03/10 is an excellent tripler (144/432 Mc/s). It will give about 3 watts of r.f. out for 12-15 in. It is suggested that it should be used as a driver for the larger QOV03/20. This would make possible the use of a straight-through p.a. and do away with the common modulated tripler, which has been difficult hitherto owing to lack of suitable valves. The QOV03/10, by reason of its high r.f. output on 70 cm, would in any case make a far better modulated tripler than does the 832A.

G3KEQ (Sanderstead) has now worked 42 stations on 70 cm, two new ones being G2DDD and F9CQ, both over rising ground up to 800 ft, so it can be done! The sked with G2FNW has not been quite so good lately, but perked up on August 16 when another QSO resulted. '3KEQ has been working 2m also, and now has GM3BDA/A, GW3INV and '4JJ/P for best DX.

The following is G2RD's 70 cm. Activity Report for the period July 22 to August 20:— F9CQ (436.1), G2AIH (435.15), '2CD (435.35), '2DD/M (434.82), '2DDD (435.66), '2DSP (434.97), '2FKZ (435.95), '2FNW (433.3), '2QY (435.1), '2RD (435.53), '2WS (434.37), '2XV (435.1), '3EOH (434.55), '3FP (435.02), '3FSD (435.42), '3GDR (435.35), '3IRW (434.4), '3IOO (432.8), '3JHM (434.92), '3KEQ (435.05), '3MI (434.13), '5DT (434.9), '5UM (434.37), '5YV (433.23), '6NF (435.46), '8SK (435.1).

* * *

It looks as if conditions are going to improve again, so good hunting—and please send reports to reach the writer by September 21. Thank you!

LONDON MEETINGS

The following programme of meetings at the Institution of Electrical Engineers, Savoy Place, Victoria Embankment, London, W.C.2, has been arranged.

October 28, 1955: "AMATEUR RADIO IN THE ANTARCTIC—a review of VK Activity 1947-1955." By Roth Jones (VK3BG). (The paper will be read by Arthur O. Milne, G2MI and will be illustrated by films and slides.)

November 11, 1955: "COMPRESSED BEAMS" by G. A. Bird (G4ZU).

December 16, 1955: Annual General Meeting and Presentation of Trophies.

January 27, 1956: Presidential Address.

February 24, 1956: 420 Mc/s Evening arranged by members of the London U.H.F. Group.

March 23, 1956: Subject to be announced later.

Worked and Heard on Two

B.R.S.3003 (Coulson) August 8-18.

Heard: F9CQ, G2BVM, 2DDO, 2FTS, 3ANB, 3DIV, 3FAN, 3GHO, 3INU, 5MR, 5TZ/A, 6UH, 8IL, 8PX, GC3EBK.

B.R.S.6327 (Earlsfield) August 2-18.

Heard: DL1AH, 1LB, 9MZ, F3JM, 3LP, 8MX, 8RK, 8YG/P, 9EA/P, 9JY, 9QJ, G2DXU/P, 2FNW, 2XV, 2YB, 3BHJ/A, 3CAV, 3FGT, 3FQS, 3GHO, 3GHY, 3GJ, 3GNR/P, 3GOZ, 3IIT, 3JHM, 3WVS, 3WW, 3XC/M, 4AV, 4CI, 5JU, 5LK, 5NV/A, 5TZ, 5YK, 5YV, 6JJ, 6NB, 6OH, 6XM, GC3EBK, GM3EBK, 5KW/P, 6AG/P, GW3FYR, ON4CP, 4HN, PA0BN, ODS, ODSW, OGER, OHAP, OROB, OSK, OUHF.

B.R.S.16075 (Southampton) July 19-August 13.

Heard: F3LP, 9CQ, 9EA/P, G2AIW, 2BAT, 2BMZ, 2DIO, 2DVO, 2HDZ, 2HCG, 2FJR, 3ANB, 3AUS, 3BNC, 3CQZ, 3DLU, 3FIH, 3FMO, 3GHO, 3GHU, 3GJZ, 3GPT, 3IID, 3IIT, 3IOO, 3WW, 4GR, 4MW/M/P, 5DS, 5RG, 5YV, 6AG, 6JK, 6NB, 6OX, 6SG, 6SN/P, 6UH, 6XM, GC2FZC, 3EBK, GM5KW/P, GW2ACW.

B.R.S.19162 (Dewsbury) July 19-August 17.

Heard: G2ATK, 2AXQ/A, 2BVW, 2FNW, 2HOP, 2WJ, 2XV, 3DA, 3ENS, 3ERD/P, 3GT, 3GHO, 3GSO, 3GWB/P, 3GJZ, 3IIT, 3IHW, 3JZN, 3KFD, 3NT, 3WS, 3WW, 5AU, 5BD, 5TZ, 6AG, 6CW, 6MN/P, 6NB, 6RH, 6TA, 6AL, 8AL, 8MN, GW3JTP.

E12W (Dublin) July 11-August 11.

Worked: G2ADZ, 2AIW, 2ATK, 2CBR, 2HCJ/M/P, 2HGR, 2HOP, 2NY, 2OI, G3ABA/P, 3AGS/P, 3AIQ, 3BOC/P, 3BPJ, 3BVM, 3CCH, 3DA, 3DA/P, 3DLU, 3DMU, 3DO/M, 3ENY, 3EPW, 3FGT, 3FIH, 3GHO, 3GHU, 3GPT, 3GOR, 3GWB/P, 3HAZ, 3HTY, 3JPI, 3IER, 3IOO, 3IUD, 3IYW, 3JZN/P, 3WW, 5TZ, 5YV, 6KK, 6LC, 6MI, 6NB, 6TA, 6WF, 6XM, 6XX, 6AL, 8BP, 8IL, 8ML, 8SB, 8VN, 8QY/P, G12FHN/P, 3AXD, 3CWCY, 3GQB, 3GXP, GM2HCJ/P, 3BDA/A, 3BCY/A, 3DDE, 3EGW, 3IBV, 6KH, 6WL, GW2XV/P, 3BOC/P, 3GOP/P, 3GWA/P, 3FYR, 5KW/P, 8SU, ON4BZ, Heard: DL3VP, G5JU, 6XV, ON4UD.

G2AIW (Twickenham) July 21-August 21.

Worked: F3LP, 8MX, 8OB, 9CQ, G2BMZ, 2CIW, 2CVD/P, 3ABA/P, 3DLU, 3EPW, 3FGT, 3FMI, 3GCX/P, 3GHU, 3GPT, 3IIT, 3IUK, 3JZN, 3KHA, 4GR, 4JJ/P, 4J/A, 5TZ, 5YK, 5YV, 6CW, 6LC, 6WF, 6XM, GC3EBK, G13GQB, GM2FHH, 3BDA/A, 5KW/P, 6AG/P, GW3DA/P, 3BOC/P, 3GWA, 5KW/P, ON4BZ, 4HN, PA0FB, 5M6ANR.

G2CZS (Chelmsford) July 20-August 20.

Worked: G2HOP, 3ENY, 3GQX, 3IOO, 3KHA, 3YZ/P, GM5KW/P. Heard: E14N, F9CQ, G3AGS, 3DLU, 3DMU, 3FGT, 3GPT, 3KBL, 4JJ/A, 5OB/P, GM3BDA/A, GW3DOV/P.

G2DHY (London S.E.13) July, 1955.

Worked: G2DSP, 3JMA, 5YV, 6XM, GC3EBK.

G2HIF (1) near Wantage; (2) near Swindon; (3) near York;

(4) near Blandford.
(1) July 8. Worked: G3GYQ, 3IEY, 3IRA, 5BM/P, 5BD, 6JK.
(2) July 10. Worked: G2BRR, 2GPT, 4SA, 6OU, 6ZP, 8UQ/P, 8VP.
(3) July 24. Worked: G3DGI, 3DMU, 3DJQ, 3GCX, 6XM, 8IC, 8UQ/P.

(1) July 31. Worked: G3IEY, 3YZ/P, 5DS, 5ML, 6TA, GW3DO/P.
(4) August 7. Worked: G2ADZ, 2DXU/P, 3ABA/P, 3AUS, 3AZT/P, 3CBU/P, 3DVO/P, 3FKO/P, 3GAV, 3GOP/P, 3GWB/P, 3IER, 3ION/P, 3KHA, 3MU, 3XC/P, 3YZ/P, 4JJ/P, 5BM/P, 5OB/P, 5YV, 6JK/P, 6RH, 8IL, 8UQ/P, GW2ACW, 5BI. Heard: G3AGS/P, 3DVK/P, 3ERD/P, 3FRG/P, 5JU, 5KW, 6XM, 8QY/P, GW3GWA/P.

G3DO/P (near Bromyard, Hereford) July 29.

Worked: G2ATK, 3BJQ, 3CCH, 3DMU, 3EJO, 3FJR/P, 3GBJ, 3GHO, 3HTY, 3KFD, 3NL, 5YV, 6NB. (Kimbolton, Hunts)
August 5. Worked: G2ANS, 3FQS, 3GHO, 3HBW, 3IIT, GW3DO/P (Knighton, Radnor) July 31. Worked: G2HIF/P, 3EJO, 3FGT, 3GZM, 3HAZ, 3HTY, 3IER, 3KFD, 3YZ/P, 6FK, GW5KW/P (Montgomery).

G3BOP (1) near Torquay; (2) Exmoor; (3) Brightling, Sussex.

(1) June 16-18. Worked: G2BDO/M, 2BMZ, 3AUS, 3DLU, 3FAN, 8DA, GC2FZC. Heard: G2ADZ, 3EES, 3FIH, 3GVF, 3MU, 3WW, 5YV, 6OX.
(2) June 23-25. Worked: G2BAT, 2CVD/M, 2HSD, 4GR, 8KW/P, GW5BI, 8SU, 8UH. Heard: G3DLU, 3FIH, 5TZ, 5YV.
(3) July 2 only. Worked: F8GH, 9CQ, G2MY, 3GSM/A, 5KW/P, 5MR, 6AG, 8AL, 8KW/P, 8UQ/P. Heard: F3LP, 3ND, G3FAN, 3NL, 3GSE, 3MI, 5TZ.

G3EMU (Canterbury) July 16-August 16.

Heard: G2VA, 2FJR, 3WS, 3DLU, 3GSM, 3IYW, 4AU, 5MR, 5TZ, 5YV, 6CW, 6NB, 6RH, 8BJ, GC3EBK, DL1LB, ICD, ON4BA, 4CP, 4DW, 4HN, 4OZ, PA0ES, OVIM.

G3FKO (near Taunton) August 7 only.

Worked: G2ADZ, 2BAT, 2BMZ, 2BRR, 2CVD/M, 2DXU/P, 2HIF/P, 3MA, 3MU, 3YH, 3YZ/P, 3XC/P, 3ABA/P, 3AUS, 3AVF, 3CQZ, 3DLU, 3GOP/P, 3GWB/P, 3GWH, 3IER, 3ION/P, 3KHA, 4JJ/P, 5BM/P, 5JU, 5OB/P, 5YV, 6RH, 8DA, 8IL, 8UQ/P, GW2ACW, 5BI. Heard: G2AIW, 5KW/P, 6OX, GW3GWA/P, E12W.

G3HBW (Bushey Heath) July 5-August 10.

Worked: DL1LB, G3ABA/P, 3ANB, 3AZT/P, 3DLU, 3DO/P, 3EPW,

3FRG/P, 3GPT, 3GWB/P, 3HAZ, 3IEX, 3ION/P, 3IUD, 3IYW, 3JHM/P, 3JNI, 3NT, 3YZ/P, 4GR, 5BD, 5MR, 5OB/P, 5YK, 6JK/P, 6ZP, 8IL, 8NM, 8QY/P, 8SB/P, 8VN, GC2FZC, 3EBK, GM2FHH, 3BDA/A, 5KW/P, GW8UH, PA0BL, OUHF, 5M6ANR. Heard: DL1FF, 1VH, 3VJ, 9MK, E12W, F3LQ, 9JY, G2ADZ, 2ATK, 2BMZ, 2BVW, 2DDO, 2DRA, 2DSP, 2FJR, 2FNW, 2FO, 2HGR, 2JF, 3AGS, 3ARX, 3CCH, 3DJQ, 3DMU, 3DVK, 3ENY, 3FGT, 3FIH, 3FMI, 3GHU, 3GVK, 3INU, 3IOO, 3IUK, 3IVF, 3KFT, 3KHA, 4JJ/A, 5BM/P, 5YV, 6FK, 6LI, 6SN, 6UJ, 6XM, 6XX, 8BP, 8IC, GW3EJM, 3GWA/P, ON4BZ, 4UD, OZ1PL, PA0DSW, OGER, OHA, OSK, OUU, OWO, 5M7BE.

G3NT (Northallerton) July 20-August 17.

Worked: G2ATK, 2BDO/P, 2DRA, 3DMU, 3DVK, 3FGT, 3GPT, 3GHO, 3IOE, 3IOO, 3IUD, 6AG/P, 6NB, 6TA, 6XM, 8IC, 8IL, 8PX, 8SB, 8BP, GM2FHH, 3BDA/A, 3EGW, 3ENY, 3FGJ, 3IBV, 5KW/P. Heard: G2YB, 2BVW, 2FJR, 3GJZ, 3GYV, 3KFD, 5TZ, 6LC, 6RH, GC3EBK, E12W, 6A, F8MX, 9JY, ON4BZ.

G3WW (Wimblington) July 19-August 14.

Worked: DJ1VV, DL1FF, 9QV, F3LP, G3AGS, 3AKU, 3BJQ, 3CVO, 3FIB/P, 3GGJ, 3IIT, 3IVF, 4FO, 4GR, 5AM, 5YV, 6AG/P, 8SB/P, GM3BDA/A, 5KW/P, GW3DA/P, 3GWA/P, ON4UD, 4ZK, PA0HA, 5M7BE, 7BYZ, 7BZX. Heard: G3GJV, 5ML, 5TZ, 6RH, GC3EBK.

G5MR (Hythe, Kent) July 20-August 18.

Worked: F3CA, 3JN, 3LP, 3SK, 8ME, 8OB, 8YO, 9CQ, 9DI, 9FB, 9ND, 9NN, 9NW, 9RL, G2ATK, 2DSP, 2VB/P, 2YB, 3FD/P, 3GOP, 4IB/P, 5KW/P, 5YV, 6NB, 8IL, LX1AS. Heard: F3GL, 3IN, 3LO, 3ND, 8GH, 8MX, 9IR, 9JY, 9QE, G2AHP, 2AIW, 2DDO, 2HCG, 2HGR, 2KF, 2XV, 3CLW, 3CNF, 3DLU, 3ENY, 3FAN, 3FGT, 3FMI, 3GDR, 3GHO, 3GHU, 3GOZ, 3GPT, 3GWB/P, 3GZJ, 3HII, 3HXS, 3IAM, 3IOO, 3IRS, 3JHM, 3JHM/P, 3JXN, 3VI, 3WS, 3WW, 5DS, 5OB/P, 5TZ, 6AG, 6OD, 6RH, 6UH, 6XM, 6XY, 8KW, 8KW/P, 8MW, 8SC, ON4BZ, 4UX, PE1PL.

G6AG/P (1) Westmorland; (2) Cumberland; (3) Cheshire

July 16 onward.
(1) Worked: G2BVW, 2FJR, 3DGI, 3EPW, 3FGT, 3IIT, 3WW, 5BD, 5YV, 6NB, 6RH, 6TA. (2) Worked: G2BVW, 2HDZ, 2HGR, 3BJQ, 3EPW, 3FGT, 3HTY, 3WW, 5TZ, 5YV, 6LC, 6RH, 6TA, 6XM, GW3GWA. (3) Worked: G2ATK, 2HGR, 3CVO, 3DGI, 3IIT, 3NT, 3WW, 5DS, 5YV, 6XM, GW3ITF/P.

G8II (Winterslow) July 16-August 14.

Worked: E12W, F3LP, 9JY, 9NN, 9QE, G2ATK, 2BAT, 2BMZ, 2CZS, 2DSP, 2FJR, 2HIF/P, 2HGR, 2HOP, 2JF, 2MQ, 2VA, 3ABA, 3AEX, 3AKU, 3AGS, 3ANB, 3AZT/P, 3BPD, 3CBU/P, 3CQZ, 3CUZ, 3DA, 3DLU, 3DMU, 3DQO, 3EGG, 3EPW, 3FD, 3FJR/P, 3FKO/P, 3FMI, 3GHU, 3GJZ, 3GPT, 3GWB/P, 3HBW, 3HII, 3HTY, 3IIT, 3IOO, 3ION/P, 3INU, 3IUD, 3IVF, 3JFR/P, 3JHM, 3JXN, 3KEQ, 3KFT, 3KHA, 3NT, 3VI, 3WW, 3XC/P, 3YZ/P, 4JJ/P, 4MW/P, 5DS, 5MR, 5VN/A, 5YV, 6AG, 6JK/A, 6TA, 6WF, 6XM, 8AL, 8MW, 8SB/P, 8VN, GC3EBK, GD3UB, G13CWCY, GM5KW/P, 6AG/P, GW2ACW, 3GOP/P, 3GWA, ON4BZ, PA0ES, 0ID. Heard: DL1FF, G12FHN/P, GM3BDA/A, GW3BOC/P, 3DA/P, PA0PN.

GM2FHH (Aberdeen) July 20-August 17.

Worked: DL1LB, 3QH, G2AIW, 2FJR, 3NT, 3DDE, 3DMU, 3DGI, 3DVK, 3DPT, 3HBW, 5BD, 5DS, 5TZ, 5YV, 6NB, 6XM, 8KW, GM2DRD, 3FGJ, 3IBV, 5KW/P, 6ZV, ON4BZ, PA0BX, 0BZ, 0ES, ODSW, OGER, 0HRX, 0LBS, 0RK, 5M6ANR, 7XV.

GM5KW/P (Kincardine, etc.) July 20-27.

Worked: DL1LB, 3OH, E16A, F8MX, GD3UB, G13CWCY, GW3ITF/P, ON4BZ, OZ2IZ, 3EP, 7SP, PA0BX. Heard: F3JN, 3LP, 5M6ANR.

GM6AG/P (Wigtown) July 23-24.

Worked: G2AK, 2NY, 2AIW, 2BVW, 2FJR, 2HOP, 2HPY, 3BJQ, 3BOC, 3COZ, 3DGI, 3DLU, 3DMU, 3EPW, 3FAN, 3FGT, 3FJR, 3GHO, 3GPT, 3IER, 3IUD, 3IYW, 3DO/M, 3YZ, 5BD, 5TZ, 5YV, 6CW, 6FK, 6NB, 6RH, 6TA, 6WF, 6XM, 8IL, G13CWCY, 3GXP, GM3DDE, 3EGW, 5KW/P, GW3BOC/P, 3GWA.

GW3GWA (Wrexham) July 20-August 18.

Worked: G2ADZ, 2AIW, 2BVW, 2HDZ, 2HOP, 3CKO, 3DLU, 3FAN, 3FGJ, 3GJZ, 3GNR/P, 3HWJ, 3IER, 3IIT, 3ISA, 3WS, 5DS, 5US, 6AG/P, 8IL, GC3EBK, GM6AG/P, F8MX.

Regional V.H.F. Ladder

TWO METRE BAND 1955/6

Psn.	Call & Location	Worked		
		Regions	Countries	Stations
1.	G5YV Leeds, Yorks.	15	13	268
2.	G2AIW Twickenham, Mx.	15	12	93
3.	G8IL Winterslow, Wilts.	14	10	103
4.	G6TA Streatham, London	14	9	146
5.	G3CCH Scunthorpe, Lincs.	14	5	43

Mobile Column

By JOHN A. ROUSE (G2AHL)*

THE Mobile Rally to be held at the Perch Inn, Binsey, Oxford, on October 9, promises to be one of the high spots of the mobile season, providing as it will not only an opportunity to discuss the various aspects of mobile work but also a chance to look over the other fellow's gear, hear his experiences and swap ideas.

Those who intend going—and it is hoped that as many as possible will—are asked to let the Organizer, G3GJX, know as soon as possible (a QSL card to 51 Home Close, Wootton, near Abingdon, Berkshire, stating, if possible, the number in the party requiring tea, is all that is necessary). A map showing the venue can be obtained from the same address by sending a stamped addressed envelope. If you still get lost, the Rally stations on Top Band, 3.5 and 144 Mc/s will be ready to help (see page 87, August, 1955, and the box announcement in this issue). These stations will, of course, welcome contacts with all mobiles approaching the City.

Among those who hope to be present is W3WAM who has promised to bring along some typical American mobile gear.

Out and About

G5KW/M and G6AG/M have both made extensive trips recently to Scotland and their results are reported in detail in *Two Metres and Down*. Some of their outstanding contacts are, however, worth mentioning here as they do show what can be done with 2 m mobile equipment. On July 24, whilst on the move on high ground near Aberdeen, G5KW/M worked G5YV (Leeds) and G6TA (London), followed by G3DGI. What was probably the first continental contact for 2 m mobile was made by G6AG/M when he worked F9CQ on August 16 while travelling near Knockholt, Kent. Contacts with G5TZ and G3FAN followed.

While on holiday, G3HLQ visited Islay in the Hebrides from where, on high ground behind Port Charlotte with an Army 22 set and 8ft whip, he regularly worked all over Scotland and Northern Ireland. One interesting contact was with GM4PW/M (Ayr), G12DZG (Belfast) and GM5PP/P (Skye). On another occasion while working G13IFD, both G3HLQ/M and GM4PW/M were called by a German station believed to be DL3RZ. Unfortunately a QSO did not result.

Members of the Oxford and District Amateur Radio Society, sponsors of the Mobile Rally, work mobile on their way to meetings on club nights. One of their members, G3HYZ/M, operates on Top Band, 3.5 and 144 Mc/s from his cabin cruiser and has just completed two trips on the Thames. On the first occasion skeds were made in advance and contact maintained with G3GJX, G3ERF and G3GCS on 1.8 Mc/s phone throughout the journey to Teddington. The best contact was with G3ERF at a distance of over 70 miles—not bad for a c.o.p.a. transmitter running about 4½ watts, a battery superhet and a base loaded 8ft whip. G3HYZ mentions he was surprised that his CQ calls on Top Band as he neared London met with such a poor response from that area.

G2DHV/M, another inland water mobile, has recently been active in Essex and Suffolk. He is modifying a 38 set for Top Band use.

G3WW/M is very active with his modified ZC1 Mk II and has recently worked mobiles G5CP, G6WA,

G3BK, G3FUR, G5UA, G3IUR and G3EEL (on the River Nene). '3WW says that reception is much improved since he fitted a tuned circuit consisting of a buffer coil and variable condenser from a BC610 tuning unit to the input of the receiver, link-coupling it with 5 turns to the aerial on relay A3. When '3WW mounted the gear in the boot of his car, some trouble with the length of the microphone cable was experienced. He found the cure was to screen the microphone return lead but *not* earth it at the microphone end. A source of supply of replacement vibrators for the ZC1—preferably at surplus prices—would be welcome. G3AHF/M (Weaverham, Cheshire) will be active in the Bristol, Cardiff and Glasgow areas during the next few months using a ZC1.

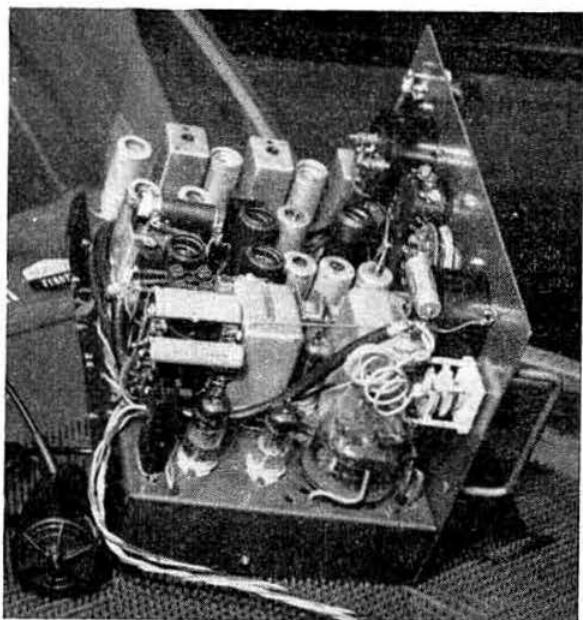
The ZC1 Again

From G3IUR come details for modifying the popular ZC1 for home station use from a normal mains power supply without upsetting its original mobile facilities.

The low voltage requirement of the ZC1 using its internal power supply is 12 volts at about 5 amps; if a transformer and rectifier unit is built to supply this not only must the regulation be very good but the output must be fully smoothed otherwise the residual 50 c/s mains ripple will beat with the 120 c/s frequency of the vibrator and an objectionable "hunting" noise will be apparent on the carrier.

Fig. 1 shows how the ZC1 can be modified so that h.t. and l.t. from a mains power pack can be fed into the unit without destroying any of its original features. H.T. requirements are 310 volts on "receive" and 260 volts on "send" (measured at the output of vibrator pack), the loads being 50 mA and 100 mA respectively. The heater current is 12.6 volts at 2 amps.

Unfortunately the relays cannot be operated from a.c. and a 12 volt d.c. supply must therefore be provided for them. As the load is only about 300 mA this presents little difficulty and a small transformer and



G3XC's compact 2 m mobile transmitter-receiver, which will be described in detail in a forthcoming BULLETIN constructional article.

*Assistant Editor, R.S.G.B. BULLETIN.

rectifier with a 1000 μ F capacitor across the d.c. output will be quite satisfactory.

A Belling-Lee 10-way socket should be mounted on the front panel in the position usually occupied by the watch holder, the wiring being diverted and broken at the socket as indicated. The ringed numbers show to which pins the wires should be connected. When a dummy plug strapped as shown is inserted in the socket the circuit is restored to its original form for mobile work. Another 10-way plug connected as indicated at the top of the drawing can be used to connect the

contains tables giving details of vibrators and ex-Government dynamotors which should prove useful to mobile operators.

The A.R.R.L. has announced publication of the *Mobile Manual for Radio Amateurs* which runs to 352 pages and 400 illustrations; nearly all the material has already appeared in *QST*. The publishers describe the volume as "a veritable encyclopædia on mobile techniques—design, construction, installation and operation." It is hoped that copies will be available from R.S.G.B. Headquarters shortly. The price is not yet known.

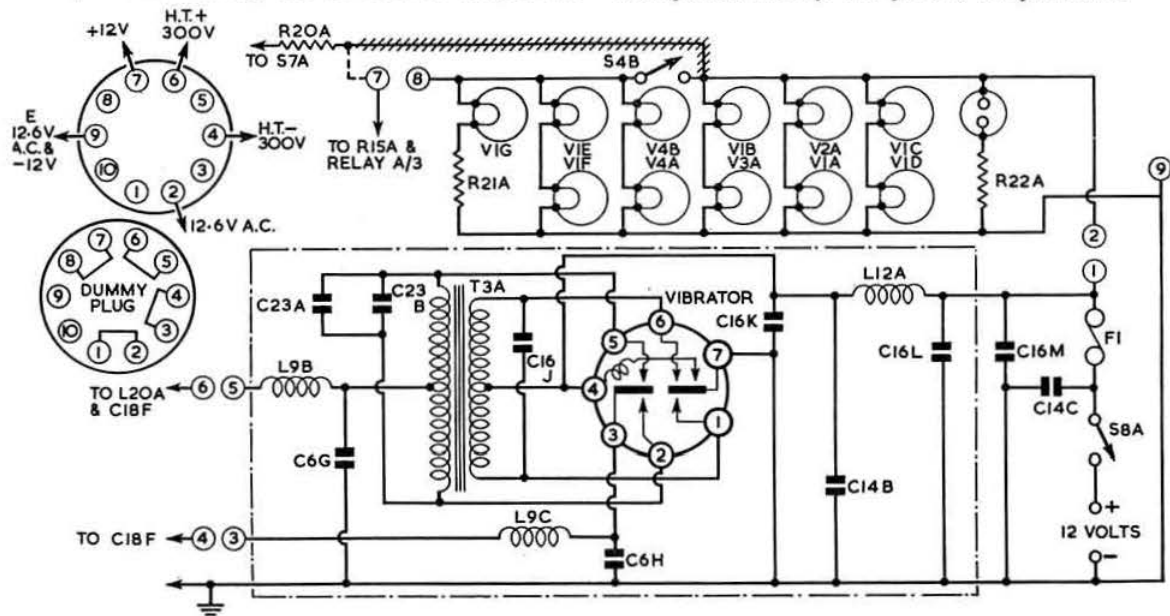


Fig. 1. The power supply section of the ZC1 showing how the 10 way socket is wired to permit optional home station use.

external power pack and 12 volt 300 mA d.c. source for home use.

It should be noted that the circuit shown in Fig. 1 is for an unmodified ZC1; if the set is generally used in a car with l.t. positive earthed and has been modified accordingly, this should be taken into account when carrying out the modifications described above.

The link coils on the two p.a. tank coils in the ZC1 are very small and for this reason the 6V6 p.a. cannot be loaded up to more than $4\frac{1}{2}$ to 5 watts. The loading may be increased by removing the existing $2\frac{1}{2}$ turn links and winding $6\frac{1}{2}$ turns over the "cold" end of the l.f. coil and $4\frac{1}{2}$ turns over the "cold" end of the h.f. coil. When this has been done the p.a. can be loaded up to at least 9 watts using the internal vibrator pack. In the original circuit the two link coils are in series but they may be separated and connected individually to the aerial tuning unit by using the spare contacts on the transmitter band switch.

Enquiries are often received from members wishing to carry out more extensive modifications to the ZC1, generally with a view to using considerably higher power. While such modifications have been successfully carried out it is felt that the equipment does not really lend itself to such treatment. In any case, such radical changes appear to destroy the ZC1's obvious attraction as a single package unit.

Sources of Information

The August and September issue of *Radio Constructor*

The next *Mobile Column* is scheduled to appear in the November issue of the *BULLETIN*; reports and comments by October 20 will be much appreciated, as are those quoted this time. Meanwhile, the writer looks forward to meeting many mobile operators at Oxford on October 9.

Hats Off

TO the radio amateurs of the United States who rendered invaluable service to the distressed areas during the recent disastrous floods in the North-eastern and Middle States.

Newspaper accounts of the floods pay high tribute to the efficiency with which amateur operators performed their arduous and often hazardous duties.

Leading one of the teams in the ravaged areas of Port Jervis and Newfoundland, Pennsylvania, was David Marks ("Uncle Dave," W2APF of Albany, N.Y.), while the Red Cross station W2GTE, manned by members of the New York Radio Club, maintained day and night contact with the flooded areas of Connecticut and other New England states.

LONDON MEMBERS' LUNCHEON CLUB

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

at 12.30 p.m. on Fridays, September 16 and October 21, 1955.

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

Society News

Election of Council for 1956

IN accordance with Article 55 of the Society's Articles of Association the Council have nominated the following Corporate Members to fill the vacancies in the Council which will occur on December 31 next.

Officers:

President, Mr. R. H. Hammans, G2IG.
Executive Vice-President, Mr. D. A. Findlay, G3BZG.

Ordinary Members:

Mr. W. H. Allen, G2UJ.
Mr. F. Hicks-Arnold, G6MB.
Mr. F. G. Lambeth, G2AIW.
Mr. L. E. Newnham, G6NZ.
Mr. F. A. Russell, G3BHS.

Mr. L. Cooper (G5LC) was invited to accept nomination but declined for business and personal reasons.

Not later than October 24 next, any 10 Corporate Members may nominate any other Corporate Member to serve on the Council by delivering their nomination in writing in a single document to the Secretary, together with the written consent of such nominee to accept office if elected but each such nominator shall be debarred from nominating any other person for this election.

Zonal Representatives

Not later than October 24 next any 10 Corporate Members resident in Zones A, E and F may nominate any other duly qualified Corporate Member to serve as a Zonal Representative on the Council by delivering their nomination in writing in a single document to the Secretary together with the written consent of such nominee to accept office if elected, but each such nominator shall be debarred from nominating any other person for this election.

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

The three Zones concerned in the forthcoming election comprise the following Regions:—

Zone	Regions
A	1 and 2
E	10 and 11
F	12, 13, 14 and 15

Four of the five Ordinary Members and the Zone A Representative, when elected, will hold office for three years as from January 1, 1956. One of the five Ordinary Members, when elected, will hold office for two years as from January 1, 1956, as he will be filling the vacancy created by the resignation of Mr. R. L. Varney who was due to retire on December 31, 1957. The Zone E and F Representatives when elected will hold office for either one year or three years, to be decided by lot, as from January 1, 1956.

The present Zone A Representative (Mr. W. R. Metcalfe, G3DQ) is eligible for re-election. The office of Zonal Representative in Zones E and F are at present vacant.

The P.M.G. Pays Tribute

AT the opening of the National Radio Show, Earls Court, the P.M.G. (Dr. Charles Hill, M.P.), said:—"Let us not forget those radio amateurs, who by their

enthusiasm and pertinacity have played so brave and large a part in the development of radio communication."

DX Proficiency Certificates

ON receipt of a stamped addressed envelope Mr. Ron Perks (G4CP), 7 Poplar Avenue, Tividale, Dudley, Worcs, who is the Society's Honorary Certificates' Manager, will be pleased to give advice to members regarding the rarer types of DX proficiency certificates.

Mr. Perks has accepted an invitation from Headquarters to produce a comprehensive list of all DX proficiency certificates with the ultimate aim of presenting the information in booklet form. Members who possess rare certificates are invited to communicate with Mr. Perks.

R.S.G.B. News Bulletin Service

AFTER prolonged negotiations the G.P.O. have at last agreed to the Society's request for a News Bulletin Service.

The Service will commence at 1100 BST (1000 GMT) on Sunday, September 25, 1955, when GB2RS operated by Frank Hicks-Arnold, G6MB, of Walton-on-Thames, Surrey, will transmit the first News Bulletin.

The Bulletin will be transmitted first on telephony and then in abridged form on telegraphy. It will again be repeated on telephony.

The Service will operate weekly on Sunday mornings at 1100 BST (1100 GMT later).

Members will appreciate that the Service must of necessity be regarded as experimental in its early stages. Later, if there appears to be a reasonable demand, the Post Office will be asked to allow Bulletins to be transmitted on other bands and by other properly authorized stations.

Initially a frequency around 3600 kc/s will be used, but no guarantee can be given that this frequency will be used after the first few weeks.

Members would render a marked contribution to the Society's efforts to establish a News Bulletin Service by keeping off the frequency during the period from 1055-1120 BST (GMT) on Sundays.

In order that the Service may prove of real value to members, topical items of news should be sent or telephoned to Headquarters to arrive by not later than 10 a.m. on Thursday mornings. Short snappy items of news will be specially welcomed.

Scripts will be prepared at Headquarters and sent to the G.P.O. on Thursday afternoons for approval.

The co-operation of the membership is essential if this new Service is to be a success.

Reports on the reception of GB2RS will be warmly welcomed by the operators, who will be pleased to send a special QSL in confirmation.

Norman Keith Adams Prize and Bevan Swift Memorial Premium

ACTING on the advice of the Technical Committee, the Council has decided to award the Norman Keith Adams Prize for 1955 to Messrs. C. E. Newton (G2FKZ), G. M. C. Stone (G3FZL), A. J. Worrall (G3IWA), and H. W. Parker (G2ADZ), joint authors of a paper entitled "Propagation on 144 and 420 Mc/s." Their paper was considered to be the most original published in Volume 30 of the Society's Journal (November, 1954, issue).

Also acting on the advice of the Technical Committee, the Council has decided to award the Bevan Swift Memorial Premium for 1955 to Mr. F. Hicks-Arnold (G6MB), author of a paper entitled "The Antenna-match." His paper was considered to be the most meritorious published in Volume 30 of the Society's Journal (May and June, 1955, issues).

Dorset Hamfest

THE 1955 Dorset County Hamfest will be held at the Port Mahon Hotel, High Street, Poole, on Sunday, November 13, at 10.30 for 11.00 a.m. Lunch will be served at 1.00 p.m. and tea at 4.30 p.m.

The attractions will include a visit to the new Poole Generating Station, an auction of members' surplus equipment, a draw for prizes, a film show and various competitions. There will be special competitions and prizes for the ladies.

Tickets, price 10/6, can be obtained from Mr. K. G. O'Brien, 18 St. Helen's Road, Dorchester.

L.C.C. Tenants

NOTWITHSTANDING the general rule which forbids an L.C.C. tenant living in a flat from erecting an outdoor transmitting aerial, the Council have recently granted permission to a Society member to erect an aerial between two balconies separated by a distance of about 80ft.

In reporting his success, the member concerned thanked the Society for interceding on his behalf. Although the aerial is not a "ham's dream" it is a considerable improvement over the indoor aerial previously in use.

Members living in L.C.C. flats who have failed to obtain permission to erect an outdoor aerial may like to write again to the Director of Housing quoting the above case.

Technical Articles Wanted

THE Editor will be pleased to consider for publication articles which have a bearing on any aspect of Amateur Radio, including Amateur Television. Short articles of a constructional nature are particularly required.

London Lecture Meeting

Friday, October 28, 1955

"AMATEUR RADIO IN THE ANTARCTIC— a Review of VK Activity 1947-1955"

by

ROTH JONES (VK3BG)

at the

Institution of Electrical Engineers,
Savoy Place, Victoria Embankment

Buffet Tea 5.30 p.m.

Lecture 6.30 p.m.

The paper will be read by Arthur O. Milne, G2MI (Past President) and will be illustrated by films and slides.

Radio Amateurs' Examination

THE following are additions to the lists of courses for the Radio Amateurs' Examination published in the July and August issues of the BULLETIN.

Birmingham—Central Evening Institute of Further Education, St. Thomas's Schools, Granville Street. Mr. G. W. C. Smith (G3HDK) is the instructor for the R.A.E. Course which commenced on September 12. The entire syllabus will be covered up to examination standard, with the addition of much practical guidance. The fee is 15s., which also covers lectures on other subjects. The classes are on Mondays, from 7.30 to 10 p.m.

Northwood Evening Institute, Potter Street School, Northwood Hills, Middlesex. A Radio and Television Course is to be held on Tuesdays from 7.15 to 9.15 p.m., commencing September 20. No previous knowledge is assumed for this course, which is intended to prepare candidates for the Radio Amateurs' Examination in May, 1956, but will continue until July, 1956. The instructor is Mr. G. P. Anderson (G2QY).

Leeds—Swarthmore Adult Education Centre, 4 Woodhouse Square. Leeds Amateur Radio Society has arranged a two-part course for those wishing to take the Radio Amateurs' Examination. The fee is 15s. Classes will be held from 7.15 to 9.15 p.m. on Fridays, commencing September 23. No previous knowledge is assumed. The lecturer will be Mr. E. W. Morris. Further details may be obtained from the Warden, telephone number Leeds 3-2210.

* * *

Northern Polytechnic, Holloway, London, N.7. (Department of Telecommunications Engineering.) In addition to full- and part-time day courses in radio and allied subjects, the Northern Polytechnic has again arranged a number of evening classes. Due to overwhelming demand, the specialized evening course in Band III Television and F.M. is being repeated. A completely new full-time course of training in radio and television servicing is also being organized. The comprehensive syllabus will include multi-channel television receivers, a.m./f.m. sets, recording and public address equipment. A few more students can still be accepted.

Enrolment for evening classes will take place on September 19 and 20 from 5.30 to 7.30 p.m. and for full-time courses by appointment. Prospectuses may be obtained on application. The Head of the Department is Mr. John Gilbert, a well-known member of the B.B.C. TV programme *Inventors' Club*.

R.S.G.B. Amateur Radio Exhibition

THE General Secretary will be pleased to hear from members able to volunteer for duty on the Headquarters' stand at the R.S.G.B. Amateur Radio Exhibition at the Royal Hotel, London, from November 23 to 26, 1955. Volunteers should indicate the date (or dates) and times they will be available.

Will YOUR equipment be there?

MANY members are known to possess well-constructed equipment likely to prove of great interest to visitors to the Society's Amateur Radio Exhibition at the Royal Hotel, London, at the end of November. Offers to loan such equipment are therefore invited and should be sent immediately to E. Yeomanson (G3IIR), 9 Trewsbury Road, Sydenham, London, S.E.26.

International Consultative Committee (C.C.I.R.)

THE Eighth Plenary Assembly of the C.C.I.R. has been fixed for August 23 to September 27, 1956, in Warsaw.

GB3GP at Gilwell Park

CHINGFORD Group were again honoured with a request (sent through the Society) from the Boy Scouts' Association that an Amateur Radio station should be operated in conjunction with the London International Patrol Camp at Gilwell Park.

The station was allocated the special call-sign GB3GP by the G.P.O. and was in operation from July 27 to August 6, some 300 contacts being made with more than 40 countries including KL7, VQ4/5 and W6. The equipment included 150 watt transmitters loaned by G3EHD and G3DOX and receivers loaned by G3YF and B.R.S.20181. A 32 ft steel tower, provided by G8JM, supported a two element 20 metre rotary beam built by G3YF and B.R.S.19765. A 200 ft long wire was used on 3.5 Mc/s. Other exhibits included two tape recorders, a c.r. oscilloscope and a Voigt amplifier. Belling & Lee Ltd. provided a Band III receiver and a variety of aerials for Bands I and III, all of which were much appreciated by audiences of Scouts and members of the general public during the three Open Days.



During the period of the International Patrol Camp at Gilwell Park, Essex, Civic Leaders from many parts of London and the Home Counties visited the site and inspected the Amateur Radio Station which operated under the call GB3GP. In this picture the General Secretary of the R.S.G.B., who attended the Camp in his official capacity as Mayor of Southgate, is seen at the microphone with W. G. Hall, G8JM (Chingford T.R.) on his right and J. J. Hollington, G4GA, on his left. Also present was Frank Hooson, G3YF. At the time the photograph was taken contact had just been established with ZS6AIY in Johannesburg.

(Photo: John Stapley, Southgate.)

The following members acted as operators of GB3GP under the terms of the special licence: G3EHD, G3FDS, G3GFS, G3HLV, G3YF, G4GA, G8JM and G8TL. It is regretted that, at the express request of the Boy Scouts' Association, it was not possible to allow other amateurs to operate.

The Group wishes to express its appreciation of the great help given by Headquarters.

Among the interesting personalities who visited the station were Lady Olive Baden-Powell, the Chief Guide, the Deputy Chief Scout and the Mayors and Mayoresses of several local boroughs. G8JM.

QSL Cards for U Stations

DM2ABL (Dresden) asks that British stations should not send QSL cards for U stations to him as he is unable to "dispose" of them.

For Your Bookshelf and Shack...

R.S.G.B. PUBLICATIONS

A Guide to Amateur Radio (Sixth Edition)	Price 2/6 (by post 2/9)
R.S.G.B. Amateur Radio Call Book	Price 2/6 (by post 2/9)
Television Interference - - -	Price 2/-
★ ★ ★	
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Special Offer. Members may purchase the set of four booklets for 3/- (post paid)

AMERICAN PUBLICATIONS

Orders for certain of the following American publications can only be accepted from residents in the United Kingdom and British Empire. Prices quoted include cost of postage and packing.

*Radio Amateur's Handbook - - -	31/6
(A.R.R.L.)	
*Antenna Book, 7th Edition - - -	18/6
(A.R.R.L.)	
*Radio Amateurs' Mobile Handbook - - -	17/6
(Cowan Publishing Corp.)	
*Single Sideband for the Amateur - - -	13/6
(A.R.R.L.)	
*Single Sideband Techniques - - -	12/6
(Cowan Publishing Corp.)	
Hints and Kinks - - -	9/6
(A.R.R.L.)	
Course in Radio Fundamentals - - -	4/6
(A.R.R.L.)	
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(A.R.R.L.)	
QST (A.P.R.L.) Yearly Subscription -	36/-
CQ (Cowan Publishing Corp.) Yearly	
Subscription - - -	44/-

*Usually available from stock. All prices for American publications are subject to alteration without notice.

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10" long for bicycle - - -	5/9
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Headed Notepaper (R.S.G.B.) per 100	
sheets - - -	6/6

†Delivery 3-5 weeks.

MISCELLANEOUS ITEMS

Log Books (Webbs') - - -	4/-
Great Circle Map (Webbs') - - -	4/6
Two Metre Zone Map - - -	6d.
R.A.E.N. Message Pads - - -	2/9

All prices include postage unless otherwise stated.

R.S.G.B. Sales Dept., New Ruskin House,
Little Russell Street, London, W.C.1.



Transistors. A useful 7 page leaflet, *Junction Transistors for the Home Constructor*, is now available from the Technical Service Dept., Mullard Ltd., Century House, Shaftesbury Avenue, London, W.C.2. In addition to giving information on basic types of circuit and an explanation of transistor data, there are 8 practical circuits for such equipment as a local station receiver, transistor voltmeter and signal tracer.

Miniature Transmitter. A new version of the Labgear LG.300 transmitter—designated the Mk II—incorporates many improvements over the original design demonstrated at the R.S.G.B. Amateur Radio Exhibition last year. Externally, the cabinet, which occupies only about 1 sq. ft. of table space, has been re-styled, and is finished in dual-shade grey enamel. A companion power/unit modulator will be available later. An illustrated leaflet describing the transmitter may be obtained by sending a stamped addressed envelope to Labgear (Cambridge) Ltd., Willow Place, Cambridge.

Low Pass Filter. Another Labgear product of special interest, now that television transmitting hours are being extended, is the Low Pass Filter type E.5034. Due to its unusual construction, it is effective not only in Band I (B.B.C. TV) but also in Band II (F.M. Broadcasting) and Band III (I.T.A. Television). The filter consists of 5 full sections, plus two half terminating sections and is designed for 75 ohm co-axial feeder. Further information can be obtained from the address given above.

Printed Circuits. A printed circuit developed primarily for the home constructor has been made available by the Telegraph Construction Co. Ltd. (Radio Division), North Acton, London W.3, for the Osram 912 Amplifier, the circuit of which has in no way been changed. However, by ensuring that the wiring and components are laid out exactly as specified in the original laboratory model it is quite certain the amplifier will be stable and free from hum.

New Dynamic Pickup. What is claimed to be the only truly coil pickup freely available throughout the world has been introduced by H. J. Leak & Co. Ltd, Brunel Road, London, W.3. Five years of continuous development have gone into the design, which permits a hand-made quality product to be produced on a mass production basis. A diamond stylus with a playing life of at least one hundred times that of sapphire is used.

Ribbon Loudspeaker. Descriptive information concerning the R.L.S.1 Ribbon Loudspeaker may be obtained from Thermionic Products Ltd., Hythe, Southampton, who have taken over exclusive world distribution of all acoustical equipment developed by Kelly Acoustics Ltd. The ribbon in the R.L.S.1 is coupled to the air by a specially designed catenoidal horn which gives high coupling efficiency at frequencies from 3-20 kc/s and attenuates considerably all frequencies below 1000 c/s. The diaphragm consists only of a special duralumin foil three ten-thousandths of an inch thick operating in an intense magnetic field. As with all tweeters, the unit must be fed from either a high pass filter with a cut-off frequency between 1500-3000 c/s or from a specially designed high frequency transformer with a response only in excess of 3 kc/s. Lower frequencies must not be applied to the tweeter or damage will result.

TEST REVIEW

"EDITOR SUPER" SUITCASE TAPE RECORDER

THIS instrument, manufactured by Tape Recorders (Electronics), Ltd., 3 Fitzroy Street, London, W.1, possesses many of the refinements to be found in the more expensive types of tape recorders while selling at a competitive price.

The specification includes provision for tape speeds of $3\frac{1}{2}$ or $7\frac{1}{2}$ in./second—the latter speed giving a playing time of 32 minutes on each of the twin tracks of the 1,200 foot reel — "magic eye" modulation indicator, single knob tone control with cut or boost of both bass and treble, and separate gain controls operating in the high and low level input channels. The last mentioned feature provides facilities for mixing the two inputs so that it is possible to superimpose speech on a musical background or record a running commentary on material being recorded via the high level channel.

A "Ronette" crystal microphone is supplied and this, together with the mains lead, is housed in a locker at the rear of the recorder when not in use.

An electrical interlock prevents erasure of or reproduction from the tape during rewinding—a process which takes only 50 seconds for the complete reel—while mechanical interlocking between the motor switch and selector control together with really excellent braking of the motors, permits the location of the commencement of a recording to be made quickly without risk of breaking or spilling the tape despite the fast rewinding speed.

The makers' instructions set out clearly the various points to be watched when making a recording, and careful attention to these permits satisfactory results to be obtained without difficulty. Particular attention should be paid to the recommendation that the tone control be placed in the "minimum bass—maximum treble" position when recording from the microphone, otherwise some hum and noise may appear on the recording if much gain is employed. Any correction required in the tonal balance should be made during playback. When using the high level channel this precaution is not so necessary.

The higher tape speed should be used whenever possible as the lower speed, while doubling the available playing time results in a marked degradation in quality.

Provision is made for the connection of an external speaker of 2 to 4 ohms impedance or of low resistance 'phones for monitoring purposes, and a switch is provided for disconnecting the internal speaker if required. Naturally, the latter component is small and, housed as it is in the side of the case, is not well suited for quality reproduction of music. If the full possibilities of the instrument are to be realised in the latter connection it is well worth while feeding the output to a good external speaker. Provision is made on the Record/Playback switch for the amplifier to be employed independently of the recording heads.

Externally the recorder is of pleasing appearance with a nicely-finished white deck and attractive case with detachable lid in artificial grained leather with gilt fittings and a sensible handle.

Electrically the recorder is well made with a simple and accessible layout. The chassis may be inspected after removing four bolts securing the rubber feet.

This instrument represents good value for money at its price of 55 gns. and can be recommended. W. H. A.

"AN INTRODUCTION TO AMATEUR TRANSMITTING"

Part 8 of this series will appear in the October issue.

Tests and Contests

The B.E.R.U. Contest, 1955

THERE are many experienced DX operators who remain convinced that no event in the amateur calendar makes such exacting demands of their stations as the annual B.E.R.U. contest. The need to lay down a signal in all directions, on as many bands as possible; the considerable knowledge of propagation required to provide the clue as to when to expect a brief opening to a rare zone, and to when it is safe to snatch a few hours' sleep; the sliding scale of points and the selective rather than mass entry which put "picking and choosing" at a premium over pure key-bashing, important though that may be: all these factors combine to make the winning of a B.E.R.U. Trophy the supreme test of all-round DX performance.

The Eighteenth B.E.R.U. Contest, held on January 29-30, 1955, proved no exception. Conditions, apart from bad static in some parts of Africa, were generally regarded as the best for several years. The accompanying table, which has been compiled from a representative selection of the logs, shows that DX stations were workable from the United Kingdom on one band or the other throughout the entire 48 hours: 28 Mc/s, however, remained dead and the North Atlantic path did not open on 21 Mc/s. It is most interesting to note that at 0800 on

each of the two days, the G-ZL route was open practically simultaneously on 3.5, 7 and 14 Mc/s!

All credit is due then to Mr. G. J. Dent (VQ4AQ), whose 150 watts to a 100TH final, with a rhombic and a vee beam, AR88 and HRO5, enabled him to amass 2,894 points from some 300 contacts (about 200 on 14 Mc/s, 60 on 21 Mc/s and 40 on 7 Mc/s) and so gain the Senior Trophy for the second time in three years. His outstanding 14 Mc/s performance included contacts with 22 out of his possible 24 B.E.R.U. scoring zones. Since no activity was reported from zone 13 (VK9, VR4) he missed only one active zone (15)! His full "zone-band" figure of merit was 48, rather below that of some of the stations who utilised all four bands. From his log, it would seem that 4AQ's operating time was of the order of 32 hours.

In the Junior Section, Mr. Jac C. van Wyk (ZS6R), proved once again that power—even 8 decibels of it—is not everything. His score of 2,152 points ("Z-B" 47) with 24 watts was bettered by only five of the Senior entrants, while his 568 points on 7 Mc/s was second only to VE3KE. His transmitter was a 6V6-807 combination with an optional 6V6 doubler for 21 Mc/s, providing power to folded dipoles on all bands except 3.5 Mc/s where he used a Marconi type aerial. His receiver was a triple conversion affair with an RF24 unit change-

RESULTS—SENIOR B.E.R.U. CONTEST, 1955

Zone	Call-sign	Scoring QSOs	Points	Final placing	Zone	Call-sign	Scoring QSOs	Points	Final placing	Zone	Call-sign	Scoring QSOs	Points	Final placing
2(a)	*GM2FHH	121	1596	14	2(c)	G5US	32	454	61	10	*VK2EO	197	1793	11
	G4CP	115	1574	15		G5CR	27	394	65		VK2GW	153	1624	13
	G2QT	76	1044	31		G5WP	19	247	76		VK4FJ	59	714	46
	G2AJB	34	493	58		G5IV	15	214	78		VK2PV	16	235	77
	G2DPD	18	256	75		G8KU	11	161	80	11	*VK3XK	143	1399	21
2(b)	*G3FXB	112	1515	18		G6HD	10	145	81		VK7KM	75	762	43
	*G3DCU	99	1336	22	3	DL2RO	237	2481	2		VK3JA	52	543	57
	G3FKH	97	1266	28	4	*ZC4JA	215	2321	3	12	*VK6RU	170	1827	10
	G3AAE	72	958	33		ZC4XA	146	1328	23		VK5FO	76	940	36
	G3AZ	60	809	39†		ZC4PB	143	1326	24†		VK5KQ	33	426	63
	G3BDQ	59	799	41	5	*VO3X	142	1570	16	15	VK1EG	29	405	64
	G3EBH	44	639	53		VO6U	119	1293	26	16	VQ4AQ	308	2894	1
	GM3CIX	45	616	54		VO6N	127	1105	30	17	*ZE3JP	170	1898	9
	G3GFG	45	609	55		VE1EK	97	950	35		ZD6BX	109	1407	20
	G3BYM	21	299	70		VO1D	64	867	38		VQ2W	23	328	68
	G3JUV	18	261	74		VE1CU	24	342	67	18	ST2AR	143	1474	19
2(c)	*G5RI	178	2177	5	6	*VE2NI	137	1627	12		MP4BBE	66	879	37
	*G6CJ	150	1941	7		VE2UN	114	1305	25	20	VS6AE	55	674	50
	G5DQ	149	1920	8		VE2OL	72	952	34		VS2DW	19	271	73
	G5JU	94	1278	27	7	VE2AGJ	12	168	79	21	ZD2DCP	194	2150	6
	G5HZ	57	809	39†		*VE3KE	228	2307	4	22	*ZL3JA	97	1236	29
	G8KS	56	765	42		VE3EK	161	1521	17		ZL1RD	63	757	44
	G6RB	54	737	45		VE3DRD	78	978	32		ZL2ARL	37	443	62
	G5MR	53	713	47		VE3LJ	76	683	49		ZL3GR	22	291	71
	G5ZK	50	706	48		VE3BMB	45	603	56	24	*ZS6BJ	53	669	51
	G5DF	46	652	52		VE3ADV	28	384	66		ZS6AEW	34	477	59
	G5CP	33	461	60	8	VE5AT	25	311	69	25	ZS6AJQ	21	288	72
											ZSSU	97	1326	24†

Check logs: G2BB, BP, XG, 6RC, G3IVJ, 4RY, GM4FK, MP4BBL, VE1DB, 5PM, 8YT, VK2AAH, AFA, 3XB, 5LD, VP7NM, VQ3CF, ZB1CH, ZS2A, 2X, ZE3JL.

RESULTS—JUNIOR B.E.R.U. CONTEST, 1955

Zone	Call-sign	Scoring QSOs	Points	Final placing	Zone	Call-sign	Scoring QSOs	Points	Final placing	Zone	Call-sign	Scoring QSOs	Points	Final placing
I	VU2JP	135	1580	3	4	ZB1BF	160	1674	2	17	ZE3JO	45	622	9
2(a)	457LB	73	858	5	11	VK3HL	61	635	8		ZE5JE	45	606	10
	G2DHY	5	74	16		VK3ASH	23	312	14	18	VS9XZ	77	1054	4
2(b)	*G3IDC	60	823	6	12	VK3RX	27	255	15	20	VS2EL	44	583	11
	GV3AHN	49	672	7	14	VPIAA	40	518	12	24	ZS6R	179	2152	1
	G3GNS	26	384	13										

* Zone awards † Joint.

ing incoming signals to 3.5 Mc/s, whence an NC200 pushed them down to 455 kc/s, and a BC453A brought them finally to 85 kc/s, at which point they threw in the sponge and crept out as mere audio frequency.

Runner-up in the Senior Section was Jack Drudge-Coates (DL2RO), with a 230-watt table-top transmitter, a 66ft Zepp N-S, a 132ft Zepp E-W, a 21 Mc/s ground-plane, an AR88D and Super-pro receivers with aerial input matching, and last—but no means least—two well-trained and keen ears. The leading British station, F. J. U. Ritson (G5RI), was able to bring into action his rhombic (275ft legs, 50ft high on 160°/340° T), a vee beam (230ft legs, 50ft high on 045°/235° T) and a 275ft Zepp N-S. His contacts included 20 scoring zones on 14 Mc/s, 15 on 7 Mc/s, 10 on 3.5 Mc/s and 7 on 21 Mc/s to give a total "Z-B" figure of 52. Other outstanding British performances included G4CP's 16 zones on 7 Mc/s (total Z-B 50), G5DQ with a Z-B of 51, and G6CJ who made 11 zones on 3.5 Mc/s, 13 on 21 Mc/s and a final "Z-B" of 53. G6CJ's aerials included a 200ft vee, 2 layers, for all bands, and a quarter-wave vertical on 3.5 Mc/s.

ZC4JA gained a photo-finish third placing over

DX CONTACTS FROM GT. BRITAIN (Based on a cross-section of B.E.R.U. Logs)

JANUARY 29, 1955	
0000	(3-5) VO ; (7) ST, ZE, ZS, VSI, 9, VE3.
0100	(3-5) VO, ZD2 ; (7) ST, ZE, ZS, VS9, VE3.
0200	(3-5) VO, VE1, 3, VP9, ZE, ZS, ZD2 ; (7) ZS, VU.
0300	(3-5) VO, VE1, VP9, ZE, ZS.
0400	(3-5) VO, VE1, 2, 3, ZS.
0500	(3-5) VO, VE1, 2, 3, VP9.
0600	(3-5) VO, VE1, 2, 3 ; (14) MP4.
0700	(3-5) VE3 ; (7) ZL1, 3 ; (14) MP4, VQ4, ZD6, ZS.
0800	(3-5) VO, VPI, VE3 ; ZL1, 3, 4 ; (7) ZL1, ZD2, VK2 ; (14) MP4, ZL2, 3, ZD2, VQ4.
0900	(3-5) VE1, ZL3 ; (7) ZL2, VK2, VP7 ; (14) ZL1, 2, 3, VS9, MP4, VQ4, ZD2 ; (21) ZS, ZD6, VQ4.
1000	(14) ZL4, VK2, 4, MP4, ZS, VQ3 ; (21) VK4, VU, ZS, ZE, ZD6.
1100	(14) ZL3, 4, VK2, 4, VS6, ST, VO ; (21) VK6, VSI, ZS, ZD6, ZE, VQ4.
1200	(14) ZL2, 4, VK2, 3, 7, VS6, VQ4, ST, VO, VE1, VP6, 7 ; (21) VK6, ZS.
1300	(14) ZL4, VK2, 3, 5, 6, VO, VE1, 2, 3, VPI, VP9.
1400	(14) 457, VS9, VK2, 3, 6, ST, ZE, VE1, 2, 3, VO.
1500	(14) VK6, ZS, ZE, VQ2, 4, ST, VE1, 2, 3, VO.
1600	(7) ZL3 ; (14) VK3, 6, VSI, ZE, ZS, ZD2, VQ2, VE1, 2, 3, 7, VO, VP9.
1700	(14) VK1, ZS, ZE, ZD2, ST, VQ2, VE2, 3, 5, 6, 7, VO.
1800	(14) ZS, ZE, ST, VQ2, VE1, 3, 5, 7, VO, VP9.
1900	(7) VU, VQ2, 4 ; (14) VE1, 2, 3, 7, 5.
2000	(7) VS9, ZD2, VE2 ; (14) VE2, 3.
2100	(7) VS9, ZD6, VQ4, VE2, 3, VQ4 ; (14) VE3, VP9.
2200	(7) VS9, ST, VQ4, VE2.
2300	(3-5) VP9 ; (7) ZS, ZD2, VQ4, ST.
JANUARY 30, 1955	
0000	(3-5) VE2 ; (7) ZS, ZD2, VE1, VPI, 7.
0100	(7) ZS, 457, VE1, 3, VP7.
0200	(3-5) VE2, 3 ; (7) VP9.
0300	(3-5) VE1, 3, VO.
0400	(3-5) VE1, 3.
0500	(3-5) VE1, ZD2.
0600	(3-5) VE1, 2, 3, ZD2.
0700	(3-5) VE2, 3, VPI ; (7) ZL2, 3 ; (14) ZD2, VQ4.
0800	(3-5) ZL1, 3, VE2, 3, VPI ; (7) ZL1, 2, 3, VK2, 3 ; (14) ZL2, VU2, VQ3 ; (21) ZE.
0900	(3-5) VE3, VP7 ; (7) ZL2, 3, 4, VK2, 3, VE1 ; (14) ZL1, 2, 3, VK4, MP4, VP7 ; (21) VU, VS6, 9, ZE, ZD2, 6, VQ4.
1000	(14) ZL2, 3, MP4, VP7 ; (21) VU, ZS, ZE, ZD2, VQ4.
1100	(14) VK2, 3, 4, 5, ZL3 ; (21) VU, VS2, ZS, ZD2, ZE3, VQ4.
1200	(14) VK2, 3, 4, 5, ZL4 ; VS6, VE1, VO, VP9 ; (21) VS9, ZS.
1300	(14) VK3, 5, MP4, VE1, 3, VO, VP9.
1400	(14) VK5, VS2, VE1, 2, 3, VO, VP5 ; (21) VQ2.
1500	(14) VK6, 457, VU, VS2, 9, ST, VQ4, VE1, 2, 3.
1600	(14) 457, ZE, ZS, ZD6, VQ2, 4, ST, VE1, 2, 3, 4, 6, VO, VP9.
1700	(14) VK1, ZS, ZE, ST, VE1, 2, 3, 4, 5, 7, VO.
1800	(14) ZS, ZE, ST, VE1, 2, 3, 4, VO, VP5.
1900	(7) ZD2, VQ4, VO ; (14) ZS, ZE, VQ2, ST, VE2, VP9.
2000	(7) VS9, VQ4, VE2, 3, VO.
2100	(7) ZE, ZD2, ST, VE1, 2, 3, VO.
2200	(3-5) VE3, VO ; (7) ZS, VQ2, ZD2.
2300	(3-5) ZD2, VE2, 3, VO ; (7) MP4, ZD2.

Note. Times are given to nearest hour, e.g. 2140 or 2220 would be shown as 2200.

VE3KE in the Senior Section with only one 135ft centred, 30ft high aerial with tuned feeders. The Canadian station was running 350 watts to three half-waves in phase and a three-element rotary on 14 Mc/s. Highest individual band scores were those of VE3KE on 3.5 Mc/s (563 points) and 7 Mc/s (723 points), and VQ4AQ on 14 Mc/s (1,727 points) and 21 Mc/s (647 points). Last year's winner, ZS2A, was again extremely active but was unfortunately prevented for business and domestic reasons from submitting an entry, although he sent his log along for checking purposes.

Notes and Comments

Once again the main criticism comes from overseas stations who find it difficult to obtain details of the rules in time for the Contest. This is a problem that has long worried the Contests Committee, and each year copies of the rules are sent through the various channels that could be hoped to cover as many prospective entrants as possible. Not all magazines, however, can find the space for even a digest of them. Another aspect of the same problem is that of the many stations outside the British Commonwealth, and particularly U.S.A. stations, who reply to B.E.R.U. calls. However, several offers have been received to help publicise the contest overseas; such offers are always most welcome.

Various suggestions as to the zonal groupings were made and are receiving consideration. Other comments include:

"After arranging for a free week-end, two charter flights came along . . . imagine my feelings listening at 9,000ft and unable to join in."—ST2AR. "My only regret is that there were not more stations taking part."

—G3AAE. "Manners and operating up to the usual high level but on occasions the 'wolf pack' technique developed."—G3BDQ. "At times the l.f. bands amazingly good."—GM2FHH. "The hiss phenomenon was very marked at times on 21 Mc/s, just like the old Five Metre days."—G5MR. "Honestly, have never enjoyed myself so fully in any contest . . . bothered by Americans ignorant of the meaning of B.E.R.U."—VE2UN. "QSL cards will be sent to all who need a VO6 card."—VO6N.

"Ground plane aerials—radials used as washing line at slightest pretext."—VS2EL. "Conditions resemble those of 1932-33."—VU2JP. "It takes nearly as long to balance the budget (on entry forms) as it does to work the stations."—ZE3JP. "Want to thank the G stations for their co-operation especially on 40 metres."—VO6U. "Wish there were two a year."—VO3X. "Tendency for stations having failed to raise a distant station staying on his frequency with a lengthy CQ."—ZL2ARL.

"B.E.R.U. is still the highlight of many a ham's DX season."—ZS2A.

Two Metre Open Contest, 1955

THERE was a welcome increase in the number of entries for the 1955 Two Metre Open Contest held on July 2-3.

The winner is Mr. Harold Beaumont (G5YV) of Leeds, Yorkshire, who made 80 contacts at an average of 104 miles per contact. He also secured the furthest distant contact—270 miles with PE1PL. The runner-up, Mr. J. A. Ward (G4JJ/P), operating from Longstone Edge, Derbyshire, made 90 contacts using 10 watts.

Conditions were patchy, being described as "shocking" and "good." Strong signals were received in the south from the French portable stations of whom some 20 were worked. Activity was high with over 270 stations on during some part of the contest—what a pity more of them did not submit logs.

Equipment

The leading stations used the following equipment:—
G5YV:—QQV06/40 p.a. 80 watts input. Two 6J6 p.p. r.f. stages, 6J6 p.p. mixer, crystal injection. 4/4 Yagi at 80ft. **G4JJ/P**:—832 p.a. 10 watts input. p.p. r.f., mixer and oscillator feeding a BC455. 2 skeleton slots, λ-spacing at 16ft. **GW2XV/P**:—p.p. 6C4 p.a. 7 watts input. Crystal controlled converter feeding a modified BC454. 4 element Yagi.

Powers used by other stations ranged from 140 watts to 2.5 watts to a 6J6 used by **G3FRG/P**. The 832, still the favourite p.a. valve, was used by 13 competitors. 829s were used at 8 stations. p.p. 6J6, cascode, and e.g.t. r.f. stage converters were used in almost equal numbers. There were in use 18 Yagi type aerials, 9 stacks, 5 skeleton slots, 2 dipoles, 1 lazy-H and a tri-square (used by **G2MV**).

Check Logs

The following are thanked for their useful check logs: **BR56327**, **EI2W**, **G2YB**, **G3BOC/M**, **G3DVQ**, **G3EYV**, **G3KFT**, **G3MI**.

Results of Two Metre Open Contest, 1955.

Psn.	Call-sign	Location	Best QSO (miles)	Points
1	G5YV	Leeds, Yorks ...	270	8321
2	G4JJ/P	8m. E. Buxton, Derby ...	186	7868
3	GW2XV/P	Mt. Snowdon, Carns. ...	200	6526
4	G3FAN	Ryde, I.O.W. ...	210	6205
*	G2HIF/P	5m. N.W. Blandford, Dorset ...	190	6173
5	G8UQ/P	7m. S.E. Basingstoke, Hants. ...	180	5800
6	G6TA	Streatham, London ...	229	4613
7	G2MV	Kenley, Surrey ...	234	4471
8	G5ML/P	6m. N.W. Coventry, Warks. ...	144	4402
9	G3FIH	Bath, Somerset ...	190	3611
10	G3ENS/P	Broombrigg Hill, 7m. N. Leicester ...	140	3283
11	G8QY/P	5m. S. Birmingham, Warks. ...	134	3049
*	G3FD/P	2m. S.W. Dunstable, Beds. ...	169	3014
12	G2HDZ	Pinner, Middx. ...	198	2851
13	G5MR	Hythe, Kent ...	245	2689
14	G3CGQ	Luton, Beds. ...	140	2502
†	GW3GWA/P	8m. S.W. Wrexham, Denbigh ...	165	2441
15	G3GOP/P	5m. S.E. Shaftesbury, Wilts. ...	161	2243
16	G3FRG/P	2m. S.W. Storrington, Sussex ...	195	2175
17	G3ISA	Beckenham, Kent ...	151	1798
18	G2UJ	Tunbridge Wells, Kent ...	172	1551
19	G3GSM/A	Mitcham, Surrey ...	150	1509
20	G3DGI	Barnet, Herts ...	158	1336
21	G3JDI/P	Barr Beacon, Birmingham, Warks. ...	130	1252
22	G5DS	Surbiton, Surrey ...	170	1061
23	G3GOZ	Enfield, Middx. ...	140	1040
24	G8DA	Exeter, Devon ...	185	914
25	G2CZS	Chelmsford, Essex ...	166	905
26	G3KHA	Bristol, Glos. ...	125	902
27	G2WS	Tadworth, Surrey ...	177	780
28	G3JXN	Highgate, London ...	96	742
29	G4FB	Tonbridge, Kent ...	60	655
30	GM3EGW	Dunfermline, Fife ...	180	620
‡	G3GZI	Forest Hill, London ...	38	184
31	G2DHV	Lewisham, London ...	24	39

Entry invalid:—

* Multiple operators—Rule 2. † No declaration. ‡ No Grid Reference.

W.A.S.M. Certificate

G6FU, who has just received W.A.S.M. Certificate No. 560, reports that it is a very fine job executed on a silk-like cloth.

Contests Diary

1955

September 24-25 420 Mc/s Contest (No. 2)*

October 1-2 - Low Power†

November 12-13 Top Band (No. 2)

†For details, see page 129. *For details, see page 81, Aug., 1955.

First 420 Mc/s Contest, 1955

THIS event was again held under very poor conditions, although there was some improvement towards the end. Only three contacts were made in excess of 100 miles and last year's winner, **G3GZM**, figured in two of them; his best contacts were with **G3KEQ** and **G3DA/P** while **G2XV** worked **G2DDD**.

Very few comments were sent with the logs, but **G8SK** says that activity was higher than last year and suggests that the contest be run on lines similar to the 2 metre event. **G2XV** comments that some stations only call for short periods while others have "too much CQ and not enough call letters".

The winner this time was **G8SK** who used a five stage transmitter with 5 watts to a 6J6. The receiver was a **G3BKQ**-type converted into a **R109** and the aerial a 24 element stack. His score of 686 points was made from 23 contacts.

Second was **G3KEQ** using a transmitter with a **QQV03/20** as p.a., and third **G2XV** using a **QQV06/40**. Their scores were made from 31 and 14 contacts respectively.

The Contacts Committee apologises for the fact that the rules were not published in the BULLETIN, but it is to be deplored that despite over seventy letters being circulated to people known to be active on the band, only ten entries and two check logs were received although approximately fifty stations were active.

Check logs were received from **G2WJ** and **G3HBW**.

Psn.	Call-sign	Location	Points	Contacts
1	G8SK	Dunstable, Beds. ...	686	23
2	G3KEQ	Sanderstead, Surrey ...	683	31
3	G2XV	Cambridge ...	620	14
4	G3GZM	Malvern, Worcs. ...	516	9
5	G3FP	Thornton Heath, Surrey ...	378	21
6	G2RD	Wallington, Surrey ...	376	23
7	G2HDZ	Pinner, Middx. ...	347	20
8	G5UM	Knebworth, Herts. ...	238	9
9	G5CD	Hendon, N.W.11. ...	160	12
10	G2WS	Tadworth, Surrey ...	50	4

Peterborough D/F Event

GOOD weather was again an attractive feature of the Peterborough D/F Qualifying Event held on July 10. Twenty people in five teams assembled at Lutton Church for the start.

Searching was warm and thirsty work and progress slow and painful through the prickly thicket at Nassington where the transmitter party lay hidden. First to arrive was **P. J. Evans** (B.T.H., Rugby) at 15.23, followed by **J. J. Grant** (Rugby) at 15.32 and **G. T. Peck** (High Wycombe) at 15.34. Messrs. Reynolds (B.T.H., Rugby) and Critchley (Peterborough) also competed. The three successful contestants had all qualified for the National Final in previous events.

Mr. Evans was presented with the Miles Challenge Trophy, awarded annually to the winner of the Peterborough Event. On behalf of his team and other contestants, he thanked the organisers, **J. Bennett** (G3FWA), **K. Gasson** (G3EPT) and **R. A. Houtby** (G3HJY), for their part in providing a pleasant afternoon.

Low Power Contest, 1955

IN response to many requests the Contests Committee has decided to modify the scoring system in this event to allow maximum scoring rate for contacts made with power not exceeding 0.1 watt. The Committee has also given much thought to the problem of identifying contestants to higher power stations who wish to contribute to their score and has found it very difficult to cover the point in a rule. It is suggested that competitors might try the effect of calling as provided in Rule 13 and sending "ere QRP" immediately before closing.

The only changes in the rules published on page 87 of the August, 1954, issue of the BULLETIN are as follows:—

Rule 2. Alter dates to read "October 1, 1955 and October 2, 1955".

Rule 3. Alter date to read October 1-2, 1955.

Rule 11. Delete and substitute:—

Watts input to the p.a. stage...	Up to 0.1	To 0.2	To 0.5	To 1	To 3	To 5
Points per contact ...	20	10	5	3	2	1

Rule 18. Alter date to read "Friday, October 14, 1955".

Second Top Band Contest, 1955

AS an experiment it has been decided that competitors in this event shall have the option of finishing at either 02.00 or at the normal finishing time which is 08.00. This will have the effect of making two contests run concurrently and it will be open to entrants to enter for either or both events.

It is hoped that those who find it impossible to stay on for the full duration will be attracted by this innovation. Council Member W. R. Metcalfe (G3DQ) has offered to provide a miniature trophy to be presented to the winner of the short contest.

The Contests Committee will be pleased to have competitor's views on this new arrangement with their entries.

The rules published on page 297 of the December, 1954, issue of the BULLETIN will apply with the following amendments:

Rule 2. The contest will start at 21.00 G.M.T. on Saturday, November 12, 1955, and competitors may finish either at 02.00 (Short Contest) or 08.00 (Long Contest) on Sunday, November 13, 1955. Entries will be accepted for either or both events.

Rule 3. Alter date to read November 12-13, 1955, and "Claimed Score" to read:—

Claimed Score (Short Contest)
Claimed Score (Long Contest)

Rule 5. Alter date to read November 21, 1955.

I.S.W.L. Transmitting Contest, 1955

A C.W. contest for transmitting members of the International Short Wave League has been arranged for October 9, 1955. The contest will be divided into two sections, viz. (a) 08.00 to 12.00 G.M.T.—3.5 Mc/s only; (b) 18.00 to 22.00 G.M.T.—1.8 Mc/s only. Only one contact with a specific station may be made on each band although the same station may be worked on both bands. An exchange of reports and I.S.W.L. numbers (with prefixes omitted) must be made before a contact counts for points. In the case of contacts with non-members of I.S.W.L., the location must be given.

Entries must be posted to reach M. Dransfield (G3JKO), 1 Cavendish Crescent South, The Park, Nottingham, not later than October 21, 1955. Check logs from non-members and short-wave listeners will be welcomed.

Slow Morse Practice Transmissions

B.S.T.	Call	kc/s	Town
Sundays			
09.00 ...	G3GYV ...	1900 ...	Hartford, near Northwich
09.30 ...	G3BKE ...	1900 ...	Newcastle-on-Tyne
10.00 ...	G6MH ...	1990 ...	Southend-on-Sea
10.30† ...	{ G3DGN ... G3GZB ... }	1930 ...	North London
11.00 ...	G2FXA ...	1900 ...	Stockton-on-Tees
12.00 ...	G3LP ...	1850 ...	Cheltenham
12.00 ...	G3BU ...	1850 ...	Northampton
12.00 ...	G15UR ...	1860 ...	Belfast
14.00 ...	G5AM ...	1900 ...	Witnesham, Ipswich
21.00 ...	G2FIX ...	1812 ...	Nr. Salisbury
Mondays			
19.00 ...	G3NC ...	1825 ...	Swindon
19.00 ...	G3BU ...	1850 ...	Northampton
20.45 ...	G3EKV ...	1915 ...	Nottingham
21.00 ...	G3BLN ...	1900 ...	Bournemouth
21.00 ...	G3FSM ...	1900 ...	Brentwood
22.15 ...	G2BRH ...	1900 ...	Ilford
Tuesdays			
18.30 ...	G2FXA ...	1900 ...	Stockton-on-Tees
18.30 ...	G3JMP ...	1875 ...	Bristol
20.30 ...	G3GDZ ...	1905 ...	Kingsbury, N.W.9
21.00 ...	G3EFA ...	1855 ...	Southport
22.30 ...	G31IR ...	1915 ...	Norwood
Wednesdays			
19.00 ...	G3HUB/A ...	1902 ...	Chelmsford
22.30 ...	G3FBA ...	1910 ...	Bath
Thursdays			
19.00 ...	G3NC ...	1825 ...	Swindon
19.15 ...	G2FRX ...	1850 ...	Plymouth
20.00† ...	{ G2CPS ... G2CNX ... G3GWT ... }	1910 ...	Hull, Yorks.
20.30 ...	G3JQM ...	1878 ...	Barwick, Yeovil
22.30 ...	G3ADZ ...	1940 ...	Southsea
23.00 ...	G3LA ...	1915 ...	Brentwood
Fridays			
18.00 ...	G3GEN ...	1900 ...	Gloucester
19.00 ...	G3BLN ...	1900 ...	Bournemouth
20.00† ...	{ G3CSG ... G3EGX ... G3ERB ... }	1875 ...	Wirral
Saturdays			
13.00 ...	G2FXA ...	1900 ...	Stockton-on-Tees
† Alternately.			

Slow Morse transmissions are organised by Mr. C. H. L. Edwards (G8TL), 28 Morgan Crescent, Theydon Bois, Essex. Members using the service are requested to send listener-reports to the stations concerned.

Can You Help ?

● G. B. Oswald (G3EKH), 3 Briardale, Edgware Way, Edgware, Middlesex, who requires the circuit diagram and/or manual for the New Zealand ZCI ?

● W. Howarth (G3AHF), 7 Fir Grove, Weaverham, Cheshire, who urgently requires the circuit diagram and/or manual for the New Zealand ZCI ?

● Dr. Oliviero Landini (I1BEY), Via G. Battista Carta 21, Milan, Italy, who wishes to know the types of valve used in the British Wireless Set No. 21 and their civilian designations ? He also requires information on the British 12 and 33 Sets, and the AT7, ARP12 and AR8 valves.

● H. G. Newland (G5ND), 161 Penrose Avenue, Blackpool, who seeks a source of supply of coils wound in strip form and sold by the foot in various wire gauges and turns per inch.?

● A. Wright (G3IWR), 108 Old Oak Road, Acton, London, W.3, who would like to hear from anyone having experience of the Canadian Army Transmitter C43, with details of any snags which arise in converting the equipment for the 14, 21 and 28 Mc/s ? He also wishes to borrow the complete manual on this transmitter.

● H. C. Young (G3HIA), 65 Factory Lane, Manchester, 9, who wants to borrow the circuit diagram of the Wireless Set No. 46 T.P.L.?

Council Proceedings

Résumé of the Minutes of the Proceedings at a Meeting of the Council of the Radio Society of Great Britain, held at New Ruskin House, Little Russell Street, London, W.C.1, on Tuesday, July 12, 1955, at 6 p.m.

Present.—The President (Mr. H. A. Bartlett in the Chair), Messrs. W. H. Allen, L. Cooper, C. H. L. Edwards, D. A. Findlay, R. H. Hamman, J. H. Hum, F. Hicks-Arnold, R. G. Lane, W. H. Matthews, W. R. Metcalfe, A. O. Milne, L. E. Newnam, W. A. Scarr, R. L. Varney and John Clarricoats (General Secretary).

Apology for Absence

An apology for absence was received from Mr. H. W. Mitchell.

Membership

(a) *Resolved* (i) to elect 38 Corporate Members and 9 Associates; (ii) to grant Corporate Membership to 5 Associates who had applied for transfer; (iii) to waive for a further period of 12 months the subscriptions of Messrs. R. W. Harris, G3GGX, J. W. Birkbeck, G3IGV, and J. W. Forsyth, G3HET, on the ground that they suffer from blindness.

(b) The Secretary reported that of the 688 members whose subscription became due on April 1, 1955, 120 became overdue on June 30, 1955. Of this number 18 were London, 85 were Country and 15 were Overseas Corporate Members and 2 were Associates. Of those overdue 10 London, 48 Country and 10 Overseas members held call-signs.

The Secretary submitted details of the 25 members (including 3 Associates) who had written to resign during the four weeks to July 9. Of this number 4 had resigned on financial grounds, 8 gave no reasons, and 13 stated they had lost interest.

Applications for Affiliation

Resolved to grant affiliation to Amateur Radio Society of Barbados and Aquila Radio Club.

I.A.R.U. Region I Conference

The Council approved a list of 13 items which they suggested should be discussed at the I.A.R.U. Conference in Italy during 1956.

Regional and County Meetings

It was reported that Regional meetings would be held in Belfast on October 1, Glasgow, on October 15, and Edinburgh on October 16.

It was further reported that I.R.T.S. had invited the President (Mr. H. A. Bartlett), Mr. W. A. Scarr and the General Secretary to attend a Dinner-Meeting in Dublin on September 29, prior to travelling on to Belfast for the Region 15 meeting.

Science Museum

The Secretary submitted a report of a further meeting which had taken place between officials of the Science Museum and representatives of the Society.

The Council accepted the Report which advocated a short- and long-term policy for the proposed Amateur Radio station and a recommendation that one or two prominent v.h.f. workers should be invited to co-operate with the Science Museum and the *ad hoc* Committee in the design and installation of v.h.f. and u.h.f. equipment.

The G.P.O. had been asked to allocate the special call-sign GB2SM to the Science Museum.

Headquarters' Station

It was reported that £26s. 4s. 7d. nett had been realised on the sale of Headquarters' station equipment and valves.

Society Investments

It was reported that the Society's holding of £4,000 London Electric 2½ per cent Guaranteed Debenture Stock 1950-1955 had been re-invested in new 4 per cent British Transport 1972-1977 Guaranteed Stock. The new stock has been offered at the rate of £96 10s. per £100 nominal.

Sealing of Documents

The Secretary reported that as a consequence of the change in name of the Society it had become necessary for the Society to submit to the Bank of England a true impression of the Common Seal of the Society.

Resolved to authorise the General Secretary and either the President or Honorary Treasurer to attest the sealing of all official documents.

Mr. A. Barlow

Mr. W. R. Metcalfe reported on further discussions he had had with the Ramsbottom U.D.C. in regard to the case of Mr. A. Barlow. The Chairman of the U.D.C. had promised Mr. Metcalfe that Mr. Barlow's application for permission to re-erect an outside aerial would be given careful consideration at the next meeting of the Ramsbottom Housing Committee.

Second Top Band Contest

Resolved to accept a recommendation of the Contests Committee that (a) a short-period contest of five hours' duration be run concurrently with the early part of the normal Top Band Contest; (b) a miniature trophy be awarded to the leading station in the subsidiary Contest.

Mr. Metcalfe offered to provide the miniature trophy.

Resolved to accept, with thanks, the offer made by Mr. Metcalfe of a miniature trophy.

I.A.R.U. Calendar

It was reported that the Radio Society of Bolivia had been admitted to membership in the Union.

Licence Matters

The Secretary reported on a number of licence matters.

Mr. R. L. Varney

The Secretary submitted a letter, received that day by the President, from Mr. R. L. Varney, in which he tendered his resignation from the Council owing to the fact that he would be shortly leaving the country for a three-year tour in South and Central America. In the course of his letter Mr. Varney expressed his sincere appreciation of the help and co-operation given to him by his colleagues on the Council and by the General Secretary.

The President, on behalf of his colleagues, thanked Mr. Varney for his letter and extended to him best wishes for a happy tour of duty abroad for his Company. Mr. Varney made suitable reply and expressed a desire to present a trophy to the Society.

Resolved to accept, with thanks, the offer made by Mr. R. L. Varney of a trophy.

(continued on page 131)

Northern Ireland Regional Meeting

to be held at
WELLINGTON PARK HOTEL
BELFAST

on
SATURDAY, OCTOBER 1, 1955

Programme

Business Meeting - - - 5.00 p.m.
Dinner - - - 7.00 p.m.
Followed by draw for Prizes
and Film Show.

Tickets 15/- from J. William Douglas, 54 Kingsway
Park, Cherryvalley, Belfast, and local representatives,
by not later than September 24, 1955.

Mr. H. A. Bartlett, G5QA (President, R.S.G.B.),
Mr. W. A. Scarr, M.A., G2WS (Past President,
R.S.G.B.), Mr. John Clarricoats, O.B.E., J.P., G6CL
(General Secretary, R.S.G.B.) and Capt. A. C.
Woods, EI3L (Honorary Secretary, I.R.T.S.) hope to
be in attendance.

RESERVE YOUR PLACE TODAY
FOR REGION 15's BIGGEST EVENT

West of Scotland Regional Meeting

to be held on
SATURDAY, OCTOBER 15, 1955
in the
CHRISTIAN INSTITUTE
BOTHWELL STREET, GLASGOW

Programme

Assemble - - - 2.30 p.m.
Business Meeting - - - 2.45 p.m.
Tea - - - 4.30 p.m.
Followed by Dinner - - - 6.30 p.m.

SLOAN'S RESTAURANT
62, Argyle Arcade, Argyle Street, Glasgow

Tickets 12/6 from David Macadie, GM6MD, or J.
Hamilton, GM3CSM, by not later than October 10, 1955.

The President, General Secretary, and Mr. F. Hicks-
Arnold, G6MB, hope to be in attendance.

Council Proceedings (continued from page 133)

Letter from the President of the A.R.R.L.

The Secretary submitted a letter dated June 21, 1955,
from the President of the A.R.R.L. (Mr. Goodwin L.
Dosland). The letter contained the following resolution:

"Whereas, the radio amateurs of the United States,
its possessions, and Canada are aware of the co-
operative actions taken by I.A.R.U. Societies and
their memberships in many international competi-
tions, and

"Whereas, these same I.A.R.U. Societies have con-
tributed to the advancement of peaceful international
relations by the exchange of amateur radio com-
munications between themselves, the United States,
its possessions and Canada,

"Be it Resolved, that the Board of Directors and
the Staff of the American Radio Relay League,
extending their hands in friendly greeting to all
I.A.R.U. Societies, demonstrate their appreciation
and faith, created by such operations in international
harmony and the advancement of amateur radio
world-wide for the good of all peoples."

Resolved to authorize the Secretary to write a suitable
letter of thanks to Mr. Dosland.

Cash Account

Resolved to accept and adopt the Cash Account for
June as prepared and submitted by the General Sec-
retary.

Reports of Committees

Exhibition (Home Constructors' Section) Committee

The Secretary submitted, as a Report, the Minutes of
a Meeting of the Committee held on June 27, 1955.

Resolved to receive the Report.

The Council drew up a scale of allowances to be paid
to those who volunteer for duty on the Society's stand
at the National Radio Show, Earls Court.

The meeting terminated at 8.5 p.m.

East of Scotland Regional Meeting

to be held on
SUNDAY, OCTOBER 16, 1955
at the
SCOTIA HOTEL
GREAT KING'S ST., EDINBURGH

Programme

Assemble - - - 2.30 p.m.
Business Meeting - - - 3.00 p.m.
Informal Discussions - - - 5.00 p.m.
High Tea - - - 5.30 p.m.

Tickets 8/6 from Kenneth Senior, GM3AEI, by not later
than October 10, 1955.

The President, General Secretary, and Mr. F. Hicks-
Arnold hope to be in attendance.

Regional and Town Representation 1956-7

Regional Representatives

THE undermentioned Corporate Members have accepted an invitation from the Council to serve, if elected, in the office of Regional Representative:—

Region	Name and Call-Sign
1	B. O'Brien, G2AMV
2	J. R. Petty, G4JW
3	J. Timbrell, G6OI
4	E. S. G. K. Vance, G8SA
7	F. G. Lambeth, G2AIW
9	H. A. Bartlett, G5QA
11	F. G. Southworth, GW2CCU
12	B. McK Davidson, GM3ALZ
13	K. N. Senior, GM3AEI
14	D. R. Macadie, GM6MD
15	J. W. Douglas, GI3IWD

Mr. C. A. Sharp, G6KU, was invited to accept re-nomination as representative for Region 2 but had to decline for business reasons. He recommended the Council to invite Mr. Petty of Sheffield.

Mr. R. J. Donald was invited to accept re-nomination as Representative for Region 8 but had to decline for business reasons. The office of Representative for Region 5 was vacant when the invitations were issued.

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.

Town and Area Representatives

Not later than October 31 next, any five Corporate Members resident in a particular Town or Area may nominate any duly qualified Corporate Member resident in the particular Town or Area for the office of 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.

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 at least 10.

Vacancies

In the event of no nomination being received prior to November 1, 1955, from the Corporate Members resident in any Region, Town or Area, the Council reserves the right to make an appointment.

Ballots

In the event of more than one person being nominated for a particular office a Ballot will be conducted, details of which will be published in the November, 1955, issue of the R.S.G.B. BULLETIN.

Resignations

If for any reason an elected Representative wishes to resign his office he should notify Headquarters who will advertise the vacancy. *Local Members cannot automatically appoint another member to undertake the duties of a Representative who has resigned.*

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.

Period of Office

Regional, Town and Area Representatives will hold office for a period of two years as from January 1, 1956.

Regions and Counties

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

Region 1 (North Western); Cheshire; Cumberland; Lancashire East; Lancashire West and Isle of Man; Westmorland.

Region 2 (North Eastern); Durham; Northumberland; Yorkshire East; Yorkshire North; Yorkshire West.

Region 3 (West Midlands); Birmingham (Postal Areas); Herefordshire; Shropshire; Staffordshire; Warwickshire; Worcestershire.

Region 4 (East Midlands); Derbyshire; Leicestershire and Rutland; Lincolnshire; Northamptonshire, Nottinghamshire.

Region 5 (Eastern); Bedfordshire; Cambridgeshire; Essex (outside London area); Hertfordshire (outside London area); Huntingdonshire; Norfolk; Suffolk.

Region 6 (Central); Berkshire (outside London area); Buckinghamshire (outside London area); Gloucestershire (excluding the Bristol area); Hampshire; Oxfordshire; Wiltshire; the Channel Islands.

Region 7 (London); London North; London South; London South-East; London South-West; London East; London West.

(The London Region covers all territory within 25 miles radius of Charing Cross and includes parts of Berkshire, Buckinghamshire, Hertfordshire and Kent and the whole of Middlesex and Surrey.)

Region 8 (South-Eastern); Kent (outside London area); Sussex.

Region 9 (South-Western); Bristol; Cornwall; Devonshire; Dorset; Somerset.

Region 10 (South Wales); Brecknockshire; Carmarthenshire; Pembrokeshire and Cardiganshire; Glamorgan; Monmouthshire; Radnorshire.

Region 11 (North Wales); Anglesey; Caernarvonshire; Merionethshire and Montgomeryshire; Denbighshire; Flintshire.

Region 12 (North Scotland); Aberdeen; Banff; Kincardine; Moray and Nairnshire; Angus and Perth; Inverness; Ross; Sutherland; Caithness; Orkney and Shetland.

Region 13 (East Scotland); Berwick; Peebles; Roxburgh and Selkirk; East Lothian; Midlothian and West Lothian; Fife and Kinross.

Region 14 (West Scotland); Argyll and Dunbarton; Ayrshire; Bute; Dumfries; Kirkcudbright and Wigtown; Clackmannan and Stirling; City of Glasgow (Postal Districts); Lanark and Renfrew.

Region 15 (Northern Ireland); Antrim; Armagh; Down; Fermanagh; Londonderry; Tyrone.

Regional & Club News

Bristol.—At the July meeting Vic Newport (G3CHW) lectured at short notice on "Carrier Drift and Sideband Splatter in Amateur Transmissions." He has promised to discuss "Frequency Modulation" in November. P. S. Carnit, B.Sc.(Eng.), A.M.I.E.E. of the G.E.C. will be the speaker in September—subject "Colour Television" with demonstrations.

British Two-Call Club.—Membership, which is open to all British subjects who have held two calls, one of which was overseas, continues to increase. *Hon. Secretary:* G. V. Haylock (G2DHV), 63 Lewisham Hill, London, S.E.13.

Coventry Amateur Radio Society.—The Society's Annual General Meeting will be held at 9 Queen's Road, Coventry, at 7.30 p.m. on September 26.

Grafton Radio Society.—F. J. Charman, B.E.M. (G6CJ) will open the Society's autumn-winter programme on October 7 with a demonstration of his "Scale Model Aerials." The R.A.E. course will start on September 26. *Hon. Secretary:* A. W. H. Wennell (G2CJN), 145 Uxendon Hill, Wembley Park, Middlesex.

Ilkeston & District Amateur Radio Society.—The Society now meets at the Ilkeston College of Further Education (Room 5), Field Road, Ilkeston, on Thursdays at 7 p.m. On October 9, members will visit the G.P.O. Overseas Telephone and Telegraph station at Rugby. Details from the *Hon. Secretary:* J. Eaton, 74a Station Road, Langley Mill, Nottingham.

Lothians Radio Society.—Meetings are held at 25 Charlotte Square, Edinburgh, at 7.30 p.m. On September 22 the subject "Can I Help You with your DX Score" will be discussed by GM2DBX. There will be a Bring and Buy Sale on October 6. A recorded lecture by G5RV entitled "TVI Proofing" will be given on October 20. Members are to visit the B.B.C. Station at Westerglen on October 29. *Hon. Secretary:* John Good (GM3EWL), 24 Mansionhouse Road, Edinburgh 9.

North Kent Radio Society.—A junk sale will be held on September 22 and a Top Band Contest from October 2-8. Operation will be for any one hour each day during this period. Competitors will call "CO NKRS." *Hon. Secretary:* A. Wills (G3KCN), 42 Anne of Cleves Road, Dartford, Kent.

QRP Society.—The closing date for entries for the Portable Amateur Radio Equipment Contest is September 30. All low power enthusiasts, at home and abroad, are invited to join the Society. *Hon. Secretary:* John Whitehead, 92 Rydens Avenue, Walton-on-Thames, Surrey.

Preston Radio Society.—Meetings are held at the "Kopper Kettle," Garstang Road, Barton, near Preston, on alternate Fridays at 7.30 p.m. The next is on September 16. *Hon. Secretary:* E. D. Evans (G3JAH), 44 Oakwood Drive, Fulwood, Preston.

Ravensbourne Amateur Radio Club.—A new TA12 transmitter for 3.5 and 7 Mc/s and a modified R.1155 receiver have been obtained for the club station, G3HEV. Classes for the R.A.E. commence at the end of September. *Hon. Secretary:* J. H. F. Wilshaw, 4 Station Road, Bromley, Kent.

Romford & District Amateur Radio Society.—Future events include talks on September 27 and October 4 by Rowland Beardow (VE3AML, ex-G3FT), a past chairman of the Society, who is on a visit to this country. Band III television apparatus will be demonstrated on October 11 and a junk sale held on October 18. Meetings take place on Tuesdays at 8.15 p.m. at R.A.F.A. House, 18 Carlton Road, Romford. *Hon. Secretary:* N. Miller, 55 Kingston Road, Romford.

Scarborough Amateur Radio Society.—The society will shortly move to new premises at Chapman's Yard, Waterhouse Lane (off Newborough), Scarborough. Meetings are held on Thursdays and details may be obtained from the *Hon. Secretary:* P. Briscoe (G8KU), Roseacre, Irton, Scarborough.

Sheffield & District Amateur Radio Society.—The Society meets at Digswell House on Fridays, at 8 p.m. Members are

to visit Bedford Radio Society on September 16. N.F.D. will be reviewed on September 23. On October 7 G2DUS/T will demonstrate his Amateur TV camera and a film show is arranged for October 14. *Hon. Secretary:* G. R. Cobb (G3IXG), 7 Hitchin Road, Sheffield.

Southport & Formby.—A wind generator has been installed at the new clubhouse where the workshop is almost ready for use. An all-band exciter and p.a. running 75 watts is planned to replace the 5 watt rig for Top Band, 3.5, 7 and 14 Mc/s at present in use. V.H.F. equipment is also under construction. *Area Representative:* Norman Horrocks (G2CUZ), 32 Sandbrook Road, Ainsdale, Southport.

Spenn Valley & District Radio & Television Society.—A Summer will take place on September 21 and a joint meeting with the Bradford and Leeds Societies at Cambridge House, Bradford, on September 27 when M. J. Heavyside, Ph.D., B.Sc., will lecture on "Short Aerials and Short Waves." The Civil Defence Officer to West Riding County Council, P. G. B. Jarvis, will speak about "Emergency Communications in Civil Defence" on October 5. *Hon. Secretary:* Norman Pride, 100 Raikes Lane, Birstall, near Leeds.

Stourbridge & District Amateur Radio Society.—F. Bills recently lectured on the "History of the Thermionic Valve," tracing its development from the early Fleming type to the modern v.h.f. valve. *Hon. Secretary:* A. K. Davies, 48 Church Avenue, Ambleside, Stourbridge.

Torbay Amateur Radio Society.—The first R.S.G.B. recorded lecture—"V.H.F." by Sir Noel Ashbridge—will be given at the Y.M.C.A., Torquay, on September 17. *Hon. Secretary:* L. H. Webber (G3GDW), 43 Lime Tree Walk, Newton Abbot.

Welwyn Garden City.—The Annual Hamfest of the W.G.C. R.S.G.B. Group will be held at the "Red Lion," Hatfield, on Tuesday, October 4, at 7 p.m. for 7.30 p.m. Tickets, price 13/6 each, may be obtained from the T.R. After dinner there will be a film show and tape recordings.

Weston-super-Mare.—Meetings of the R.S.G.B. Group are now held at 7.30 p.m. on the second Wednesday evening in each month, at the Headquarters of the R.A.F. Amateur Radio Society, R.A.F. Station, Locking. Further details from the *Town Representative:* W. Holley (G5TN), "Waverley," Worlebury Hill Road, Weston-super-Mare.

Representation

THE following are amendments to the list of Regional and Town Representatives published in the December, 1953, issue:—

Regional Representative

Region 5—

C. H. Babbs (G5IG), 78 Water Street, Cambridge.

Town Representative

Region 6—Wiltshire

Swindon

R. Reynolds (G3IDW), 136 Beech Avenue.

(Note. Regional and Town Representatives will hold office only until December 31, 1955, unless re-elected.)

Vacancy

Mr. A. Evans (B.R.S.18592) has resigned as Representative for the town of Northampton.

Nominations for his successor should be made in the prescribed form and sent to reach the General Secretary by not later than September 30, 1955.

Changes of Address

When notifying Headquarters of a change of address, Society Representatives should state clearly that they are Representatives. Frequently a change of address is received and entered on a member's record card but as no mention is made in the notification that he is a Representative the master file of Representatives is not corrected.

Forthcoming Events

REGION 1

Blackpool (B. & F.A.R.S.)—September 27, 7.30 p.m., 5 Albion Avenue, Blackpool.
Bury—October 13, 7.30 p.m., 52 The Drive, Seedfield, Bury.
Chester (C. & D.A.R.S.)—Tuesdays, 7.30 p.m., Tarrant Hut, Y.M.C.A., Chester.
Crosby—Tuesdays, 8 p.m., over Gordon's Sweetshop, St. John's Road, Waterloo.
Isle of Man (I.O.M.A.R.S.)—September 21, October 5, 19, Manor Guest House, Victoria Road, Douglas.
Lancaster (L. & D.A.R.S.)—October 5, 7.30 p.m., George Hotel, Torrisholme.
Liverpool (L. & D.A.R.S.)—Tuesdays, 8 p.m., St. Barnabas Hall, Penny Lane, Liverpool, 15, (M.R.S.)—September 14, 28, October 12, 26, 8 p.m., Larkhill Mansion House, Queens Drive, Liverpool, 13.
Manchester (M. & D.R.S.)—October 3, 7.30 p.m., Brunswick Hotel, Piccadilly, Manchester, (S.M.R.C.)—Fridays, 7.45 p.m., Ladybarn House, Mauldeth Road, Manchester, 14.
Preston—September 16, 30, October 14, 7.45 p.m., "The Kopper Kettle," Garstang Road, Barton, near Preston.
Rochdale (R.R.T.S.)—Fridays, 7.45 p.m., 1 Law Street, Sudden.
Southport—Thursdays, 8 p.m., Sea Cadets Camp, Esplanade, Southport.
Stockport (S.R.S.)—September 28, October 12, 26, 8 p.m., The Blossoms Hotel, Buxton Road, Stockport.
Warrington (W. & D.R.S.)—September 15, October 6, 20, 7.30 p.m., King's Head Hotel, Winwick Street, Warrington.
Wirral (W.A.R.S.)—September 21, October 5, 19, 7.45 p.m., Y.M.C.A., Whetstone Lane, Birkenhead.

REGION 2

Barnsley—September 23, October 14, 7.30 p.m., King George Hotel, Peel Street.
Bradford—September 27, October 11, 7.30 p.m., Cambridge House, 66 Little Horton Lane.
Catterick—Wednesdays, 7 p.m., Loos Lines, Catterick Camp.
Darlington—Thursdays, 7.30 p.m., 139 Woodlands Road.
Doncaster—October 12, 7.30 p.m., Y.W.C.A., Cleveland Street.
Gateshead—Mondays, 7.30 p.m., Mechanics' Institute, 7 Whitehall Road.
Hull—September 27, October 11, 7.30 p.m., "Rampant Horse," Paisley Street.
Middlesbrough—Thursdays, 7.30 p.m., Joe Walton's Boys' Club, Feversham Street.
Pontefract—September 29, October 6, 8 p.m., Queen's Hotel, Tanshelf.
Rotherham—Wednesdays, 7 p.m., "Cutlers' Arms," Westgate.
Scarborough—Thursdays, 7.30 p.m., B.R. Rifle Club, West Parade Road.
Sheffield—September 28, 8 p.m., "Dog and Partridge," Trippet Lane, October 12, 8 p.m., Albreda Works, Lydgate Lane.
Slough—Fridays, 7.30 p.m., 3 Dartmouth Street.
York—Thursdays, 7.30 p.m., Club Rooms, Y.A.R.S., Fetter Lane.

REGION 3

Birmingham (South)—October 7, 7.30 p.m., A Committee Room, Messrs. Cadbury Bros., Bournville Lane, (M.A.R.S.)—September 20, 7 p.m., Midland Institute, (Slade)—September 16, 30, 7.45 p.m., Church House, High Street, Erdington.
Coventry—September 23, 7.30 p.m., Priory High School, (C.A.R.S.)—September 26, 7.30 p.m., 9 Queen's Road.
Kenilworth, Warwick, Leamington—September 15, 7.30 p.m., Dalehouse Lane.
Malvern—October 3, 8 p.m., "Foley Arms."
Redditch—September 22, 8 p.m., 10 Woodland Road, October 4, 8 p.m., "Scale and Compasses," Birchfield Road.
Rugby—October 6, 7.30 p.m., B.T.H. Recreation Club, Hillmorton Road.

Solihull—September 19, 7.30 p.m., Defence H.Q., October 3, 7.30 p.m., Sutton Lodge, Blossomfield Road.
Stoke—September 28, 8 p.m., "Lion's Head," John Street, Hanley.
Stourbridge (St.A.R.S.)—October 4, 8 p.m., King Edward VI School.
Walsall—September 28, October 12, 8 p.m., Technical College, Bradford Place.
Wolverhampton—September 26, October 10, 8 p.m., Stockwell End, Tettenhall.

REGION 4

Alvaston—Tuesdays, Thursdays, 7.30 p.m., Sundays, 10.30 a.m., Nunsfield House, Boulton Lane, Alvaston, nr. Derby.
Chesterfield—Tuesdays, 7.30 p.m., Bradbury Hall, Chatsworth Road.
Derby (D. & D.A.R.S.)—Wednesdays, 7.30 p.m., Room No. 4, 119 Green Lane, Derby.
Ilkeston (I. & D.A.R.S.)—Thursdays, 7 p.m., Room 5, Ilkeston College of Further Education, Field Road.
Leicester (L.R.S.)—September 19, October 10, 7.30 p.m., Holly Bush Hotel, Belgrave Gate, Lincoln (L.S.W.C.)—No September Meeting.
Mansfield (M. & D.A.R.S.)—October 11, 7.30 p.m., Denmans Head Hotel, Market Place, Sutton-in-Ashfield.
Newark—October 2, 7 p.m., Northgate House, Northgate, Newark.
Northampton (N.S.W.C.)—Fridays, 7 p.m., Clubroom, 8 Duke Street.
Nottingham—September 16, 7.30 p.m., Sherwood Community Centre, opposite Woodthorpe Drive, Sherwood.
Peterborough—October 5, 7.30 p.m., 21 Hankey Street.
Retford—October 6, 7 p.m., Sun Inn, Cannon Square.

REGION 5

Chelmsford—October 6, 7.30 p.m., Marconi College, Arbour Lane, Chelmsford.
Lowestoft and Beccles (L. & B.A.R.C.)—September 28, October 12, 7.30 p.m., Y.M.C.A., Lowestoft.

REGION 6

Cheltenham—October 6, 8 p.m., Great Western Hotel, Clarence Street.
Gloucester (G.R.S.)—Thursdays, 7.30 p.m., The Cedars, 83 Hucclecote Road, Gloucester.
High Wycombe—October 25, 7.30 p.m., G3DQC, 128 Tottenridge Hill.
Jersey, C.I.—September 27, 7.45 p.m., Chamber of Commerce, Royal Square, Jersey. (Visitors cordially invited.)
Oxford (O. & D.A.R.S.)—September 28, October 12, 7.30 p.m., Club Room, "Magdalen Arms," Ilfley Road, Oxford, October 9, 2.30 p.m., The Perch Inn, Binsey, (Mobile Rally).
Portsmouth—Tuesdays, 7.30 p.m., British Legion Club, Queen's Crescent, Southsea. (Clubroom open every evening.)
Southampton—October 1, 7 p.m., 1 Prospect Place.
Stroud—Wednesdays, 7.30 p.m., Subscription Rooms.

REGION 7

London (B.A.T.C.)—Amateur Television Convention, 10 a.m. to 6 p.m., October 1, Bedford Corner Hotel, Bayley Street.
London (L.M.L.C.)—September 16, October 21, 12.30 p.m., Bedford Corner Hotel, Bayley Street (off Tottenham Court Road), London, W.C.1.
London (U.H.F. Group)—October 6, 7.30 p.m., Bedford Corner Hotel, Bayley Street.
Acton, Brentford and Chiswick—Tuesdays, 7.30 p.m., A.E.U. Rooms, 66 High Road, Chiswick, W.4.
Barnes, Putney and Richmond—October 7, 337 Upper Richmond Road, S.W.14.
Bexleyheath—September 22, October 13, 7.30 p.m., Congregational Hall, Chapel Road, Bexleyheath.
Bromley (N.W.K.A.R.S.)—October 7, 8 p.m., Shortlands Hotel, Station Road, Shortlands, Kent.
Chingford—September 16, 30, October 14, Venue from G4GA (SIL 5635) or B.R.S.19765 (SIL 6055).

Chislehurst and Sidcup—Details from G3ANK.
Croydon—October 11, 7.30 p.m., "Blacksmith Arms," 1 South End, Croydon (S.S.B. Talks).
Dorking—Tuesdays, 7.30 p.m., 5 London Road.
Ealing—Sundays, 11 a.m., A.B.C. Restaurant, Ealing Broadway, W.5.
East Ham—October 4, 12 Leigh Road.
East London—September 18, 2.30 p.m., Town Hall, Ilford.
East Molesey—October 5, 8.30 p.m., Carnarvon Castle Hotel.
Enfield—September 18, October 16, 3 p.m., George Spicer School, Southbury Road.
Epping—Alternate Wednesdays, Handcock & Smith, High Road, Epping.
Finbury Park—September 20, 7.30 p.m., 16 Albion Road, Stoke Newington, N.16.
Guildford—September 25, 3 p.m., Royal Arms Hotel, North Street.
Hendon and Edgeware—Wednesdays, 8 p.m., 21 Goodwins Avenue, Mill Hill.
Hoddeston—October 6, 8 p.m., "Salisbury Arms."
Holloway (G.R.S.)—September 16 (A.G.M.), 23 (Enrolment R.A.E.), thence Mondays and Wednesdays, 7 p.m. (R.A.E.). Fridays, 7 p.m. (Club Night), Grafton School, Eburne Road, N.7, October 7, 8 p.m., "Scale Models," G6CJ.
Ilford—Thursdays, 8 p.m., G2BRH, 579 High Road.
Kingston (K. & D.R.S.)—Alternate Wednesdays, 7.45 p.m., Penrhyn House, Penrhyn Road.
Lewisham (R.A.R.C.)—Wednesdays, 8 p.m., Durham Hill School, Downham.
Norwood—September 17, Windermere House, Westow Street, Crystal Palace, (G2FKZ "Modern Technique in V.H.F.")
Southgate and Finchley—October 13, Arnos School, Wilmer Way.
Slough—October 4, Venue from G2HOX or G3BTP, 13 Quaves Road, Slough.
Sutton and Cheam (S. & C.R.S.)—September 20, October 18, "The Harrow," Cheam Village.
Welwyn Garden City—October 4, 7 p.m., Annual Hamfest at the "Red Lion," Hatfield.

REGION 8

Brighton (B.D.R.C.)—Tuesdays, 7.30 p.m., "Eagle Arms," Gloucester Road.
Chatham (M.A.R.T.S.)—September 26, October 10, 24, 7.30 p.m., "Golden Lion," High Street, Brompton.
Hastings (H. & D.R.C.)—September 20, October 4, 18, 7.30 p.m., "Saxons Cafe," Denmark Place.
Isle of Thanet (I.O.T.R.S.)—Fridays, 7.30 p.m., Hilderstone House, Broadstairs.
Sussex R.A.E.N.—September 17, October 15, King's Head, Fishergate, nr. Brighton.
Worthing (W. & D.R.C.)—October 10, 7.30 p.m., Adults' Education Centre, Hawley Street.

REGION 9

Bath—September 19, 12 Pierrepont Street.
Bristol—September 16, October 21, 7.15 p.m., Carwardine's Restaurant, Baldwin Street, Bristol, 1.
Exeter—October 7, 7 p.m., Y.M.C.A., St. David's Hill.
Falmouth (W.C.R.C.)—September 15, October 6, 20, "The Fifteen Bells," Penryn.
North Devon—October 6, G3BO, "Rosebank," Westcombe, Bideford.
Plymouth—September 17, October 15, 7 p.m., Tothill Community Centre, Tothill Park, Knighton Road, St. Jude's.
Torquay—September 17, October 15, 7.30 p.m., Y.M.C.A., Castle Road, Torquay.
Weston-super-Mare—October 12, 7.30 p.m., R.A.F.A.R.S., R.A.F. Locking.
Yeovil—Wednesdays, 7.30 p.m., Grove House, Preston Road.

REGION 10

Cardiff—October 10, 7.30 p.m., "The British Volunteer," The Hayes, Cardiff.
Neath and Port Talbot—October 4, 7.30 p.m., Royal Dock Hotel, Briton Ferry.
(Continued on page 135)

New Members

Corporate Members, Home (Licensed)

G3DKX A. PERRY, 148 Henry Prince Estate, Earlsfield, London, S.W.18.
G3FOY N. R. CLARKE, 69 Buller Road, Belgrave, Leicester.
G3HLW D. A. PILLEY, 150a Barrack Road, Christchurch, Hants.
G3HUL D. M. MALLETT, 12 Gristock Road, Norwich, Norfolk.
G3IFR (Sgt.) L. G. WOOD, R.A.F. West Beckham, Holt, Norfolk.
G3JLY *S. J. SPARKS, 50 Nelson Street, Gainsborough, Lincs.
G3JNQ H. B. FOX, 12 Upper Eddington, Hungerford, Berks.
G3JZG R. J. RIDING, "Fibbersley House," Fibbersley, Willenhall, Staffs.
G3KFK K. F. KIPPEN, 27 Camborne Road, Southfields, London, S.W.18.
G3KFN A. R. BAKER, 35 Adelaide Street, Stonehouse, Plymouth, Devon.
G3KIK K. P. THOMPSON, 34 Westway, Raynes Park, S.W.20.
G3KIV K. E. BROCKWAY, 193 Rushton Road, Desborough, nr. Kettering, Northants.

G2TA R. C. RAY, Wintons End, Springfield, Bushey Heath, Herts.
G3AVN P. W. PARKER, Bowden Court, 24 Ludbrooke Road, Notting Hill Gate, W.11.
G3GNR R. E. SHOT, 177 Upper Shoreham Road, Shoreham-by-Sea, Sussex.
G3ILI B. J. ROGERS, 108 Woodvale, London, S.E.23.
G3IYY G. W. SHILEY, 49 Strathmore Road, Teddington, Middx.
G3JLM *G. P. WALFORD, 71 4th Avenue, Garston, Herts.
G3JWI R. M. PAGE-JONES, 216 Northgate, Cottenham, E. Yorks.
G3JXT *A. E. DEAKIN, 27 Ercall View, Kettering, Welling, Salop.
G3KAS F. H. STURDY, 21 Lingwood Gardens, Osterley, Middx.
G3KFD D. J. BILLINGHAM, 44 Norfolk Road, Wollaton, nr. Stourbridge, Wores.
G3KFO E. T. MATHIAS, 4 Regent Crescent, Falsworth, nr. Manchester.
G3KGM D. MACLENNAN, "Phillip Game," Ivyworth Place, Chelsea, London, S.W.3.
G3KGV K. A. BATES, 8 Grange Crescent, Southwick, Sunderland, Co. Durham.
G3KHV D. A. PRACK, High Barn, Wistborough Green, Billingshurst, Sussex.
G3KIR A. G. HACKER, Easton House, Obridge Road, Taunton, Som.
G3KJR B. DOWNS, 13 Rogerson Terrace, Wester Hope, Newcastle-on-Tyne.
G3KJT J. R. EDGINGTON, 27 East Drive, Carshalton Beeches, Surrey.
G3KSC G. R. M. GARRATT, Science Museum, London, S.W.7.
G3ALR R. FAULKNER, 64 Goldborough Crescent, Chingford, London, E.4.
G3CRS T. F. MOURANT, "Ivy Mount," 51 Mount Durand, St. Peter Port, Guernsey, Channel Islands.
GW3KGD P. H. RICH, 25 Stranraer Road, Pennar, Pembroke Dock, South Wales.

Corporate Members, Overseas (Licensed)

AP2U N. MOHAMED, c/o 6 Roberts Market, Quetta, Baluchistan, West Pakistan.
DL2YC L. VAN ERCK, R. Neth, A.F., R.A.F. Sunders, B.A.O.R., 39.
VS2ES 1903716, Cpt. J. D. KELLY, 272b A.M.O., R.A.F. Butterworth, c/o G.P.O. Penang, Malaya.
ZD8AA T. SHEPHERD, c/o Cable & Wireless, Ltd., Ascension Island, South Atlantic.
DL2YM T. J. CONNOLLY, 5 Medium Wireless Troop, 1 Sqn, 2 L of C Signal Regt., B.A.O.R., 4.
E1SH W. R. KENNEDY, 7 Morley Terrace, Waterford, Ireland.
LU5DAJ F. H. B. PHIP, c/o 69 Byron Road, Chelmsford, Essex.
VP2VB D. WELLS, 6 Deniston Avenue, Somerford, Christchurch, Hants.

VP5KJ K. J. ELLIOTT, Allsides, Stony Hill, Jamaica, B.W.I.
VS1GW J. W. MITCHELL, No. 2 Sgts, Mess, R.A.F. M.B. Seletar, Singapore.
W4OCW J. R. ESHLEMAN, Parkview, Harrisonburg, Virginia, U.S.A.
ZD4BO W. W. C. RIAD, College of Technology, Kumasi, Ashanti, Gold Coast.

Corporate Members (British Receiving Stations)

20737 H. L. KING, 122 Holwell Road, Welwyn Garden City, Herts.
20738 R. W. HILTON, 8 Hoghill Lane, Cobham, Surrey.
20739 R. COLLINS, 7 Nor' Bren Avenue, Bognor Regis, Sussex.
20740 J. H. JONES, 1 Church Road, Ashford, Kent.
20741 P. R. J. MADSEN, "Ivydene," Mary Street, Llanoafn North, Cardiff.
20742 J. W. V. RAYNER, 28 Tottenbury Road (off Valley Road), Basford, Nottingham.
20743 P. A. J. BRIDGWATER, The Willows, Shotton, Stratford-upon-Avon, Warwick.
20744 J. M. MCARTHUR, 24 Gorebridge Street, Glasgow, E.2.
20745 MISS M. GREEN, Allanbank, Bridge-of-Allan, Stirling.
20746 DR. E. D. WEST, 146 Brudenell Road, Upper Tooting, London, S.W.17.
20747 M. L. STANSFIELD, 7 Glendare Terrace, Lidget Green, Bradford.
20748 C. SPEAR, c/o 16 Upton Avenue, St. Albans, Herts.
20749 F. J. HETHERINGTON, 45 North Road, Selly Oak, Birmingham, 29.
20750 G. P. WESTCOTT, 7 Cross Street, Sandown, Isle of Wight.
20751 M. COOPER, 30 Fairbank Avenue, Oakhill, Stoke-on-Trent, Staffs.
20752 H. E. HUMPHRIES, 29 Green Road, Hall Green, Birmingham, 28.
20753 J. G. GRIFFITHS, "Charlbury," Foster-ville Crescent, Aberavenny, Monmouth.
20754 E. A. FOWLES, 110 Fairview Road, Cheltenham, Glos.
20755 *G. LINDSAY, 2 Queens Grove, Lewes, Sussex.
20757 A. R. MCWALTER, Woodside, Wemyss Bay, Renfrew.
20758 P. H. VOISEY, 135 Crofton Road, Orpington, Kent.
20759 J. W. WORTH, 17 Sunnycroft Road, Western Park, Leicester.
20760 *C. R. DUCK, "Summerfold," Angley Road, Cranbrook, Kent.
20761 G. B. SIBLEY, 32 Branksome Road, Merton Park, London, S.W.19.
20762 D. W. HOLMES, 6 Gilbert Street, Bridlington, E. Yorks.
20763 L. A. SIBERY, "Garth Villa," 49 Coity Road, Bridgend, Glam.
20764 K. W. MOORE, 17 Northcote Road, New Malden, Surrey.
20765 S. GREEN, Manor Farm Cottages, Barton in Fabis, Notts.
20766 A. BARNES, 7 Southpark Terrace, Glasgow, W.2.
20767 M. B. ABURROW, 6 Terance Road, South Shore, Blackpool, Lancs.
20768 G. E. AUSTIN, 2 Green Lawn Grove, Rock Ferry, Birkenhead, Cheshire.
20769 C. R. HAYMAN, 16 Swingate, Kimberley, Nottingham.
20770 D. ASTON, 7 Diana Gardens, Deal, Kent.
20771 H. HOYLE, 33 Southbank Avenue, Blackpool, Lancs.
20772 P. M. GOWERS, Fern Cottage, 75 High Street, Bidford-on-Avon, Alcester, Warwick.
20773 G. W. DOWNS, "Westcroft," Coniston Grove, Bradford, 9, Yorks.
20774 E. NUTTING, 8 Hope Street, Monk Bretton, Barnsley, Yorks.
20775 T. J. MOSS, 332 Shankill Road, Belfast, N. Ireland.
20776 P. WILLIAMS, "Springfield," Wainfelin Road, Pontypool, Mon.
20777 C. WITHERS, 4 Elizabeth Street, Abercynon, Glam.
20778 T. STEEL, 72 Market Street, Glasgow, S.E.
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Forthcoming Events (contd. from p134)

REGION 13

Dunfermline.—Thursdays, 7.30 p.m., behind 34 Viewfield Terrace, Dunfermline.

REGION 14

Falkirk.—September 30, October 14, 7.30 p.m., The Temperance Café, High Street, Falkirk.
Glasgow.—September 30, 7.15 p.m., Christian Institute, 70 Bothwell Street, Glasgow, C.2.

In order to avoid mistakes and misunderstandings details of meetings for inclusion in this feature can be accepted only from Regional Representatives or appointed Scribes.

Town Representatives and Honorary Secretaries of clubs affiliated to the R.S.G.B. should send details to the appropriate Regional Representative (whose address is on page 101 of this issue) so that they reach him not later than the 18th of the month preceding publication.

Items for Regional and Club News should, of course, be sent direct to the Editor.

Book Review

THE A.R.R.L. ANTENNA BOOK (Seventh Edition-1955), prepared by the A.R.R.L. Headquarters Staff. 311 pages, fully illustrated, with many charts and tables. Price 18/6 from R.S.G.B. Sales Department.

The present edition, of 15 chapters, forms a most practical treatise on a subject which can be rather drearily mathematical. The only calculations left to the reader are elementary arithmetical ones. This has been achieved by the generous use of graphs from which the required information can be found.

The aerial situation is probably the most complicated design problem the amateur has to face. It is complex due to the situation and physical circumstance, to the differing requirements of the various bands, to feeding difficulties, to directional considerations, and to many factors including, very often, a lack of confidence unusual when dealing with other circuitry.

The *Antenna Book* has been a real help and guide in past years, and this revised edition will be valued, as were its predecessors, for its practical and quickly accessible information, and its sound advice. The experienced amateur, or engineer, equally with the newcomer to radio, will be glad to have it, for it is neither a beginner's book nor an advanced textbook. It is a most useful design manual for those who, as someone else has said, "are more interested in what the tin contains than in the beauty of the tin-opener."

It is right that good production should be noticed and commended. This book is perhaps the most attractive the A.R.R.L. has produced, and has distinction and elegance.

T.P.A.

New Books

TELEVISION RECEIVER SERVICING: Volume II: Receiver and Power Supply Circuits, by E. A. W. Spreadbury, M.Brit.I.R.E. Published by Trader Publishing Co., Ltd., and distributed by Iliffe & Sons, Ltd. Size 8½ in. x 5½ in. Available from R.S.G.B. headquarters. Price 21s. 0d. net (postage 9d.). 308 pages. 172 illustrations.

This is the second volume of a comprehensive book written especially for radio service engineers who wish to obtain a thorough knowledge of television servicing work. It assumes that the reader already has a reasonably good grasp of the principles of radio servicing, and it extends these to television's more complex circuits and techniques.

The first volume covers the time-bases and their associated circuits only. This volume deals with all the other sections of the modern receiver, including the video stage, tuning circuits, sound channel, power supplies and aerial arrangements. Attention is also paid to such matters as vision interference suppression, the various multi-channel tuning systems now in use, vision automatic gain control, and the problem of reflections and "ghosting." A final chapter gives much valuable information on the technique of circuit alignment.

The text is presented in a practical and straight-forward manner, and the numerous illustrations include a wide variety of actual circuits, each of which is discussed in detail.

The two volumes can be strongly recommended to service engineers who intend to take the Television Servicing Certificate Examination conducted by the City and Guilds of London Institute and the Radio Trades Examination Board, particularly in the practical test.

SECOND THOUGHTS ON RADIO THEORY by "Cathode Ray". Published for *Wireless World* by Iliffe & Sons, Ltd. Size 8½ in. x 5½ in. 409 pages. 266 illustrations. Available from R.S.G.B. headquarters. Price 25s. (postage 9d.).

"Cathode Ray" will need no introduction to readers of *Wireless World*; for over twenty years he has been expounding and explaining radio theory in the pages of that journal in his own inimitable way. This book contains a selection of more than forty of his articles. The articles, each complete in itself, throw new light on many subjects in the field of radio.

The topics are mostly elementary, dealing with basic electrical ideas and with straightforward circuit elements, tech-

niques and calculations. Too often it is these things that are taken for granted or glossed over in hurrying on to "something practical."

Here are several books in one: an entertaining and helpful textbook for the beginner; a first-class refresher course for the professional whose student days are growing rather distant; and a mine of useful reference information for everyone interested in radio and its allied subjects.

WIRELESS WORLD F.M. TUNER by S. W. Amos, B.Sc. (Hons.), and G. G. Johnstone, B.Sc. (Hons.). Published by Iliffe & Sons, Ltd., Price 2/- net (postage 3d.).

This is a reprint of articles from *Wireless World* describing an up-to-date tuning unit for reception of v.h.f. broadcast programmes between 87.5 and 100 Mc/s. The unit is designed for use with existing high fidelity audio amplifying equipment and also in conjunction with a normal receiver having provision for a gramophone pickup.

P. H. BRANS' RADIO-TUBE VADE-MECUM 1955. Chief Editor, Dr. J. A. Gijzen. 381 pages. Published by P. H. Brans, Ltd., Antwerp, and available from Bailey Bros., and Swinfen, Ltd., London, W.C.2.

This is the 12th Edition and the 33rd printing of Brans' world-famous valve Vade-Mecum.

Invaluable to all who have business with valves.

FROM THE ELECTRON TO THE SUPERHET by J. Otte, P. H. F. Salverda and C. J. Van Willigen. 700 pages. Page size 11 in. by 7½ in. 722 illustrations and 11 circuit diagrams. Published by Philips of Eindhoven, Holland. Price 55/- from Cleaver-Hume Press, Ltd., London, W.8.

This mighty tome contains 42 lessons each with questions and answers. It is printed in Varitype and bound in a green linen cover. Each lesson deals with a specific subject and the whole course is based on radio service practice.

PRACTICAL ELECTROACOUSTICS by M. Rettinger, M.A. 271 pages. 175 diagrams. Page size 8½ in. by 5½ in. Printed in the U.S.A. and published by Thames and Hudson, Ltd., London, W.C.1. Price 63/-.

This book gives a detailed description and analysis of the essential units of audio-communication equipment. It also covers related subjects such as cross-over networks and attenuators. The author is in the Engineering Dept., R.C.A.-Victor Division, R.C.A., Hollywood, California.

BRIMAR RADIO VALVE AND TELETYPE MANUAL No. 6. 272 pages. From Standard Telephones and Cables, Ltd., Footscray, Sidcup, Kent. Price 5/-.

This manual, which supersedes No. 5, gives data on Radio Valves, Teletubes, Brimistors, Metal Rectifiers, Germanium Diodes and Transistors. There is a useful circuit section and a section devoted to Formulae. The appendix includes a substitution list of American and other types and Brimar equivalents to the CV series of valves.

Silent Keys

REG BOWERS (G3CXD).

With sorrow we record the death, suddenly and in tragic circumstances, on August 24, 1955, of Mr. Reg Bowers (G3CXD), of Newcastle-under-Lyme, Staffordshire. Travelling in his car along the Chester High Road, near Heswall, Cheshire, Mr. Bowers collapsed at the wheel, swerving to the off-side and colliding with a van. His wife was taken to hospital suffering from shock but fortunately his children and the van driver were unhurt.

Mr. Bowers spent 30 years in the Engineering Department of the Post Office. He was promoted to Inspector in 1936, to Chief Inspector in 1941 and to Assistant Engineer in 1946. He had been interested in Amateur Radio for more than 20 years and was for some time C.R. for Staffordshire.

Sympathies are extended to Mrs. Bowers and her family.
D. P.

KEN DALKIN (G3CXF)

The death occurred suddenly last month of Mr. Ken Dalkin, G3CXF, of Wolverhampton. Ken was a quiet unassuming operator whose knowledge of electronic and radio engineering was extensive. He was an enthusiastic constructor, always ready to help others.

Our sympathies are extended to his family.

G6UI.

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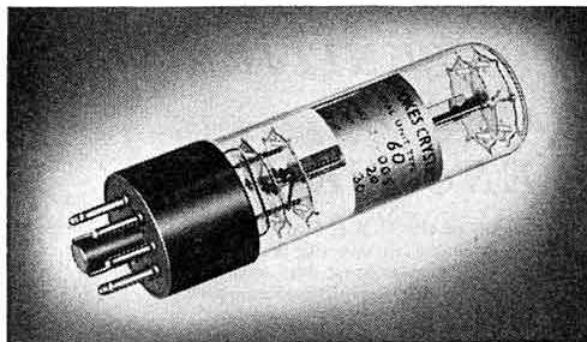
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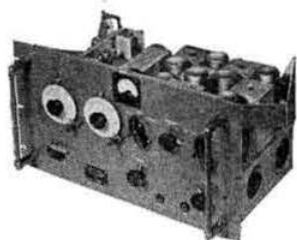


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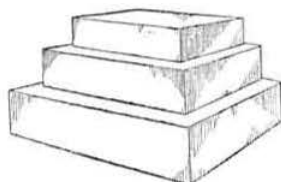
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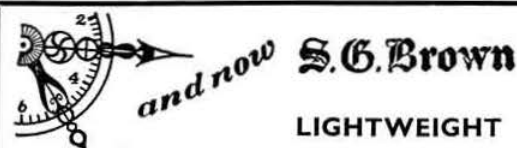
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14RC.1-1-16-1	Half-wave	250	280	20	1	8	450
14RA.1-1-16-1	"	125	140	60	1	32	200
14RA.1-1-16-1	"	250	280	60	1	16	450
14RD.2N-1-16-1	"	250	280	150	1	32	450
14RA.1-2-8-2	"	250	280	150	1	64	450
14RA.1-2-8-2	"	250	280	150	1	100	450
14RD.2N-1-16-1	Centre tap	250-0-250	280	200	1	24	450
14RA.1-2-8-2	Voltage doubler	125	270	200	2	100	450
14RA.1-2-8-2	"	125	270	300	2	120	450

BRIDGE CIRCUIT

Rectifier catalogue number	No. needed for bridge connection	Max. input volts (RMS)	Nominal output voltage	Max. output current (mA/mean)	Condenser details		
					No. needed	Cap. uF	Work's voltage
14RA.1-1-16-1	4	250	270	120			
14RA.1-2-8-2	2	250	270	120			
14RA.1-2-8-2	2	250	270	120			



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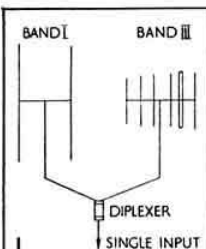
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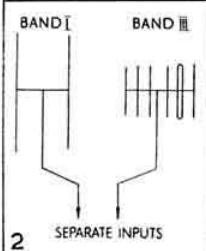
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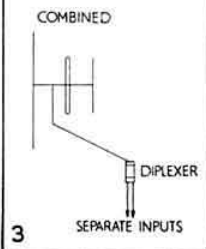
DIPLEXER TUNED FILTER



1 A diplexer is necessary where separate band I and band III aerials are fed to a receiver having a single input for both frequencies.

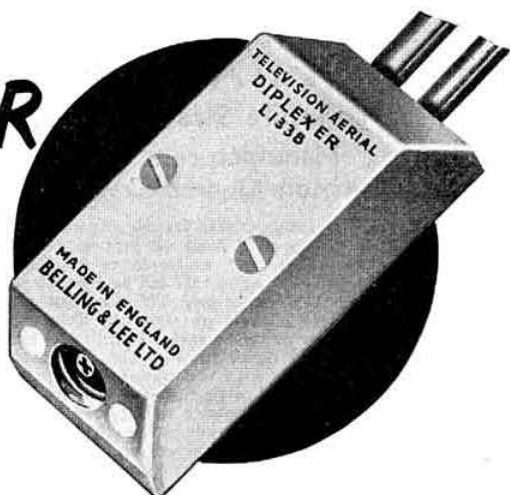
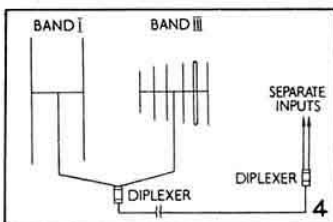


2 A diplexer is not needed where separate band I and band III aerials are fed to a receiver having separate input sockets.



3 A diplexer is only required with combined band I/band III aerials, or aerials fitted with adaptor units, where the receiver has separate inputs.

4 On long cable runs, it is often more economical to fit a diplexer at each end, utilising a single feeder low-loss cable.



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"A" indicates original makers cartons.				"B" plain cartons			
A	B	A	B	A	B	A	B
3C26 4/9	4/3	6K7G 5/0	8/0	7V7 5/9	6/9	EB91 7/3	7/3
6F6G 7/0		6K8G 8/0	8/0	8D3 6/9	EC31 3/6		
6H6 3/6		6Q7GT 8/0	7/6	12H6 2/9	EF92 5/6		
6J5GT 3/9		6SH7 5/6	8/0	80 8/0	HL23DD 8/6		
6J7 6/6		6SK7 5/9	7/93	2/6	KTZ63 6/0		
6J7G 7/6		6V6G 6/9	9004 6/6	6/6	RK34 2/3		
6K6GT 6/0		6X5GT 8/0	EB34 1/9	1/9	VU113/0		

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A few turns by hand with the Allen key enables clean circular hole to be cut. 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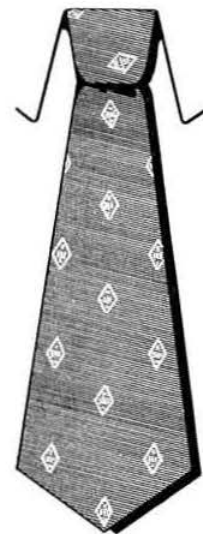


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EDDYSTONE S750. In excellent condition, £38, G3BHT, "Hove To," Sandy Lane, Hightown, nr. Liverpool. Tel.: Hightown 182. (771)

EXCHANGE, R.M.E. 69, D.B.20 Pre-selector and AVO Electronic Testmeter for AR88D or SX28. In good condition, Box No. 773, National Publicity Co., Ltd., 36/37 Upper Thames Street, London, E.C.4. (773)

FOR SALE, 1155 Receiver with power supply, 1154 transmitter with 1t. supply, Also RF27 and 1132A Receiver less 8 valves, What offers? B. N. Cawley, 83 Woone Lane, Clitheroe, Lancs. (765)

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THE NATIONAL PUBLICITY CO., LTD.

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

GOING mobile? Command receiver 5-1.5 Mc/s 12 V, £4, U.S.A. Dynamotor for same, 15/-. "Simplicity" e/c converter complete components, valves, silver-plated case, 35/-, 19 set p.p. (British) 2 motor (see BULLETIN, October 54, page 193), £3. Box No. 791, National Publicity Co., Ltd., 36/37 Upper Thames Street, London, E.C.4. (791)

GOODMANS Hi-Fi m.c. microphone Z.33, unused, £4. Impedance transformer to match, 7/6. 3E29 (2) new boxed, 35/- each. Base, 5/-, OVO6/20 (2) new boxed, 30/- each, ACR10 2 1/2" tube, 17/6, STC 14 Mc/s crystals B7G, 2/6 each (5) new boxed, "Motovis" 12 V medium wave car radio, £9 10s, Brand new, Box No. 790, National Publicity Co., Ltd., 36/37 Upper Thames Street, London, E.C.4. (790)

G3HDG needs "CQ" January, March, April, June, 1945, "QMF" before June, 1952, "Monitor" since February, 1954, G.E. "Ham News" before 1952, R.C.A. "Ham Tips" before 1950, "B.S.W.L. Review" before August, 1941, November, 1941, September, 1948, to February, 1949, "ORP" November, 1949, "Radial" January, 1955, F.O.C., B.T.C.C., newsletters, 95 Ramsden Road, London, SW.12. (780)

METALWORK—All types cabinets, chassis, racks, etc., to your own specifications. Philpott's Metal Works Ltd, (G4BI), Chapman Street, Loughborough. (799)

NEW 813 exchange "Top band" HRO and b.s. 14 Mc/s coils, G3IUL, 4 Edward Road, E. Bedford, Middlesex. (776)

OFFERS, CNY1, control unit: 145 v.f.o., 392 power pack; B28; all handbooks. Wanted: Radiovision Commander; ZM converter, G5XD, Christian, 65 Church Lane, Oakley, Bedford. (798)

PATENTS and Trade Marks, Handbooks and advice free, Kings Patent Agency, Ltd. (B. T. King, G5TA, Mem. R.S.G.B., Reg. Pat. Agent), 146A Queen Victoria Street, London, E.C.4. Phone: City 6161, 50 years' refs. (98)

(Continued on page 144)

EXCHANGE AND MART SECTION (Cont.)

QSLs and log book (P.M.G. approved), Samples free, State whether G or B.R.S. Atkinson Bros., Printers, Elland, 400

Q-5'er (Partly Modified), 55/-; CR100 coil pack, tuning condenser 51F's including crystal filter, b.f.o., 75/-; auto-transformer 200/250V-50c/s in-110V 30/60W, out, 30/-; QCC certificated crystal 7008 kc/s, 17/6. Samson, 35 Quality Street, Davidson's Mains, Edinburgh, 4. (784)

RADIOCRAFT type 45 transmitter, 25 watts, £6 10s. TI403 less valves, £2 5s. Radiocraft type 21M modulator, As new, £8. Crystals 3510-3522-3527-3545-3610-3650, 10/- each, or best offer for all above. Box No. 786, National Publicity Co., Ltd., 36/37 Upper Thames Street, London, E.C.4. (786)

REAL bargain, Portable O.V.I. S.W. battery receiver, will cover all bands, fitted set, spread calibrated, very economical, excellent condition, very cheap. S.a.e. for particulars, Box No. 794, National Publicity Co., Ltd., 36-37 Upper Thames Street, London, E.C.4. (794)

R208 Indicator unit No. 6, offers? Sell or exchange other items and valves, what have you? S.a.e. for list. Wanted: CR100 cabinet and dial, 3,500 crystal, 6V6GT, G3GHC, "Lyndale," Newport Road, Great Bridgeford, Stafford. (766)

SALE, Eddystone Bug new, 25/-, Woden transformer DTM15a new, 50/-, Woden choke 150mA, 15/-, German communications receiver 5-25 Mc/s, grey crackle, internal speaker, 7 valves plus spares, Input 230/110 V a.c. or 24 V d.c. Working but needs alignment, £4. G3JUV, 48 Rothwell Road, Newcastle-on-Tyne, 3. (781)

SALE, Sound Sales 50 watt amplifier, two 807's in p.p. Grampian moving coil microphone with transformer and case, Also Vita-vox Bi-tone speaker, £25 or near offer, North, Hill Crest, Northop, Flint, 3. (787)

SALE, 150W phone cw transmitter 10, 20, 40m, v.f.o., 6' rack, Good working condition, £50 or offer, Valves: New (2) 866, 15/- each, (4) 24G (3C24), 20/- each. Phone: Blechley 629, G3AGM, Mentone Avenue, Aspley Guise, Blechley, Bucks. (795)

SCOPHONY Baird Tape Recorder, spare tapes. All complete and little used, £35 or Edison office intercom with six extension speakers. First offer over £16 secures. Also latest Avometer, £6. Kirkwood, Queenswell Lane, Forfar. (789)

SCR 522 complete, 19 valves, control rack, crackle case, as new, bargain £8, if buyer collects. S.a.e. enquiries. Lawn, 20 Croft Road, Godalming, Surrey. (763)

SCR522, Transmitter-receiver, 100-156 Mc/s, unmodified, new, complete with valves, ideal for 2 metres. What offers? R.C.A., 813 filament transformer, £1, Taylor signal generator, perfect, new condition, dummy aerial, etc., £10. New mains transformer, 500.0/500 at 120 mA, 2.0/2 volts at 4 amps; 3 times, 10 volt 1 amp; 30/-, Coil pack for R1224A, 10/-, FL8 Audio filter unit, 10/-, Quantity 2 volt valves, 1/- each. Exchanges considered. Wanted urgently, case for BC342N, also AR88D spares, F. W. Hardstone, 43 Shrubbery Road, Streatham, London, S.W.16. (796)

SIGNAL generator 98-152 Mc/s, £2 10s. R103A, mains model, £10. 6 ft. rack, 35/-, Components, s.a.e. list, McClelland, 45 Fairfield Road, Epping, Essex. (778)

S23 in very lb condition with auto transformer and 8" loudspeaker. Covers all Ham bands with handspread on 80, 40, 20 and 10 metres. Offers? Type 145 VFO cabinet at 10/-, 6V6M at 10/- each. Crystals 8060, 7010, and 7100 kc/s at 10/- each, G3GMY, F. Green, 68 The Drive, Barnet, Herts. (774)

S27, 28 to 143 Mc/s, Revalued, Resprayed, No mods, Manual, £25 o.n.o. G2BYN, 51 Pettit Lane, Romford, Essex. (785)

THE ideal shack: Caravan (6ft x 9ft); fitted benches, cupboards, wiring, etc., as used by G2HCG; completely weatherproof. B. Sykes, 41 Boothlane North, Boothville, Northampton, (Phone: Northampton 1791 (Business): Moulton 3371 (out of business hours). (797)

VALVES at 1/6 D1, EA50, At 2/- CV60, 7193, P61, EB34, At 3/- KTW63, 1561, 45, 4033A, 76, 27, 37, EF54, 66, HD21, UT50, HL2K, KT8, PD220, CV54, ACP4, 7V7, 12AW6, 4687, RL37, 657, HVR2A, 1637, ILNS, DDR5, 6SH7, KT8, 57, AC/4PEN, TP25, P215, V960, 42, 83, At 4/- 6K7G, 58, 59, 41, VR135, ECC31, 6AC7, EL32, 56, 313C, EF36, 7475, 9004, 6AG8, 9D2, 717A, 9001, 6L7, 2X2, HL23DD, 6CS, KT44, At 5/- D63, 75, 78, HL23, SP42, 25Z4G, 25L6G, 6L6, 6V6, 12A6, 956, 3B24, TZ20, TVO3/10 (similar RK34), RK20A, CV54, DET20, 18D2, At 7/6 T40, RK11, 211, 6X4, GZ32, HK24, 5346Y, At 10/- DET18, 35T, 808, 8005, 8012, EC91, QV04/7, At 25/- 931A, At 50/- QV07/40, 829B, Please add 3d, each post/packing, Enclose s.a.e. for refund if sold, G. A. Jeapes, 129 Cambridge Road, Trumpington, Cambridge. (767)

WANTED BC, 610 Hallicrafters, ET4336 transmitters and spare parts for same, Best prices, P.C.A. Radio, Beaver Lane, Hammersmith, W.6. (626)

WANTED: HRO coils, receivers, power packs, AR88Ds, AR88Lfs, SX28s, BC348s, AR77s, and many other types, also laboratory test equipment and R54/APR4, TN17, TN18 and TN19 units. Details please to R. T. & I. Service, 254 Grove Green Road, Leytonstone, London, E.11 (LEY 4986). (101)

APPOINTMENTS SECTION

Situations vacant

ASSISTANT SIGNALS OFFICERS required by the CIVIL AVIATION DEPARTMENT NIGERIAN FEDERAL GOVERNMENT for one tour of 12 to 24 months in the first instance. Officers may be appointed (a) on agreement with prospect of permanent and pension-

Continued in next column

able employment in the salary scale (including expatriation pay) £750 rising to £1,315 a year or (b) on contract terms with salary scale (including expatriation pay) £807 rising to £1,423 a year with gratuity of up to £150 a year. Outfit allowance £60. Free passages for officer and wife, and assistance towards cost of children's passages or their maintenance in U.K. Liberal leave on full salary. Candidates must have a knowledge of the fundamental principles of electricity and magnetism and of radio engineering with experience in the maintenance of aeronautical radio transmitters and receivers, direction finders, test equipment and small petrol and diesel engine generator sets. Workshop experience and a knowledge of radar will be of advantage. Write to the Crown Agents, 4 Millbank, London, S.W.1. State age, name in block letters, full qualifications and experience and quote M2C/41148/RC. (793)

ASSISTANT TECHNICAL SUPERVISOR required by the NIGERIAN BROADCASTING SERVICE for two tours of 15-18 months each in the first instance. Candidates may be appointed (a) on agreement with prospect of permanent and pensionable employment in the salary scale (including expatriation pay) £750 rising to £1,175 a year, or (b) on contract terms with salary scale (including expatriation pay) £807 rising to £1,269 a year with a gratuity of £100/150 a year. Outfit allowance £60. Free passages for the officer and his wife and assistance towards the cost of children's passages or their maintenance in this country. Candidates should have administrative ability and have had wide theoretical and practical experience of low-frequency amplifiers and radio equipment. Write to the Crown Agents, 4 Millbank, London, S.W.1. State age, name in block letters, full qualifications and experience and quote M2C/30482/RC. (769)

RADIO OFFICERS required for the POST and TELEGRAPHS DEPARTMENT, NIGERIAN FEDERAL GOVERNMENT, for one tour of 12-24 months in the first instance. Candidates may be appointed (a) on agreement with prospect of permanent and pensionable employment in the salary scale (including expatriation pay) £750 rising to £1,175 a year, or (b) on contract terms with salary scale (including expatriation pay) £807 rising to £1,269 a year with gratuity at the rate £100/150 a year. Outfit allowance up to £60. Free passages for Officer and wife and assistance towards cost of children's passages or grant up to £150 a year for their maintenance in U.K. Liberal leave on full salary. Candidates must have recent experience in operating wireless and direction finding ground stations for air services, and possess a P.M.G. Certificate in radio telegraphy, an air operator's certificate, or equivalent service qualification. They must also have a thorough grounding in I.C.A.O. codes and procedures. Write to the Crown Agents, 4 Millbank, London, S.W.1. State age, name in block letters, full qualifications and experience and quote M2C/41111/RC. (770)

RADIO TECHNICIAN required by the GOVERNMENT OF KENYA for service as INSPECTOR OF POLICE, GRADE I (SUPERNUMERARY) for one tour of three years with possibility of permanency. Commencing salary (including present temporary allowance of 35 per cent. of salary) according to previous experience in scale £796 rising to £1,134 a year. Gratuity (at least £247 after three years' service). Outfit allowance £30. Uniforms allowance £10. Separation allowance payable to married men under certain conditions. Free passages. Liberal leave on full salary. Candidates, preferably unmarried, aged 20-35, should be at 5' 7" without footwear and be of good education. Vision—good standard required by men who wear spectacles are eligible provided that they are not greatly incapacitated without them. Candidates must hold City and Guild Certificates in Radio and/or Telecommunications or have had at least four years' experience with the Technical Radio Branches of the Services or with a reputable firm or a Government Department. Married men should note that it is unlikely that accommodation could be found for their families during the first tour. Write to the Crown Agents, 4 Millbank, London, S.W.1. State age, name in block letters, full qualifications and experience and quote M1/36753/RC. (777)

TECHNICAL INSTRUCTOR (BROADCASTING) required by the BROADCASTING SERVICE, NIGERIAN FEDERAL GOVERNMENT, for two tours of 12 to 15 months each with possibility of permanency. Salary scale (including expatriation pay) £1,307 rising to £1,453 a year plus gratuity at rate of £150 a year. Outfit allowance £60. Liberal leave on full salary. Free passages for Officer and wife. Assistance towards cost of children's passages or grant up to £150 annually for maintenance in U.K. Candidates should have had instructional experience and a good theoretical and practical knowledge of radio communication as applied to M.F., H.F., and V.H.F. transmitters and receivers with a knowledge of mathematics, electricity and magnetism. Write to the Crown Agents, 4 Millbank, London, S.W.1. State age, name in block letters, full qualifications and experience and quote M2C/30513/RC. (775)

WIRELESS STATION SUPERINTENDENT required for the POSTS and TELEGRAPHS DEPARTMENT, NIGERIAN FEDERAL GOVERNMENT, for one tour of 18 to 24 months in the first instance. Option of appointment (a) on temporary terms with salary scale (including expatriation pay) £864 rising to £1,392 a year with gratuity at the rate of £100/150 a year, or (b) with prospect of pensionable employment with salary scale (including expatriation pay) £750 rising to £1,175 a year. Outfit allowance £60. Free passages for officer and wife. Assistance towards cost of children's passages or grant up to £150 annually for maintenance in U.K. Liberal leave on full salary. Candidates must have had wide practical experience of modern radio technique and equipment, in particular v.h.f. equipment, and preferably also v.h.f. multichannel equipment. Write to the Crown Agents, 4 Millbank, London, S.W.1. State age, name in block letters, full qualifications and experience and quote M2C/30086/RC. (792)

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Marconi CR.100 receiver, 60-420 kc/s and 500 kc/s to 30 Mc/s ... £25
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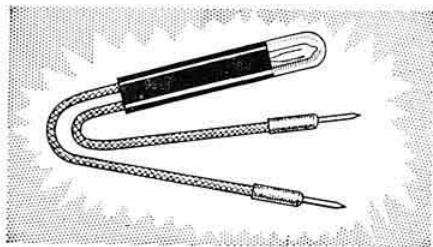
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