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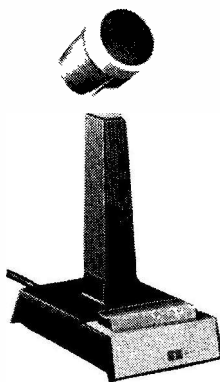
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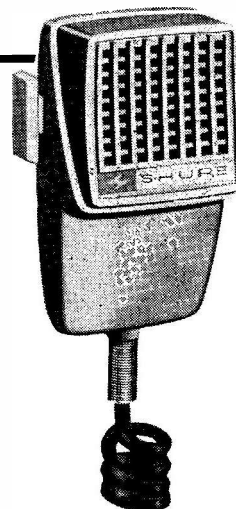
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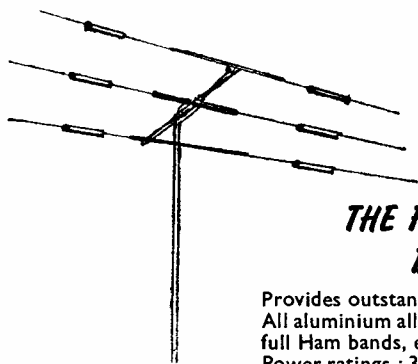


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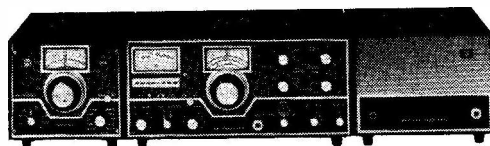
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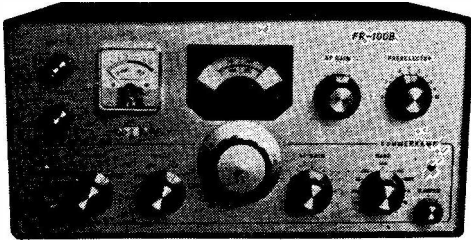
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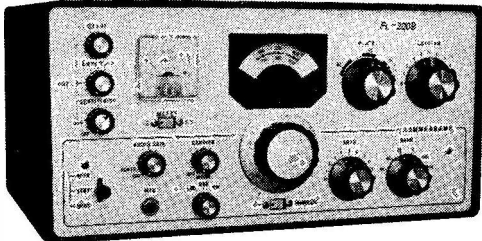
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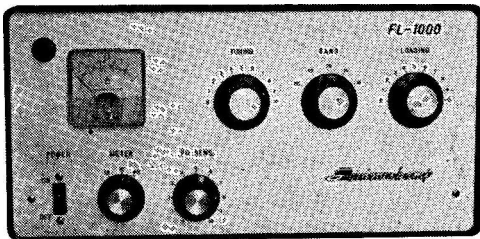
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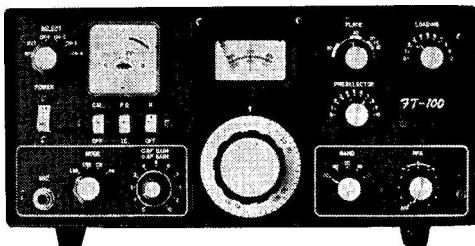
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- HAMMARLUND SP600X—Very, very few Rx's do I enthuse about, but this is one of them. I have a bunch of unmarked beauties at £95 each and worth every penny of it.

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**NOTE :** I usually carry a much larger stock than advertised, but there is not much point advertising something I know very well I can sell tomorrow. What a lot of the boys do is to drop me a line saying what they want—if I haven't got it, I keep my eyes and ears open and inform the chap concerned when I've got something. So, if you want a particular piece of gear, give me a yell!

Incidentally, I'm always interested in the more exotic stuff such as 51J's, 75A's, etc., and will guarantee to offer you a low, low price so that I can get fat on the profits! Anyone wanting such equipment at a high, high price—sing out.

P.S.—One thing I've always wanted to know—you know those terminals at the back where you connect the speaker? Why do they make the screw conical so that no matter what you do, the wire is squeezed out!! 'Tis a fiendish plot, I tell 'ee.

**SERVICE DEPARTMENT :**

Just as I thought, John is proving worth his weight in gold. Incidentally, I wouldn't mind betting that 95% of Rx's in use could be improved by meticulous attention. In fact, I'll stick my neck out and say that if you bring your set along and we can't improve it—no charge! Fair enough?

**73 de Bill. VE8DP/G3UBO.**

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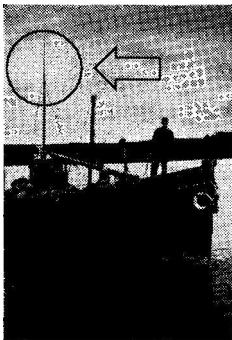
Throughout the development of radio communication the keen private experimenter has contributed largely to the advance of our science. The amateurs of the thirties pioneered reliable shortwave transmission and reception. Basic theories and their practical application are to this day latched in the fertile minds of ingenious men who are the leading amateurs of our time.

The Joystick Aerial System can now be regarded as the perfect example of a purely amateur development "turning professional." Thousands of Joystick variable frequency aerial systems have been sold. The enormous number of enthusiastic testimonials that have accumulated at the Joystick factory are now in themselves calling for a separate filing room! The continuing success of the VFA has not only spread right round the world but has finally penetrated the barrier of professional and official circles. Professional bodies in the U.S.A., Europe, Africa and the Far East have ordered VFA systems for operational use and for experimental work. Security forbids the whispering of names but clearance has been given to mention the Nigerian Police and an Australian fire control organisation.

In the Scottish fishing boats which have installed the system communication with other ships and shore stations has become considerably more reliable over difficult paths.

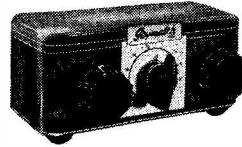
This VFA system is a remarkable invention and its unique quality of high performance at any selected frequency from 1 M/c. to 30 M/cs.—particular from difficult locations—has radically changed the attitude of both the licensed amateur and the shortwave listener towards their aerial problems.

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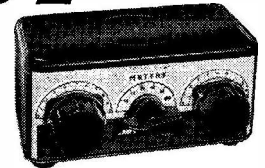


## Scottish Fishing Boats. Aerial Problems solved!

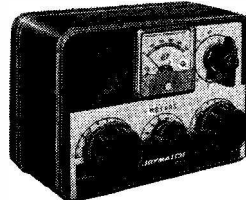
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**Joystick Type 2A** — General medium wave coverage extending over short wave spectrum.



**Joystick Type 3A** — General short wave coverage for SWL. Bandswitched for amateur bands.



**Joystick Type 4RF** — For transmission and reception on 160–10 metres. Includes RF meter for peak efficiency.



**Joystick Type 3** — General shortwave coverage SWL (Junior model).

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You are strongly recommended to contact the Joystick factory immediately (or one of our agents) for a brochure with full details.

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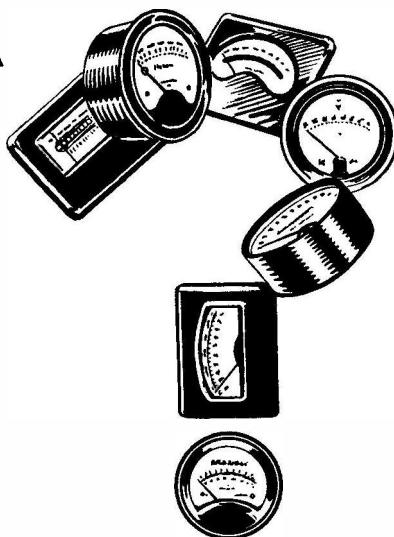
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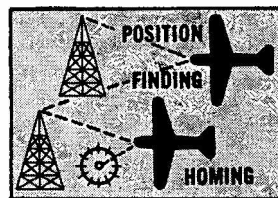
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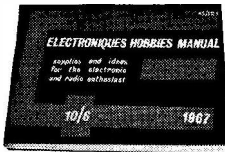
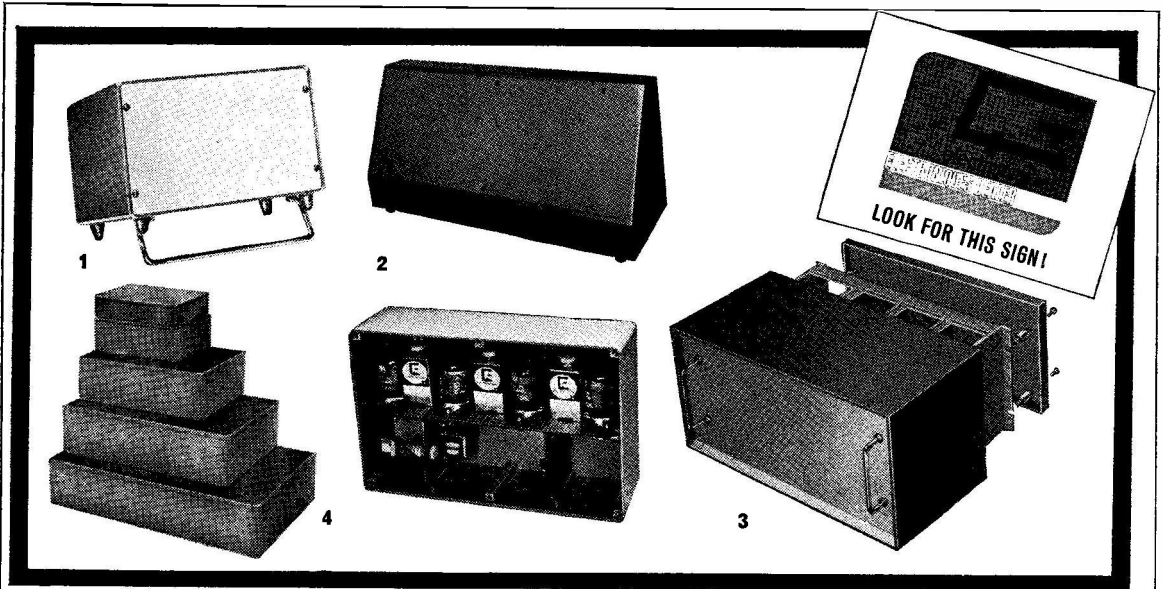
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(GB3SWM)

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MARCH, 1967

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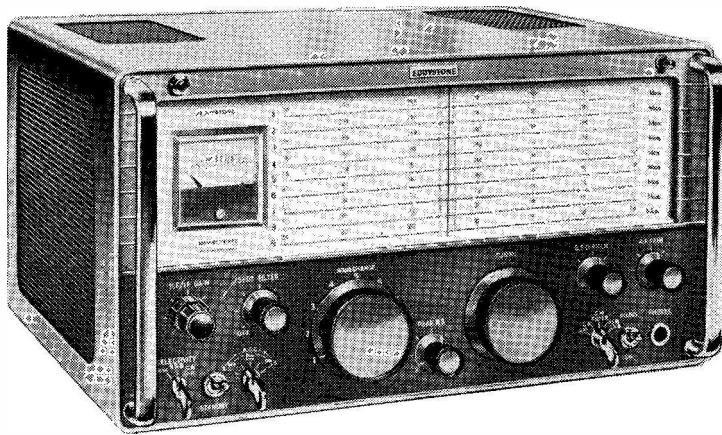
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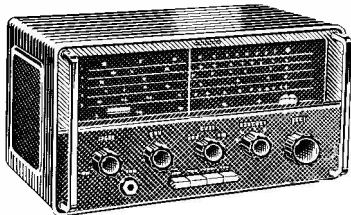
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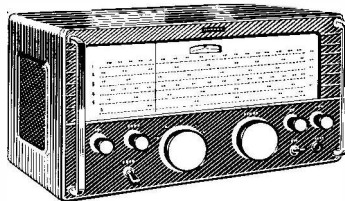
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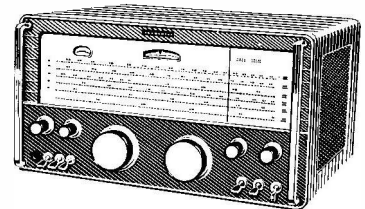
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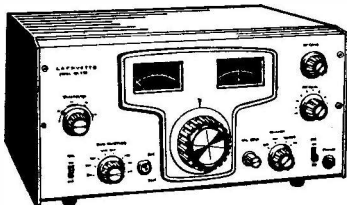


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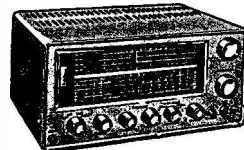
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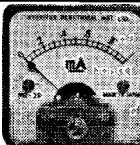
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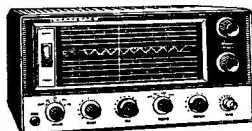
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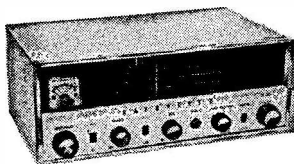
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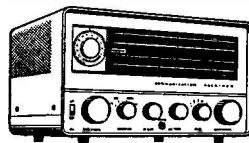
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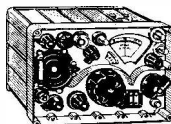


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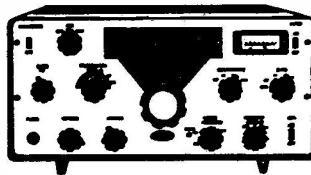


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# The SHORT-WAVE Magazine

## EDITORIAL

**Integrity** *It is unfortunate but true that during the last 20 years or so there has been a steady decline in general standards of behaviour and what can only be called "the attitude of the individual." History shows that this is one of the results of war and its aftermath, when all sorts of things are done for reasons of expediency or in the exigencies of the moment. Inevitably, this tends to engender an off-hand attitude to what is right, carried on into the day-to-day life of too many individuals. In the end, it becomes the done thing to "work a quick one if you can get away with it." This leads to a deterioration of standards generally, as evidenced (to quote only one example) by the coarse vulgarity of much of what is shown on TV, and the witless ignorance of many people whose opinions are publicised merely because they happen to be notorious.*

*And what, you may properly ask at this point, the heck has all this moralising to do with Amateur Radio—supposed (and believed by many of its keenest adherents) to be at least a straight game, played for its own sake.*

*The truth is that there is strong evidence of a good deal of pretty dirty work going on in Amateur Radio, too. We refer not to the use of power beyond the licensed limit—we have always held this to be a matter between the individual and the Post Office, though this does not mean it can be condoned—but to sly trickery to get round the rules in contests and the gaining of awards. In the old days, contests on the amateur bands were played off not only strictly to the rules but also in their spirit. Nobody would think of trying to "put over a quick one." It simply wasn't done.*

*Nowadays, there is a tendency, in some quarters at least, to look at the rules first to see in what way they offer loop-holes through which some advantage might be gained. Conscience is stilled by the reflection that "other people will be doing it, too."*

*And yet, in Amateur Radio, there is absolutely no need for this sort of thing. It is still a game that can be played for its own sake and in the spirit of the rules—and is far pleasanter, much easier and more interesting that way! But as soon as winning becomes a status symbol—like white-walled tyres, holidays on the Costa Brava and a bigger coffee-table than next door's—then the means and the schemes to win become the paramount consideration.*

*Better that we drop contests and awards altogether than have to consider adopting espionage methods to ensure that the rules are observed.*

*Austin Forster,  
G6FO.*

## THE FIELD-EFFECT TRANSISTOR

### CHARACTERISTICS, COMPARISONS AND SOME PRACTICAL APPLICATIONS— A GENERAL SURVEY

D. HOLLINGSBEE (G3TDT)

*There can be no question that the Field-Effect Transistor marks another great stride forward for the designer of radio circuits. While a certain amount of information has already been published on F.E.T.'s, this interesting article will introduce the subject to many keen amateurs. It is said that some of the more senior professionals (having been brought up on valves) have had a little difficulty in getting to grips with the transistor—while not a few of the younger radio engineers are almost equally baffled by the multi-electrode valve. With the advent of the F.E.T., and its adaptability to valve circuitry, the general understanding of semi-conductor devices should be spread far wider, among both professionals and radio amateurs—particularly as it seems that about the only difference between the valve and the field-effect transistor for receiver front-end use is that no valve can equal the performance of the F.E.T.*

—Editor.

ANY engineer, be he amateur or professional, would be interested in the Field-Effect Transistor or F.E.T., a device with characteristics close to those of a thermionic valve yet with operating conditions similar to a conventional transistor.

It is a matter of history that the search for a replacement for the valve led Bardeen and Brattain to the discovery of transistor action, but the search did not stop with the development of that cold-hearted little beast. You see, the transistor is essentially a current-operated device which means that (in the majority of circuits) the control electrode (the base) presents a low resistance (impedance) to the control signal. While this is an advantage under some conditions, it precludes the use of directly connected high-impedance or high-Q circuits, while the number of electrons—or should it be “holes”—bouncing about does little to keep the noise level down. In the F.E.T. the control electrode, now known as the *gate*, is voltage controlled and, subject to correct bias, is in effect a reverse-biased diode presenting an impedance measured in megohms shunted by a capacitance often less than 10  $\mu\mu\text{F}$ .

Historically the F.E.T. is not new. The earliest reference would appear to be a patent taken out by one J. E. Lilienfield in 1933 and it was in 1952 that W. Shockley gave details of two field-effect transistors in practical form. Eight years later the first commercial F.E.T.'s were available in the U.S.A. By 1963 no less than ten American companies were producing their own versions, but they were expensive and unpredictable.

It has only been in the last twelve months or so that manufacturing techniques have improved the F.E.T. to a point where it is commercially acceptable. Even so, the variety of types available and the varied (often exotic) descriptions make analysis of the position very difficult. This is not helped by the scanty information contained in many of the official data sheets and a distinct shortage of practical textbooks. Perhaps the position is best weighed up in a manufacturer's report where it states—“Device selection at this point is mostly an educated guess . . .”

To return to earth and practical things, there appear to be two basic types available. One version has the gate-electrode physically insulated, usually with an oxide layer, from the other electrodes and is known under such titles as M.O.S.T., IGFET or enhancement type. These offer a very high input resistance—over 100 meg-meg ohms ( $10^{13}$  ohms) is quoted by one maker—but nobody seems keen to discuss noise figures or frequency response. Furthermore, rumour has it that careless handling or a spot of stray static can cause catastrophic breakdown. In fact, this version of the device is best left for further development by the professional while the impecunious amateur turns his attentions to the other type.

#### The Practical Version

This is variously known as a “junction gate,” “depletion type” or JUGFET. It is available in two forms known as N-channel and P-channel, which are complementary to conventional NPN and PNP (or bipolar) transistors. Fig. 1 shows the electrode titles and biasing arrangement for the F.E.T., bipolar transistors and the thermionic valve. It will be noted that the F.E.T. gate is biased in exactly the same way as the valve grid, that is to say the bias voltage is *below* the source

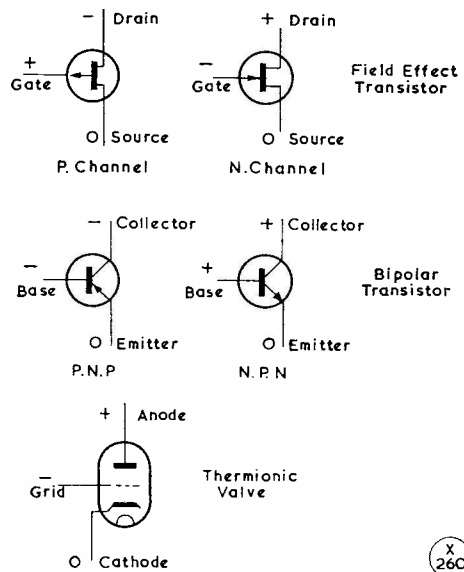


Fig. 1. Showing the similarity to valve thinking when considering an F.E.T.

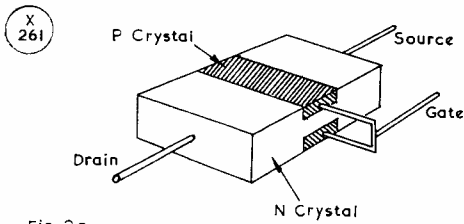


Fig. 2a

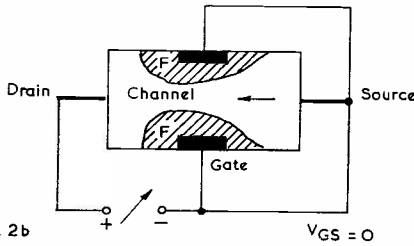


Fig. 2b

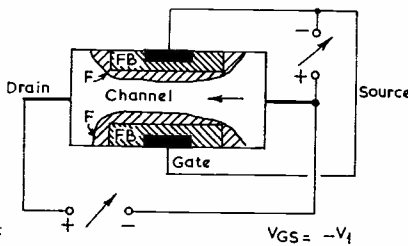


Fig. 2c

FIG. 2

Fig. 2. The construction and electrical behaviour of field effect transistors — see text.

and, again like the valve, can be obtained from a source (cathode) resistor or an external supply. The fact that a voltage and not a current is required very much simplifies AGC and feed back circuits. A complete new set of electrode titles is a nuisance but for once they seem to bear a resemblance to their function, as a look at the physical make up will show.

Fig. 2A shows the construction of an N-channel F.E.T. in simplified form. A bar of semi-conductor crystal containing N-type impurities has contacts fitted at each end while in the centre two pieces of P type crystal have been introduced. These are electrically connected together and form NP junctions with a channel between them.

Fig. 2B is an expanded cross-section view showing what happens when a variable power supply is connected across the source and drain terminals, and the gate is connected to the source ( $V_{gs}=0$ ).

At low current the channel will behave as a linear resistor but as the current increases the channel near the gate will become positive with respect to the source. Now, since the gate is connected externally to the source the junction is reverse biased and space-charge fields

(marked F on Fig. 2B) are set up in the channel with the effect of reducing the channel and increasing the resistance to electron flow. At some point the fields almost meet ("pinch-off") and a graph (Fig. 3) shows the familiar "knee." After this point a further increase in applied volts produces very little increase in current until the volts are raised to the breakdown point.

In Fig. 2C a negative bias has been applied to the gate ( $V_{gs} = -V_1$ ) and a static field is set up, region FB on the drawing. It should be explained that the wedge-shaped field is caused by the gate having a greater reverse bias in the part physically nearest to the drain electrode. When a current is passed through the device the two fields combine to produce a curve of the same shape as that produced by  $V_{gs}=0$  but with the pinch-off at a lower value of current drain ( $I_d$ ).

The linear part of the curve is known as the triode region but it will be obvious to the student of such things that the full curve is very similar to that of a pentode valve. And a P-channel is similar in all respects but with the symbols reversed.

**Practical Applications**

With the usual proviso that you select and bias correctly, keeping well away from the knee of the curve will ensure that you have a device *equal or superior to any valve or normal transistor*. Low noise—less than 2.5 dB at over 100 mc—is a very strong feature but the almost complete immunity to cross-modulation is no doubt the crowning advantage. The input voltage/output current curve follows a true square law and does not "run away," so couple this with the fact that the permitted gate voltage swing can be measured in *volts* and you will see that you have a near-perfect tool for the front end and mixer stages of a receiver.

The writer's own experience has been limited to the HF bands where results have been very encouraging and

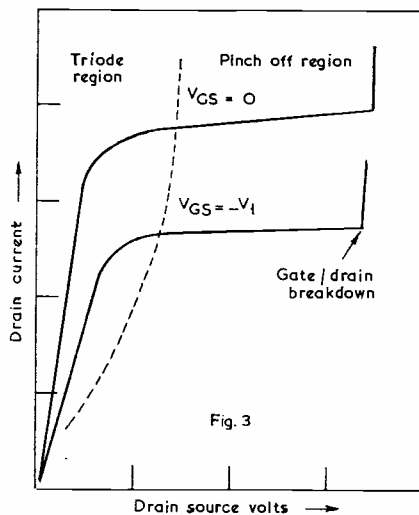


Fig. 3

Fig. 3. Characteristic curves, showing the knee, for typical F.E.T.'s. Note the similarity to valve curves.

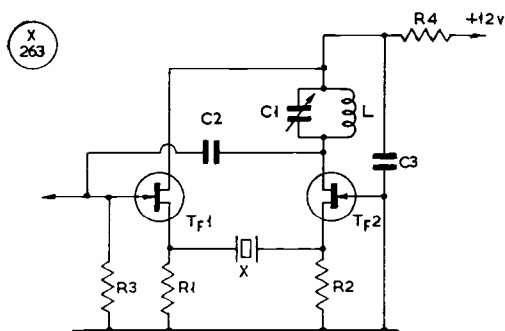


Fig. 4a. Crystal Oscillator

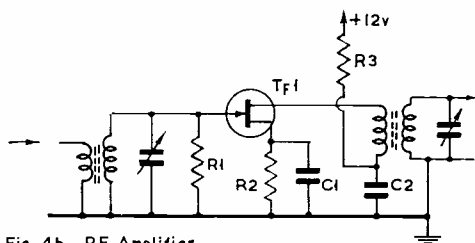


Fig. 4b. RF Amplifier

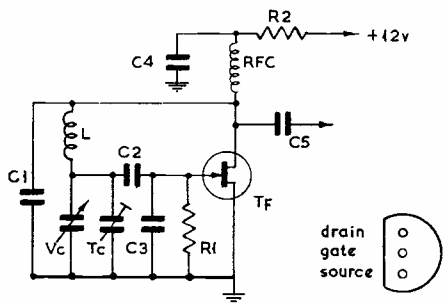


Fig. 4c. Vackar VFO 2mc

Fig. 4. Texas 2N3819 FET

Fig. 4. Some practical circuits for experimental work using the Texas 2N3819 field-effect transistor. All are discussed in the text and will give good results.

three circuits were developed. In each case the Texas 2N3819 Tf device was used. There was no particular reason for selecting this type except that the data sheet was available, the cost reasonable and it is in the makers' "preferred" range.

In general, it would seem that most valve circuits can be adapted for F.E.T.'s. To prove this, a start was made using the conventional crystal oscillator circuit intended for twin triode operation, as in Fig. 4A. This uses a series resonant crystal and the prototype was made for 7 mc operation. It gave an output of approximately 1.5 volts on the fundamental and by changing L and C1 output was obtained on the third harmonic. The adjustment of the tuned circuit is affected by the load so it is important to make up the circuit before peaking L. This is accomplished by inserting a milliammeter in the positive supply lead. In the prototype the demand

## Table of Values

Fig. 4A. Crystal Oscillator

R1,	R2,	C3 = .01 $\mu$ F
R4 = 1,000 ohms		C1, L = To resonate with
R3 = 5,600 ohms		crystal or
C2 = 47 $\mu$ F		harmonic

Fig. 4B. RF Amplifier

R1 = 47,000 ohms	R3 = 470 ohms
R2 = 100 ohms	C1, C2 = .01 $\mu$ F

Fig. 4C. Vackar VFO (2 mc)

R1 = 100,000 ohms	C5 = 120 $\mu$ F
high stab.	RFC = 2.5 mH
R2 = 100 ohms	L = 36 turns, 26g., 1in.
C1, C3 = 470 $\mu$ F	dia.
C2 = .0022 $\mu$ F	VC = 60 $\mu$ F
C4 = .01 $\mu$ F	TC = 30 $\mu$ F

was 3.5 mA peaking by about 0.5 mA at resonance. The crystal and coil were borrowed from a valve receiver and it was interesting to note the increase in inductance necessary for resonance. This was no doubt due to the very low internal capacity of the F.E.T. compared to an ECC85.

The second circuit, Fig. 4B, is of more general interest and would form the basis of a very useful, self-contained pre-selector for any receiver. The choice of coils is of course dictated by requirements and any valve range should work. The prototype was used to feed a 7360 mixer (!) and the coils selected from the *Electronics* amateur-band range. Type LZ aerial coils were used and Type MX to feed the mixer. As the tuning condensers were not coupled to the main receiver gang, 30  $\mu$ F capacitors were used, without padding, on all ranges. A gain of about 10 dB was noted but not measured with any accuracy. Input was about 5 mA. Some instability was apparent on the LF bands but this could be due to overloading the mixer, so both neutralising and gain control are on the books for investigation.

## Useful VFO

With regard to the VFO the standard Clapp and Colpitts circuits were tried but proved either unstable or difficult starters. (This was probably due to the writer's approach as there is no apparent reason why they should not work.) The third circuit, Fig. 4C is the Vackar or Tesla circuit and has so far proved the most reliable configuration. It is exceptionally easy to get going and although intended for 2 mc operation the output was moved from 200 kc to well over 10 mc simply by changing the coil. The output remained substantially flat in the range 1 to 5 mc at no less than 4 volts peak-to-peak. Below 1000 kc there was a little harmonic distortion while at the higher frequency there was a tendency to some unidentified modulation that cleared a few seconds after switching on. All measurements were made with an oscilloscope, the wave-form being of more importance than precise frequency measurement. Stability of any



VFO is largely a matter of construction and the correct selection of components to cancel temperature drift. As a start, the introduction of a polystyrene capacitor in the frequency-determining circuit should prove a step in the right direction. The gate leak resistor R1 must be a high-stability type and metal-oxide for preference. The F.E.T. draws between 0.5 and 5.0 mA so with a maximum dissipation of 60 milliwatts there is no reason why the entire oscillator should not be enclosed in a suitable box.

To summarise, it looks as though another province of the valve has been invaded. As yet there are no F.E.T.'s available for even low-power applications,

1.5 watt total dissipation being about the present limit. A tetrode version is made (with two gates) but the writer has no experience of them nor has he seen any circuits using them. Several of the standard types will work at frequencies over 500 mc but an intending purchaser would be well advised to obtain a quotation before placing an order. At the time of writing the (rather ridiculous) situation exists whereby you can buy the F.E.T. described here at a lower price from the manufacturer (about 20s.) than you can on the surplus market! On this subject, it is not unknown for semi-conductors to drop in price by as much as 50 per cent per year for several years running. . . .

## A SIMPLE REFLECTOMETER

CHEAP AND RELIABLE  
INSTRUMENT FOR AERIAL  
MONITORING

P. N. HANCOCK, B.Sc. (7Q7PH)

**T**HIS instrument is invaluable as a means for checking the matching between transmitter, antenna and tuning unit. It has been used at 7Q7PH as an aid to resonating 15, 20 and 40m. dipoles and also as a continuous indication that the signal is going out to the aerial. Although the scale readings are (a) Non-linear with respect to power, and (b) Frequency dependent, it has been found to give a very useful indication of aerial resonance, sensitivity to the resonant peak being to within  $\pm$  one inch for a 20m. dipole. When one antenna, made of rather thin wire, started to stretch, the reflectometer quickly showed this and the dipole was soon brought back to resonance.

The prototype was made (by G3STF) in a metal box, with the 500  $\mu$ A meter built-in. 7Q7PH made his in a plastic (20-slide) slide box; a two-pin socket was put in the lid of the box so that the shack multimeter, set at 50  $\mu$ A or 2.5 mA, could be used, saving the expense of an extra meter. Above 30 mc, a metal box is considered necessary to contain all the stray RF!

### Points to Note

The layout of the components is not critical except for the semi-air-spaced coaxial cable. This should be about 30 inches long if the meter is 500  $\mu$ A f.s.d. or *pro rata*. The outer insulation of the coax should be stripped off and a piece of copper wire fed down one of the air spacing holes from end to end. Provided this pick-up wire is a fraction narrower than the hole and is carefully straightened, it can be pushed through an inch at a time quite easily—see diagram. The coax should now be coiled up to fit in the bottom of the box or wrapped round the body of the meter movement. It is important that the metal braiding is in contact with itself all

round, and it may be carefully soldered at several points.

For convenience, the coaxial sockets should be at the ends of the box. The circuit diagram is given in Fig. 2. R1 is 75-ohm because this is the approximate impedance of most amateur transmitter output networks. It can if necessary be made from two 150-ohm  $\frac{1}{2}$ -watt resistors in parallel. Note that the use of a DPDT switch means only a single diode is necessary. Care must be taken to see that the pick-up wire does not come into contact with the inner or outer wires of the coaxial cable. If space is a

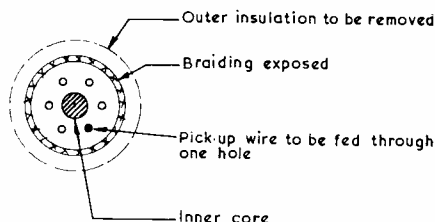


Fig. 1 Cross-section through air-spaced coax, W.

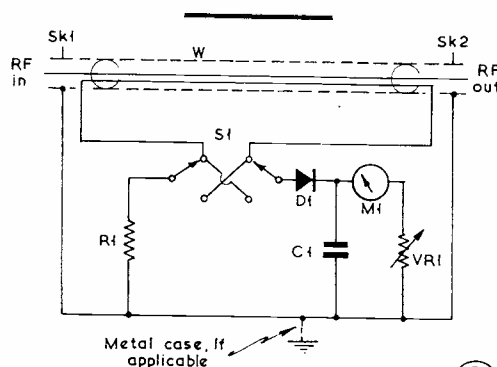


Fig. 2

(D  
218)

The device discussed by 7Q7PH in his article—one of those essential items for getting aeriels working properly. Values are: C1, 100  $\mu$ F; R1, 75 ohms, half-watt; VR1, 10K variable (see text); D1, any RF diode; S1, DPDT toggle; Sk1, Sk2, coax sockets; M1, any m/c meter, range from 0.1 to 2.5 mA, depending on power, sensitivity and loading; and W, about 30in. of semi-airspaced coax.

bit cramped it is a good idea to isolate components D1, C1 and R1 by packing them round with foam plastic.

### Setting Up

The potentiometer VR1 acts as a sensitivity control. This should be adjusted depending on band and power in use so that full *forward* tune-up power produces about half f.s.d. The aerial tuning unit (if any) and aerial itself should be adjusted until, with S1 in the reverse-power position, the meter reads close to zero. The writer's experience is that the

ratio of forward to reverse power as *indicated* by the meter should not be less than 2:1. Ratios of better than 50:1 are fairly easily attained.

When home-brewing a dipole it is a good idea to make each arm about 6 inches longer than the text-book says and then trim it one or two inches at a time, re-erecting it for each operation until resonance is achieved.

General use and applications of the Reflectometer as an aerial monitoring device is covered in the manuals. It is one of those tools which, like the GDO, cannot be dispensed with once it has been acquired.

---

## WORKING PORTABLE/MOBILE

### ANOTHER APPROACH TO THE MOBILE RALLY — AND AN INTERESTING SUGGESTION

N. E. A. RUSH (G3HBZ/M)

THE writer has had his mobile licence for eight years and during that time has visited most of the Mobile Rallies in the southern half of England several times. This year, with a growing family, the suggestion that we do the usual round of the Rallies met with more than mild protests that "we've been there so many times before" and "can't we do something else?"

Now, although in the earlier days of mobile working G3HBZ/M was airborne as a driver-operator station on the move, the noticeable increase in the speed and volume of road traffic in recent years has resulted in more emphasis on the driving and less on the radio operating *en route* to Rallies. There is also the understandable, but sometimes irksome, restriction on operating from the Rally site itself, which precludes getting there early and working old and new friends as they near their destination.

So for 1966 it was decided after much discussion that we would make a different approach to our radio "Days-Out"—one which met with approval all round and which, in retrospect, can be said to have been most successful.

We selected three Rallies, spaced fairly well apart in the calendar, as well as distance, *viz.*, Longleat, Bournemouth, and Woburn. Then we studied the one-inch Ordnance Survey map and located a spot on high ground—either owned by the National Trust or open common land but in any case a good distance from the Rally site—which would serve as radio vantage point, a picnic spot and a rambling place for the children. For Longleat we went to Inkpen Beacon, 987 ft. a.s.l. and about 7½ miles south west of Newbury. The day was fine and sunny and from this virtually treeless prominence, using the

normal 8 ft. centre-loaded whip, many contacts were made with mobiles going to the Rally and with fixed stations in Gloucestershire, Wales and Kent, as well as in the immediately surrounding counties, all at good distances. There are beautiful views from Inkpen and the children were well occupied. We took all our food and drink with us, picnic style.

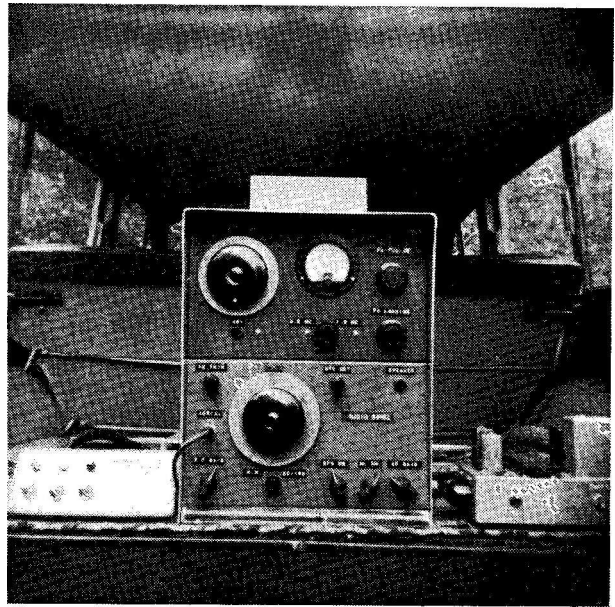
For the Bournemouth Rally we went to Hindhead Common 759 ft. a.s.l. on the A3, where, although the tall trees dwarfed the whip and ranges were considerably reduced, we had another very pleasant day out. The weather was good and the children played about much as before but the change of scenery was sufficient to retain their interest.

Finally, for Woburn we went to Haddington Hill, 857 ft. a.s.l. not far from Wendover, but here the weather was not so kind. The day, which followed a week of rather wet weather, was cloudy with some fitful sunshine. The grass was wet and the children were not quite so keen to play outside. Even so, the radio side of the trip went off well and many more stations were worked from G3HBZ/M than would have been expected during a return trip from home to Woburn.

### The Gear

On each occasion the rig used was the amateur home-built mobile transmitter EF80-VFO EF80-BA-6BW6 PA and with a 12AX7 6BW6 modulator, with an ancient much modified re-valved, re-wired, ex-Government R.103 receiver—*see* picture. The power supply is derived from the car battery *via* the transistorised PSU normally used for mobile work. The whole installation is operated through a standard commercial mobile radio-telephone control box which gives remote relay switching of the power supplies, send-receive switching (with the push-to-talk button on the E/M microphone) and loudspeaker output—with volume control.

Operations from these three sites highlighted the lack of selectivity in the receiver. Signals from all sources, including the high-powered shore stations, were very strong and with such humble equipment it was at times difficult to sort out the wanted station. However, much was learned that has encouraged modifications and improvements to the rig during the winter months and the prospect of better results this coming season.



As he explains in his article, G3HBZ/M (Sunbury-on-Thames) nowadays neither goes to Rallies nor operates actually mobile —be takes the family out into the country on a Mobile Rally occasion, to some high and unfrequented spot chosen from the one-inch O.S. map, and works the mobiles as a fixed /P station. This also brings him into contact with Top Band locals not normally heard or worked from the home station.

Of course, it is recognised that on these outings G3HBZ/M benefited from the fact that there was a Mobile Rally on that day. This meant that a fair number of mobiles were likely to be within range and also that more fixed stations than usual could be expected to be active. It does not follow, however, that the sort of mobile working described need be confined to the established Rally days. The MAGAZINE runs Set Listening Periods, and Daylight Tests—so why not sponsor a Solo Mobile Rally, where any number of participants could station themselves at pleasant sites, and while wife and family enjoy the more active pursuits, the OM could try and work as many other stations as possible between say 1400 hrs. and 1600 hrs. The idea behind these few notes is to stimulate thoughts of an alternative or addition to (even a possible successor of) some of the Mobile Rallies as we have got to know them over the last ten years or so and which, it must be fairly admitted, do tend to follow a popular and well established pattern.

The photographs show G3HBZ/M being operated in style on our third expedition and a close-up of the rig itself, in which the control box, transmitter and receiver, and the transistorised PSU can be clearly seen.

#### HOLIDAY LICENCES IN GERMANY

We are informed that a procedure has now been established whereby licenced U.K. amateurs can obtain temporary West German (DL) transmitting permits. These are issued for holiday visits, and are current for a period up to three months. The cost is Dm.14 (say, about 25s. sterling), there is a fair amount of paper-work involved and at least six weeks' notice is required. The bands licenced are 2m.-10-15-20-40-80m. (*note*, no Top Band), for fixed, mobile or portable operation, and the form of the callsign will be the applicant's own call, appropriately suffixed, *e.g.*, G3SWM/DL, or G3SWM/DL/M. The address to write to in the first instance is: H. Picolin, DL3NE, D.A.R.C. International Affairs, Muelenweg 27, Doenberg 5601, West Germany.

#### "AMATEUR RADIO"—Delay in Supply

Because of the unexpectedly large demand for *Amateur Radio*, reviewed in the February issue, our own stocks and the publisher's immediate supplies have been exhausted. As a re-issue of the book is now in hand with its publishers, we very much regret that there will be a delay of some weeks before we can fill outstanding orders for *Amateur Radio*.

**"Short Wave Magazine" advertising gives the largest and most consistent coverage of the U.K. radio amateur market**

# COMMUNICATION and DX NEWS

*E. P. Essery, G3KFE*

THE events forecast in the preamble last month duly came off. The resulting clear-out unearthed many things of Amateur Radio interest that had been long forgotten—like the first O-V-1 your E. P. E. ever tried seriously to use on the short waves—the majority of which items have now found their way into the loft in the new place. However, the receiver was put up against a fairly modern communications-receiver, under reasonably identical test conditions, with *very* instructive results. They might have been Good Old Days, but they were Bad Old Receivers!

The letters this month are nearly all on the subject of Top Band, and this of course reflects itself in the shape of the resulting piece. While this is at least partly the result of the stirring events on 160m., it has to be said that the balance has now swung too far in the one direction. So what about some more correspondence about the HF bands?

## Those QSL Cards

A heart-cry on this subject comes from GM3UVL, who would like to feel that a request to "pse QSL via Bureau" does not usually end up with the receipt of a QSL direct. As he says, this sort of thing is a bit of a nuisance, and even a financial embarrassment, when carried to excess, quite apart from the fact that by the time the request arrives the chances are the card has already been sent off to the bureau, thus duplicating a perfectly good card. Your scribe would add a rider to that one and comment that it is a very rare thing for such a request to be accompanied by an s.a.e.

Possibly one of the difficulties lies in the fact that the very nature of the Bureau system, which is the accumulation of cards to enable bulk postage, is inevitably the fact which slows the operation down—always assuming the complainant has in fact got an envelope in the

file at the time in question! If one really *needs* the card, as for instance in working for an award, then a request for a card direct, accompanied by an envelope, self-addressed, and franked with the appropriate quantity of the stamps of the country concerned, will almost always produce the goods, if only because most of us are too tight-fisted to see a perfectly good stamped envelope wasted!

## Eighty and Forty

The top-band rig at G3UAN has now been slightly modified and is capable of radiating on 3.5 mc. Add to the plot one parallel-tuned ATU and a receiver, and the resulting broth produces a hot sensation across the band. Robert has managed to get 559 from a couple of W's and reports of the 599 variety from all over the European area. As a result, he now thinks in terms of an outboard PA stage at about 100 watts input which should improve on the reports obtained so far with a modest 8 watts.

A real six-band merchant if ever there was one, is GM3SVK, up in Unst; for him the band produces the goods pretty regularly, and he particularly mentions 7XØAH and ZD8J, both of whom were worked on the key. As for Forty, Fred kept his hand in by working CW through the QRM to make contact with ZD8J, ITIAGA, and a bunch of W stations.

Until recently G3VWC was a "regular" in our SWL feature, but now he is demonstrating the truth of the saying that there is no better apprenticeship to the game of Amateur Radio—and DX in particular—than a spell of keen listening on the bands. As remarked elsewhere in this piece, Andrew has been doing quite a bit on Top Band, with a 132-foot end-fed wire; the same wire has for the moment to serve for all the other bands, and has been put to good use on 40 metres to

account for most of the Europeans in one mode or the other, running about 50 watts input to the Valiant.

A logical way of testing a new transmitter is to give it a month on a particular band, and see how it behaves. This is the method adopted by G3ULJ (Bristol), and the month's bag was quite good; the aerial for the exercise was a half-wave dipole, and the receiver a trusty old HRO. Several quite good reports were exchanged with various W call areas, the usual run-of-the-mill stuff, and several of the rarer parts that sometimes peep out from under the Iron Curtain. However, Brian is far from satisfied, and would like to know where the *real* DX is

## TOP BAND LADDER

(G3U-- and G3V-- stations only)

Starting Date, January 1, 1966

Station	Counties	Countries
G3UTS	89	14
G3VMW	83	16
G3UBW	76	18
GM3UVL	74	13
GW3UUZ	62	13
G3VMK	61	10
G3UXP	56	9
GW3VPL	55	13
G3VGR	54	12
G3USE	50	12
G3UJS	50	11
G3VMQ	47	14
G3UGF	46	9
G3VLT	45	8
G3UVT	44	7
G3UGK	43	13
G3UMK	39	7
G3VSL	36	7
G3UCS	36	?

lurking, like PY, PZ, TI2, ET3 and the like. That is an easy one to answer—if the time is right, and the DX is in fact on the band, the rest is easy; all you have to do is to peel off sixteen layers of QRM and there he is, in all his glory. (All you have to do then is hook him, and there he was—gone again!)

GM3KLA (Haroldswick, Shetland) makes a welcome re-appearance and has been having some considerable success on Eighty with a vertical sixty-footer, with which he managed FP8CQ, HI8XAL, KV4CI, ZC4's, ZD8J, 7X0AH, TF5TP, KZ5, OX1IZE, ZD7SP, UO5, UD6, UL7, UI8, UA0AG, UA9's, with gotaways W0GTA /8FA, KP4, PY1's, 5A3, OD5, and ZD3. All of which proves the stuff is there if you have the aerial and the ears.

A near neighbour of G3SGC of Top Band fame is G3ING (Southall), who says the ploy when Graham is on the band is to QSY to the HF bands *promptly!* On 3.5 mc, John has LX2BQ and 3C1ZZ booked in, and on Forty, various EU-stuff. His comment is "Grim—but there must be thousands like me!"

#### The HF Bands

The first letter on the clip comes in from G3IAR (Sevenoaks), who remarks that he was writing immediately after working in excess of 500 W's in the Phone Leg of the ARRL DX Contest. Mike does not mention the gear in use, but says the aerial at his place is the "Bruce," an aerial which is not much used by amateurs, although it is basically nothing more than a single wire so arranged that it performs as a broadside array in a fixed direction. Mike complains that the new Tables increase the amount of booking to be done—but having known him for years it is a matter of amazement that the G3IAR paperwork is not made to do itself! All the efforts mentioned above took place on 21 mc, a band on which G3ING has various W call areas, a 3C2 and UA9 to offer—but not contest-type exchanges! The other contrast is that G3ING is an-all CW man, apart from the odd session with the locals on Phone.

Still on the 21 mc tack, the typical day for GM3SVK has shown a pattern of JA's in the early morning,

with VK's and Near East signals appearing during the forenoon. Afternoon has produced the African and American stations, with the West Coast W's in evidence late in the afternoon until the band shuts down around 1900. In terms of contacts, all on CW, the list is well up to scratch, and includes CN8CF, DJ7XC/M1, FG7XJ, JA6CNQ and YCU, MP4TBA, VK2, 3, 4 and 7, VS9MB, YV5BOA, 5N2AAF, 5A1TY, 6Y5JB, 6W8DD, and 9L1TL.

On the other hand Henry of G3GIQ (Ealing) stuck to Sideband, and as a result offers 5U7AL, and WB2VJD/CE0A, in spite of a distinct shortage of time on the air.

Sad to say, G3NOF (Yeovil) has TVI, but with masterly restraint merely comments that as a result he does not operate the band "too much." However that has not prevented him listening to the noises, which have included, around 1000z, JA's, who seem to be coming in by both the long *and* the short path, and at the same time a few VK and ZL signals, with the Africans appearing a little later. The G3NOF contacts have been with W and JA only. It is more than a little instructive to compare this with the sort of report given by GM3SVK a couple of paragraphs back, as an indication of the difference in timing even the length of these Isles can make to the pattern of the bands.

Turning now to the file labelled "14 mc," the first letter comes in from G3VDW, who has still got his 136-foot wire and 150 watts, which this month has been devoted to Twenty CW entirely; perhaps an omen for the future insofar as the result of this resolution was a new country with his very first QSO of 1967—namely KL7EFX. In addition, the missing W6 and W7 call areas were brought to book, together with FM7WD, TA2AC, HK3AV, WB6ALT/KL7, and some new W States to bring the total up to 39,

plus ZL3QH at 1100 GMT. As to the QSL situation, out of 114C worked, already 77 are confirmed.

Several correspondents mention the odd things that have been happening to the skip during the past month; however, it has not prevented GM3SVK from making quite a killing on the band. Fred mentions in particular CR6AI, CN8AT, CO2DR, EP2BQ, HV3SJ, TA's, TU2BK, VK's and ZS's.

Another to find queer things happening was, again, G3NOF; about 0800 the long path to VK/ZL has been good, and at times JA, HL, and KR have been audible, while the evenings have produced lots of signals from Southern Africa, and ZL's around 1900 with the beam headed due South. Among the specially-mentioned contacts, Don has 1B9WNV (Don Miller from Blenheim Reef), 7Q7PBD, KL7EBK at 1820z, VQ9AA/C, and PZ1BW.

G3GIQ, as already remarked, was not able to spend a lot of time on the air, but nevertheless contrived a CW contact with UJ8AB, and SSB gave him VS9HRV, UF6FE, ZD3G, 3A2MJC, and KA2JR.

The final allocation to come under the microscope for this session is, of course, 28 mc. The most searching examination of the state-of-the-art is offered by G3NOF, who has found many Russian stations on the band during the mornings, plus ZS's and 9J2. He has only had contacts with W's during the afternoons, some of whom have been S9 plus.

Probably the most interesting QSO reported on this band is a contact between G3GIQ and UA3ANN—nothing much, you will say, until you realise that the UA was running 500 milliwatts to a groundplane to give Henry a signal strength of S5. This only goes to show the sort of thing that Ten *can* do, in the way of QSO's at long distance and with relatively poor aerials and low power. In

#### Paul Essery, G3KFE—Contributor, CDXN

We are glad to be able to announce that G3KFE is now responsible for the conduct of "Communication and DX News." In fact, he has been doing the work for several months, and we feel sure that he will continue to have the support of all who follow the feature. Correspondence for G3KFE or CDXN should be addressed c/o The Editor, Short Wave Magazine, Buckingham, England.

addition, TI2PTS and YA3TNC were booked in on SSB. As Henry says, conditions have been rather better than the activity would suggest.

A short report from GM3IAA about 28 mc, mentioning a contact with CR6, reports being 589 one way and 569 t'other—this in spite of all the energy currently being expended on altering, building, and testing out around the shack. Clearly Jim must have a prophylactic for the gremlins—it is an article of faith with your E. P. E. that the band is *always* open when the inside of the rig is likewise!

GM3SVK has not indulged in a lot of activity on Ten, and has mainly found W's or USSR signals, his log containing only ZB2AB, 7X0AH and some of the said W's.

When ten metres is open, as it has been for much of the period, it is a wonderful band, with strong signals from distant places and all apparently eager to work the U.K.—at least, that has been the experience of G3SWM (Buckingham) whenever he has had the opportunity to be on. For instance, on February 12, the CW end was full of W6's between 1600 and 1800z and several good West Coast contacts were made during this period.

However, one of the annoyances of Ten is first-hop BVI from *ab initio* Russians, who apparently are permitted to use 10 metres as a

"harmless band on which to learn." Some of the resulting emanations are indescribable. This is going to be a great nuisance in the CW area when the 10-metre band becomes a regular DX channel.

Don't forget the Activity Period on April 16—it is particularly hoped that there will be a good turn-out from DX areas like the Far East and Africa. In fact, if the band is well open there will be a good deal of congestion, anyway!

#### Here and There

Cambridge University Wireless Society are once again to run an expedition to the Isle of Man at Easter, from March 18 till April 7, during which time operation will be on all bands from Top to Ten, AM/SSB/CW, 24 hours a day. Any requests for skeds should be addressed to J. Lush, G3TGY, at Queens College, Cambridge, to whom also should be aimed any direct QSL's.

Pleasant to hear from John, G3TLU, who has now swapped that call for a 4Z4AM signature, albeit he was not, at the time of writing his letter, as yet operational, but, pending the arrival of the gear, was hoping to whip up his enthusiasm by getting on from 4X4IK. John has joined the Israeli Amateur Radio Club, but has hit a slight snag insofar as all their literature is in

Hebrew, and even a learning rate of three lessons a week does not produce the desired degree of instant fluency; sounds a bit like the time before the Morse Test! Bureaucracy seems to be the same the world over—John sent his application to Tel-Aviv in error for Jerusalem, and so the folk in Tel-Aviv shunted it off to Jerusalem and waited for it to come back before they processed it! Actually this is quite a good wheeze for dealing with urgent documents; if you transfer them from the In-tray to the Out-basket enough times they either cease to be urgent, answer themselves, or disappear—highly labour-saving!

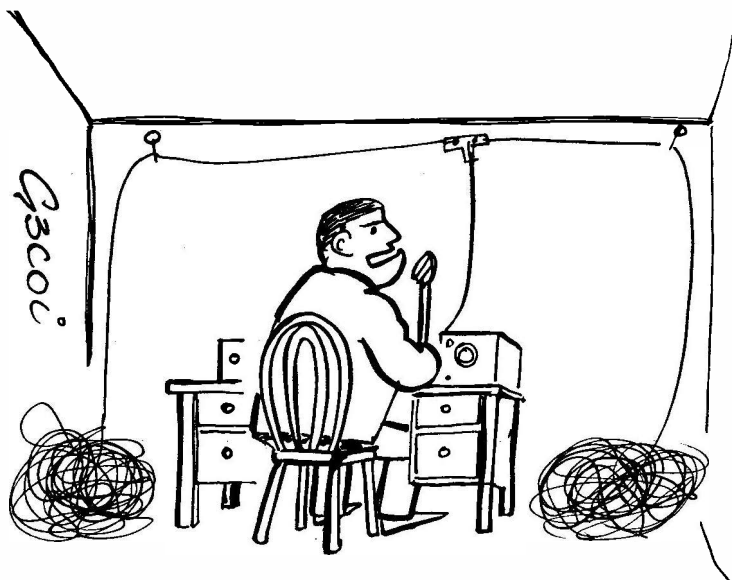
Ken Randall, G3RFH, who is of course an R.N. type and was so successful as VP8HF in the Antarctic, was signing ZB2BA for a brief stay during February, using the rig of ZB2AM. He wants it to be known that he was *not* under the Jolly Roger. Apparently, Ken was able to get a temporary Gibraltar permit for a mere 1s. 8d. Any QSL's should go to G3RFH, *QTHR*.

#### Top Band

Comments last month about the possible dropping of the G3U - - /G3V - - Ladder certainly ploughed up the pea-patch! Quite a few of the letters are from people who claim themselves as being among the Small Fry.

The first letter in the pile merely puts in a claim for the ladder—at 80 worked, 73 confirmed—but, sad to say, G3UVR, (Neston, Cheshire) slapped in a similar list of counties for *Four Metres* on the same sheet, which well and truly foxed the system. All is sorted out now, but please separate your CDXN letters from the "microwave stuff" aimed at A. J. D., even if you do put it in the same envelope; it helps enormously at this end. As a matter of interest, one wonders what magic potion Dewi uses to extract the cards which has enabled him to reach such a position?

G3UXP (Birmingham, 30), has been a reader of this piece for *years*, but has only just been tempted into writing in and staking his claim. Ron has "seen off" all but three of the English counties, and will then be all set to deal with the GM and GW rarities. A gripe, expressed in the nicest manner, comes



“... Yes, we're using a Top Band end-loaded indoor dipole here ...”

in at the tail of Ron's letter, in which he expresses disgust at the number of Phone stations who are to be found operating in the CW area of the band; this has been a bone of contention for as long as your scribe can remember, but, on the other hand, it has to be admitted that a Phone natter on 1834 kc and a couple more on about 1842 kc is a bit steep. (The fact is, of course, that it is only usage that has made the LF section of Top Band the CW area.)

Aerials are, admittedly, the key to real success on Top Band, as on any, but the mechanics of fitting them into the average suburban garden is the real trick—thus G3NUA (Whitley Bay) wants to know how others with gardens of about fifty feet length or less approach the problem. John has two aerials for the band tucked into this sort of length—one is a bent 110-foot wire, and the other a 75-foot top worked against a 60-foot counterpoise, both being separately loaded with inductance to resonance. The amusing part of John's letter is the part which describes the counterpoise wound round the garage, which surely must make for some difficulties in getting the car in and out?

A Sidebender on Top Band is Dave, G3VGR (Southend-on-Sea), who has built himself a Mini-Five, all-same the G3RNL design in the November-December issues of *SHORT WAVE MAGAZINE*. Dave came on for the *CQ* Top Band contest, and enjoyed peeling himself off a few more countries. However, the prize catch was the hooking of W1HGT, for a personal first-ever across the Pond. Dave remarks on his feelings at that moment, and all who have done it on ten watts will know exactly what is meant. The aerial is a half-wave end-fed, and the receiver a home-brewed triple-conversion device, which certainly seems to be delivering the goods.

Yet another first-timer to this piece is GW3VPL (Porthcawl), who is only six miles away from



G3FWL is owned and operated by Ken Sutton, 3 Wynford Avenue, Leeds 16, Yorkshire, who was first licensed in 1949 and has been active on all communication bands down to 10 metres ever since, with a wide variety of gear. The rig as shown here is a Swan 350, operated mainly on 15 and 80 metres, for DX or just chatty QSO'ing, as it comes. We need hardly tell you that Ken is a cheerful chap, but what you wouldn't know unless we said it is that he is also a keen musician, able to play the piano, organ, violin and clarinet.

GW3UZZ, which must raise a bit of a problem when both are after the DX at the same time—but withal, Steve is raking the stuff in, in the shape of W1BB/1, VO1FB, W1HGT, and W8HGW, who was peaking S8 during the Test on February 5.

A deep bass growl comes up from the Lighthouse at Llantwit Major, where GW3UZZ is after your conductor's blood—we forgot to take in his entry for the Table. However, all's well that ends well, as Andy has put in another one and this *has* been taken in. Andy would like to know how many prefixes are available on Top Band, and how many countries—perhaps some keen type would care to add them all up, and one would hazard a guess that the total is not far short of a hundred countries if one takes into account all those that have been available at various times in the past.

G3UAN has modified the Top Band rig so that it "gives" on 80m. also, which has for the moment made him take his eye off the ball; however Robert has worked a couple of OH stations and an OE, as well as the usual run of GDX. It is interesting to note that he has regular contacts with OL4AFI, most days, and has swapped a *Magazine* subscription for one to the *Czech Radio*. This is a very good thing, and is, after all, one of the objectives of Amateur Radio in the DX context—opening out one's own personal frontiers.

GM3IAA wrote a letter at 1 a.m. to let us know he had managed his QSO with 9H1AE, which he believes to be a "First" as far as GM-9H1 contacts go on Top Band—reports 559 in Malta, and 339 up there in Inverness. A first try before Christmas came unstuck due to the local QRM around the chosen frequency of 1886 kc, in which 9H1AE sank without trace, so for a second attempt they changed to a higher frequency.

G3SED (Portsmouth) mentions several interesting items of news, as well as his own collection. ZD8J was on for three weeks before the *CQ* WW Top Band

#### TEN-METRE ACTIVITY PERIOD

On Sunday, April 16, 1000-1800 GMT. Come on and see what you can work, on CW or Phone, and please report results, with a fair log, by April 28, or sooner. There will be many G's on, looking for DX contacts, and this should appear soon enough to alert "Short Wave Magazine" readers throughout the world.

Contest, but was sadly handicapped by severe QRN which prevented him hearing the hosts who were calling him. By the time this is in print, the country chasers on Top Band will have added a few more to the score, insofar as it is understood that WØVXO will have been for a three-week tour of the Caribbean, embracing stops at PY, OA, FG7, Antigua, Montserrat, and KV4. A final comment is that HI8XAL has been getting into the U.K. fairly regularly.

At least one reader finds the Table instructive—and hence adds in his own entry as insurance against it folding. Wise man! G3VLT (Orpington) is the operator in question, and he has, in the short time he has been licensed, clearly got the message, with 45 counties and 9 countries on 160m. in the bag.

Yet another first letter (where have they all sprung from??), claiming 36 counties and seven countries, is that from G3VSL, who has an aerial of 132 feet of wire, varying between 6 and 30 feet above a “very, very, wet garden,” which would seem to be a very very desirable state of affairs in the Top Band context, always providing the shack is not in the garden.

A certain amount of confusion seems to exist as to the relative purpose of the two Top Band Ladders. The G3U - /G3V - - listing is aimed at providing the newcomers with a means of pitting their skills against each other, and each year the “new intake” can compare how they are progressing, and also run the previous year's scores into the dust—you hope! On the other hand, the other Ladder is an all-time affair, and here you compete on level pegging with some of the real experts with years of experience at the game, as well as having to claim confirmations; the cards will only start rolling through the Bureaux after a considerable lapse of time, and hence no newcomer, with the best will—and skill—in the world, can compete on level terms

for several months. However, when he decides to join the main Table is a matter for him to decide for himself; in fact there is no reason why an entry should not go into both Tables simultaneously if so desired.

This should set the mind of G3VLX at rest, and several others. Deryck has been hard at it again this month, but comments sadly that the period under review is one when he seemed to just not *quite* work the DX! We gather that, from Sidcup, Deryck has been hearing the EU-DX quite well, albeit the sked with 9HIAE has not clicked yet, and, oddly enough, GW has still escaped the net.

Clearly G3VMW has complaisant family relationships—even he admits he has spent a “fantastic amount of time and effort” on the quest for 1.8 mc DX. The effort has yielded no less than 75 OK contacts in December, as well as ZB2AM, VO1FB, WIHGT, WIACAG, W2EQS, HB9, OE, OK, OH, DJ, PAØ. Thus the entry for the U and V Table (were it to be made to start in 1967) would be no less than 61 counties and 11 Countries, as against his all-time 83 counties and 16 countries, which actually appears. Among the gotaways were TF5ES, ZD8J, HI8XAL, and, unmentioned by any other reporters to this piece, W6PPZ, who is known to be one of the keen Top Band exponents in California.

Nice to hear from G8JC (Worcester), who has made a return to the band after an absence of four years; during the CQ WW weekend, he managed DL, GM, and various OK stations, with the aerial broken and the far end actually dragging in the weeds at the end of the garden!

Another entry for the Table comes in from G3VMK (Abbots Langley) who uses a 52 Set as receiver in conjunction with a homebrew transmitter and half-wave dipole, to produce 61 counties and 10 countries—which could well be held up as an example to the folk who think that to work the DX it is

necessary to have the latest in transceivers.

On quite a different tack, but still relevant to this theme, is the note from GM3UVL (Glasgow) who mentions especially a nice contact he had with G3SYS in Brighton, when G3SYS was running a mere half-watt, and still pounding in through the fish-fone.

Further south, G3VMQ (Burgess Hill) reports rather a good Phone contact with GM3SVK, which lasted 1½ hours, with reports of 57 on the SSB from G3VMQ, while GM3SVK's AM signal was 55/7. Phil is going to have to drop his activity a little in the near future, as he is on the final run-up to the A-Level exams.

The report from GM3SVK nearly went missing this month, as, thanks to the weather conditions the mail was delayed and Fred had to start writing before he read the rest of his *Magazine!* Nevertheless, the call of duty was too strong and his letter duly arrived with a mite to spare. Fred has managed to get his Inverted-Vee up for 160 metres, with the apex at 90 feet. The result is, as would be expected, that the GM3SVK signal pounds through all over the U.K. on Phone. As far as the DX is concerned, EU has been fairly easy, with OH7NS, OE1KU, DL1VG, PAØLOV, DL9KRA, and DL1FF booked in; in addition a cross-bander with ZD8J gave a report of 449 on the GM3SVK signal.

A K.W. Valiant transmitter and Lafayette receiver are the tools used by G3VWC (Bishops Stortford), who has picked up 20 counties and three countries on Top Band, using mainly AM to a 132-foot wire, which he end-feeds *via* a parallel-tuned ATU.

A second, later letter, from G3SED mentions conditions on the morning of January 5, when it would seem that almost any W with a carrier that would radiate on Top Band was getting over. Mike worked a string of W stations before 0500 when the First-Timers Test commenced, including a report of 599 both ways on Phone from K1LMO, ZB2AM, 3B1HN, and no less than 25 assorted W/K stations.

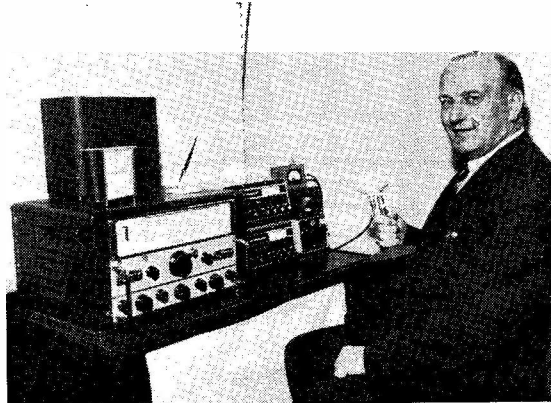
During the CQ WW Tests, G31GW was operating as GM31GW/A, using met. balloons

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## Reporting the HF Bands

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Station G3JNY, run by Sam Ellis at 2 St. Mary's Close, Garforth, Leeds, Yorkshire, with a nice array of gear. The main Rx is a Collins 75A, with a BRT-400 as stand-by. On the transmitting side, a Hallicrafters HT-37 drives a KW-500 linear for multi-band working, for which a Joystick is used, tuned by a Minimitter ATU. In addition, he has two TW Communicators, one for Top Band and the other for two metres, for which the beam is a 6-over-6. Now in the Radio/TV business, Sam has been interested in radio since the days of Kaiser's War surplus, having started with crystal receivers and one-valve sets. For him, G3JNY is nowadays just a relaxing hobby, indulged in when the spirit moves and the urge for DX stirs him into activity.

to support an aerial of 200 feet of vertical wire. The result was a score of 27650 points, by way of 250 contacts, in 16 Countries. Thirteen Transatlantic QSO's were obtained, including H18XAL, and about 50 OK/OL's. Best gotaway was ZD8J, who was laying down a very good signal to GM3IGW/A, but failed to respond to calls. All of which implies that Mike and his merry men—if there were any with him on this occasion—performed a fair old feat of organisation as well as of contest operating, which this time has received a rich reward.

#### Contest Activities

Grafton Radio Society have their Annual Top Band Contest shortly; the CW end is slated for April 1, and the Phone section on the 8th. The show starts at 2230 BST and continues until 0100 BST on both occasions. Call "CQ-GRS" on CW, "CQ Grafton Contest" on Phone. Exchange RST plus a serial number starting at any number between 001 and 100, carrying the series through *both* weekends. Detailed rules are obtainable, together with blank log-sheets from G3SIL (QTHR).

Results of the 1966 SP-DX Contest

are to hand, from which we note that the first three G's were G3ESF, G3EYN, and G3JFY, to whom congratulations are due. The 1967 event is timed for April 1, in fact from 1500 on that day till 2359 GMT on the 2nd. Each contact is between an SP station and some other country, and is worth three points. Multiplier for each SP call area and SPØ, total score being the contest points times the number of the latter contacted, the exchange being the usual RST-plus-serial number from 001, on all bands 3.5 mc to 28 mc CW. More than 3 per cent duplicate contacts logged *and claimed good*, results in disqualification. There is also a SWL section for this one; rules in more detail can be obtained from SP-DX Club of PZK, Contest Committee, P.O. Box 320, Warszawa, Poland.

#### DX Snippets

VQ9AR is the same type who was around, signing F7BK, back in 1962/3. FR7ZL/T signing from Tromelin is *not* Don Miller, and is said to be in the area for a year. It is understood that YK1AA will not have his licence renewed when it expires—which is fairly soon—so catch your man *now* if you have not yet managed to book him in.

For the SSB addicts, mainly, it is understood that VK2AVA is to spend the period May 5-15 at Lord Howe Island, in the South Pacific. Another VK one is VK2BRJ/VK9, who is to be on Norfolk Island until the end of March, operating CW.

#### Acknowledgements

Apart from our devoted band of correspondents who each month make this piece possible, thanks are due to WIWY, to the *DX News-Sheet* of Geoff Watts, and to all the people who, corporately, constitute themselves into that mysterious thing called the "grapevine." Without any one of these sources, the work of your scribe would be as nothing, and he is therefore duly grateful.

#### Sign-Off

Which is the point at which the well has run dry. The deadline for our next effort is First Post, **Monday, March 13**. For the benefit of the overseas types who write in by airmail, for our May issue the closing date will be *April 10*, at Buckingham, addressed as always: CDXN, SHORT WAVE MAGAZINE, BUCKINGHAM, ENGLAND. In the meantime good-hunting, 73 es BCNU.

# VHF BANDS

A. J. DEVON

WERE you there for, or did you know about, the Aurora opening on the evening of February 7? It was quite a short one, during the mid-evening period, and was bringing GM's down into Southern England. Though quite a number of QSO's were made, in truth there was not a high level of activity and it seems that a good chance was missed for some interesting DX.

Of course, it is rather difficult for us down south to spot an Aurora opening, unless it is a really sustained display on a clear night, when the tongues of light can be seen shooting up into the northern sky. The GM's, being nearer the source of the disturbance, can often get a visual warning which is never seen in the south. The electrical signs are turmoil on the TV, and if you happen to be whiling away time by working CW/DX on the 21/28 mc bands, a tendency for signals from the European area to turn a very rusty T6, or worse. The rustier they are, the more effective the reflecting curtain is likely to be and the higher the frequency at which back-scatter can occur—in other words the better things should be on two metres. Not every *Ar* manifestation is effective at VHF, because an occurrence which is traceable at HF and up to Band 1 TV channels will not always give reflections at 145 mc. The rusty-note effect, the outstanding characteristic of auroral propagation, is due to multi-path reflections,

probably from the depth of the curtain.

The reflecting efficiency of a good auroral curtain is quite astonishing. Though we are apt to think just in terms of working GM's, and possibly Scandinavians, in fact far more can be expected if the display lasts long enough and high activity can be stimulated on two metres. In the past, HB, I, YU, UA and HA signals have come through *via* Aurora, involving (when you come to work it out) a path-length of thousands of miles, since the travel of the wave is from the transmitting point up to the curtain (centred over the region of the North Magnetic Pole) then reflection back virtually to its source. And as all who have had experience of an Aurora opening will know, the strength of the returned signal can be pretty colossal, too—HB's have often been RST-595 in the Midlands. All this sort of thing has happened at quite frequent intervals over the years and, in amateur VHF working, there are records of *Ar* /DX going back to old 5-metre days, pre-war.

When you suspect that an Aurora may be on, the ploy is to head your beam north and search for a DX signal—in some locations, it may be possible to get a check off the beacons, by reason of their carriers going T6—and then to adjust the beam for loudest reception. Keep it like that for the rest of the session, irrespective of the direction of the signals being heard or worked, unless you find that another northerly heading is better. The point here is that the best reflecting part of the curtain for VHF may be anywhere between NE and NW—but it is always northerly. During sustained *Ar* openings, lasting several hours (as they can do), the reflecting centre may move. It has been noticed that the beam heading found best by, say, the Scandinavians, has been much further round to the west than the headings on which the GM's were getting the best results.

So much for the Aurora and the striking effect it can have on VHF propagation—one of the most mysterious of the workings of Nature.

\* \* \*

Quite a number of announcements of one sort or another to make this time. First, a reminder about the Second Midlands VHF /UHF Convention and Dinner on April 29, at the Park Hall Hotel, Golthorne Park, Wolverhampton, opening at noon, with G4LU as chairman of convention. A varied and interesting programme is being arranged but the proceedings will be kept as informal as possible, because the main idea is to make it a VHF get-together. The all-in cost is 35s. per head (feminine support welcome), which ensures a place for the dinner if you fix it soon enough, as seating is limited to 100 places. (Apply, with remittance to cover, to: D. Kirk, G3GTW, 58 High Street, Sedgley, Dudley, Worcs.). For those not wishing to stay for the dinner, the cost is 10s., payable at reception, which also covers tea. Needless to say, one of the moving spirits for what should be a very successful VHF occa-

## TWO METRES

COUNTIES WORKED SINCE  
SEPTEMBER 1, 1966

Starting Figure, 14

From Home QTH only

Worked	Station
47	G5NU
41	G3COJ
39	G3DAH
33	G3FIJ (93) G3FNM
31	E12A
29	G2AXI
28	G3TQZ
22	G2CDX G3TDL
20	G3IOE
19	G3FVC
16	G5SUM, GW3C8Y (56)
15	G3KQF, G8VN (76)

*This annual Counties Worked Table will run till August 31, 1967. All two-metre operators who work 14 or more Counties on the band are eligible for entry. QSL cards or other proofs are not required. After the first 14 worked, simply claim from time to time with counties as they accrue, giving callsign and date for the county worked. Total of stations worked in excess of 50S may also be claimed and will be shown in brackets after callsign. To keep the Table up-to-date, claims should be made at frequent intervals. Operators new to VHF are particularly invited to join Annual Counties.*

sion is Tom Douglas, G3BA.

This year's London VHF Convention, also an important event in the calendar and the 13th of the series, will be on May 13, at the Winning Post Hotel, Whitton, Twickenham, Middlesex. Some further information will be available later—in the meantime, note it as another VHF occasion not to be missed.

Incidentally, the first-ever of these VHF dinner-meetings was held in London under the aegis of SHORT WAVE MAGAZINE in February, 1948, followed by equally successful gatherings in Nottingham and Manchester, with G6FO in the chair and the organisation in the hands of a local committee working with the Magazine. The pattern set by these meetings has been the one followed ever since.

Next, we have news of the activities of various localised VHF organisations, in their turn carrying on the torch. In addition to the GW boys, with GW4CG (Porthcawl, Glam.) as their focus, there is the North-West VHF Group, with their own Hq. in Manchester and station signing G3UHF—their two-metre PA runs a 4X150A and gives a measured 85 watts of RF output. A keen membership ensures activity every Tuesday evening. Those in the Lancs. area who would like to be identified with this Group can find out all about it from: R. Parkinson, G3FNM, 15 Wynyard Close, Sale, Cheshire.

In the Kent district, the newly-formed South-East UHF/VHF Group has had its first meeting, at Wye College, Ashford—also the QTH of "John Fox," G2JF—with an attendance of no less than 53. Their next get-together is at Rutherford College, Canterbury, on March 17. The hon. secretary is Gp. Capt. A. H. Dormer, G3DAH, QTHR, who will be very glad to hear from anyone in the district not yet in touch with the Group.

\* \* \*

Those interested in notching up GD on two metres and/or 70 cm. will be pleased to know that the GD6UW expedition will be on Snaefell's summit (just the 2,000ft. a.s.l.), evenings from March 18 till

the 28th, with the possibility of operations beyond this period. The boys would like it kept strictly to an accurate sked basis, with CW the preferred mode, though AM will be available and will in any case be worked with G8/3's on the 430 mc band. On the GD6UW occasion last year, the limiting factor was found to be a very high local noise level; they got out in fine style, but had difficulty in receiving. So they would like calls from some of the more QRO and better-placed stations so as to ensure notice of their presence—though it is hoped that this time the noise-QRM will not be a factor. Frequency setting will be strictly to the Band Plan; the CW sector will not be used at all from the GD6UW end, to avoid frequency changing when going over to AM. For skeds, write immediately to: Peter Crisp, G3SKT, Queen's College, Cambridge, remembering that the period is evenings March 18-28, and that GD6UW will want to know your frequency.

That well-known knockabout trio—G3BA, G3BHT and G4LU—will be off early in July into the lovely land of Ireland, running CW/SSB on two metres, using the

CW area 144.0-144.1 mc exclusively and looking for replies preferably in that zone. Their Side-band frequency will be 145.41 mc, and SSB stations are asked to net during 2200-2215 clock time. Their plan is as on their Welsh expeditions of previous years—to operate only from 7.0 p.m. till midnight. There is also the possibility of some 4-metre working, for a short midnight session. These chaps really do try, to a punishing extent. G3BA, QTHR, is in charge of the sked-making.

\* \* \*

The RSGB's CW-only two-metre contest, on January 29, produced quite a good turn-out in rather poor conditions. This meant that scoring was on the slow side. There was not quite as much CW at the LF end as might have been expected—it could be heard all through the band—and there was quite a lot of frequency-hopping. In the tradition of all U.K. VHF contests, a number of non-participating operators came on for the evening period only, knowing they would be in demand by the stations taking it seriously—and they were!

Some of the interesting points

THREE-BAND ANNUAL VHF TABLE

September 1966 to August 1967

Station	FOUR METRES		TWO METRES		70 CENTIMETRES		TOTAL pts.
	Counties	Countries	Counties	Countries	Counties	Countries	
G3EDD	27	3	47	9	32	5	123
G3FIJ	25	5	33	8	6	3	80
G3BNL	15	2	16	3	28	2	66
G3LAS	26	3	26	7	1	1	64
G2AXI	15	2	29	10	—	—	56
G3TLB	9	2	39	6	—	—	56
EI6AS	13	6	17	5	3	2	46
EI2A	5	2	31	7	—	—	45
G3EKP	17	5	8	3	6	3	42
G5UM	9	1	21	2	6	1	40
G3AHB	—	—	21	4	12	2	39
G3KQF	—	—	15	6	10	2	33
GW3CBY	3	2	16	4	2	2	29

Scores are since September 1, 1966, and will accrue until August 31, 1967. Position is shown by last-column total as aggregate of all scores. Own county and country score as one each. Entries may be made for a single band any two or all three. Claims should be sent in as often as possible, to keep the Table up-to-date.

## TWO METRES

## COUNTRIES WORKED

Starting Figure, 8

- 28 G5YV (DL, EA, EI, F, G, GC, GD, GI, GM, GW, HB, HG, I, LA, LX, OE, OH, OK, ON, OZ, PA, SM, SP, UA, UP, UQ, UR, YU)
- 27 ON4FG (DL, EA, EI, F, G, GC, GI, GM, GW, HB, HG, LA, LX, LZ, OE, OH, OK, ON, OZ, PA, SM, SP, UA, UC, UP, UR, YU)
- 27 G3LTF (DL, EA, EI, F, G, GC, GD, GI, GM, GW, HB, HG, LA, LX, LZ, OE, OH, OK, ON, OZ, PA, SM, SP, UA, UP, UR, YU)
- 26 UA1DZ (DL, DM, G, HB, HG, LA, LX, LZ, OE, OH, OH0, OK, ON, OZ, PA, SM, SP, UA, UB, UC, UO, UP, UQ, UR, YO, YU)
- 26 OK2WCG
- 24 G2JF, UP2ON
- 23 G3CCH
- 22 G3LAS, UR2CQ
- 21 F8DO, G3HBW, OKIDE
- 20 G3BLP, OKIVR
- 19 G3EDD, G6RH, PA0FB
- 18 G2CIW, G5MA, G6NB, ON4BZ
- 17 G2XV, G3BNL, G3HRH, G3RST
- 16 EI2A, G3AYC, G3BA, G3CO, G3GHO, G3KEQ, G3KQF, G3OBD, G3PTM, G6XM
- 15 G2AXI, G3DKF, G3FIJ, G3FZL, G3RMB, G4MW, GM3EGW, GW2HIY
- 14 G2FJR, G2HDZ, G3AOS, G3AOX, G3BDQ, G3FAN, G3HAZ, G3IOO, G3JAM, G3JWQ, G3KPT, G3NUE, G3OZP, G3PBV, G3SAR, G3TLB, G3WS, G4LU, G5BD, G5DS, G6LI, G8OU, G8VZ, GW3MFY
- 13 EI2W, G2CDX, G2HIF, G2HOP, G3DMU, G3DVK, G3EHY, G3GPT, G3GWL, G3HT, G3LHA, G3NNG, G3OHD, G3PSL, G6XX, GC2FZC, GM3TEY
- 12 F8MX, G2BJY, G3AHB, G3BNC, G3BOC, G3FNM, G3GFD, G3GHI, G3GSO, G3JLA, G3JXN, G3OWA, G3WW, G5CP, GSJU, G5ML, G8DR
- 11 G2AJ, G2CZS, G3ABA, G3IUD, G3JHMJA, G3JYP, G3JZN, G3KUH, G4RO, G4SA, G5UD, G5UM, G6XA, PA0VDZ
- 10 G2AHP, G2DHV, G2FQP, G3BK, G3COJ, G3DLU, G3GSE, G3LAR, G3LRP, G3LTN, G3MED, G3OSA, G3RTF, G3UFA, G3XD/A, G5MR, G5TN, G8IC, GW3ATM, GW5MQ
- 9 G2BHN, G2DVD, G2FCL, G3BY, G3FUR, G3OJY, G3SXX, G4LX, G8GP, GC3EBK, G3ONF, GM3DIQ, GM3LDU
- 8 G2BDX, G2DDD, G2XC, G3AEP, G3AGS, G3CCA, G3EKX, G3GBO, G3HCU, G3HWJ, G3KHA, G3PKT, G3MP, G3UFQ, G3VM, G5BM, G5BY, G8SB, GM3JFG

noted in A.J.D.'s log included the nice signal from G2XV (Cambridge), with 51 stations worked by 2010z; a good contact G6NB/GC2FZC quite early on; the steady persistence of G3OXD/A, G3NNG, G3JEQ, G5DF and G5NU (both of Reading), G3UBR and G3MOT; G2PL (Wallington), not often heard on two metres, was right on the LF edge, with a good signal. G6RH was also on and scoring well. G3RSD of Cleethorpes, Lincs. was giving contacts to some southerly stations, and G3CCH (Scunthorpe) was coming through to the south in the late afternoon. Two GW/P's were out (at least, they were the only ones heard at A.J.D.'s)—GW3NOH and GW3RUF. Towards the end, scores in terms of stations worked were running in the high 50's, and there were many participants who had 40S and more in by about 2000z. Very little AM-phone was heard during the contest—though one such operator was grumbling about there being a CW contest on at all! Never mind—take no notice!

Still on the subject of contests, the 4-metre event on February 12 produced a high level of activity, with quite a lot of /M's to be heard. An outstanding score noticed was that of G5FK (Wembley), with 100S worked by about 6.0 p.m. At the moment of writing, we have no further details, but no doubt the results will show later on in the claims for the Tables.

The next big two-metre contest is scheduled for March 4-5, and this also should bring on a large number of stations.

\* \* \*

Since last with you, the Wx, the glass and the temperature gradient have given some slight DX chances—as on the evening of February 12, when GDX conditions extended over England and took in the nearer EU's, with PA0's workable up the East Coast. Otherwise, things have been rather quiet. From some of the reports, we get it that:

G3FNM (Sale) is moving to a better QTH in the same neighbourhood, with a separate shack. G3BNL (Keyworth, Notts.) keeps going on all three bands. G3DAH

(Herne Bay), busy with the new Group in those parts, goes up in the two-metre Annual. G3EDD (Cambridge)—and we are glad that Brian has not deserted us—sends in a big list for the Three-Band Annual, to stride firmly into first place. G3BA (Sutton Coldfield) hopes to have G15AJ and GM3EGW joining his SSB group on 145.41 mc. G5UM (Leicester) starts again from the new QTH, with 40 pts. in the Three-Band Annual.

G8VN (Leicester), who still does all his 2m./70 cm. work on indoor aerials, lists 15 stations active on two metres in his district; G8VN suggests that the "noisy conditions and QRM on Top Band are driving more people on to VHF for quiet QSO's under easy conditions"—he is quite right. G5SK (Coventry), one of the real old timers and well-remembered from 45-metre days in the 1920's (unless the call has been re-issued?) is on two metres. G3KQF (Borrowash, Derbys.) is fitting out for full operation on 23 cm. and is very busy on the constructional side. G3LAS (Berkhamsted) is much involved with G3VZN—see p.32 this issue (the lucky chap). G3COJ (Flackwell Heath, H. Wycombe) says he is still interested but not very active because of that fatal factor in the lives of most of us, "domestic QRM."

Another old timer, G5NU (Reading) joins the two-metre Annual for the first time. G3FIJ (Colchester) writes in with claims for all three bands. G2AXI (Basingstoke) needs only Westmorland and Anglesey, Carmarthen and Merioneth for his all G/GW counties worked; he is also on four metres, with 27C in the bag, and is getting ready for full three-band operation. G3AHB (Slough) likewise claims for the Tables, as do G3UUT (York) and G3UVR (Neston, Ches.) for the 4-metre All-Time.

## Dead-Line

There is a breathing-space for us all this time, and the date for your next pieces for this column is **Monday, March 20**, latest, addressed: A.J.D., SHORT WAVE MAGAZINE, BUCKINGHAM. Be careful over Easter, and watch for the DX signs. 73 de A.J.D.

## A DC/DC PSU FOR PORTABLE

12 VOLTS INPUT, 200/400 VOLTS OUTPUT, AT 50 WATTS

F. W. TYLER (G3CGQ)

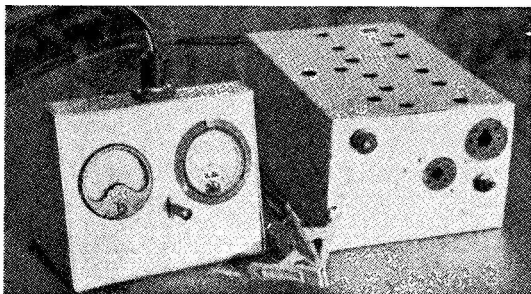
To operate with his portable P-E set described in the December '66 issue, our contributor also has the necessary DC/DC converter power unit to supply HT for the Tx/Rx equipment. This PSU is here described. Though the type of oscillator transformer required is a "special", they are commercially obtainable if you shop around a bit. However, G3CGQ gives the necessary information for constructing your own—as he always does for himself.—Editor.

THE first consideration with portable working, and the necessary equipment, is usually the power supplies, and there is no doubt that the introduction of the power transistor, and its effectiveness in converting low voltage DC to high voltage AC, has seen the timely end of the rotary converter, and vibrator, in Amateur Radio portable/mobile working. This means that power units are smaller physically, but their great advantage lies in their efficiency.

In an earlier article (December 1966 SHORT WAVE MAGAZINE) the writer described a petrol/generator set designed for a 100-watt output and suitable for the converter here discussed.

The author would like, first, to acknowledge the fact that there are very adequate commercial units and components available to meet all the demands for normal portable work—but it has been his practice for many years to "roll his own" and to make, where practicable, even the components that go to form an Amateur Radio station, portable or fixed—hence the transformer winding data involved in this converter.

An article in SHORT WAVE MAGAZINE for May 1960 gives a valuable basis on which to form ideas



Completed appearance of the DC/DC PSU, as described by G3CGQ in his article. The control and metering box—circuit as in Fig. 5, p.30—is on the left.

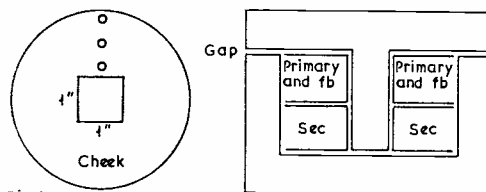


Fig. 1

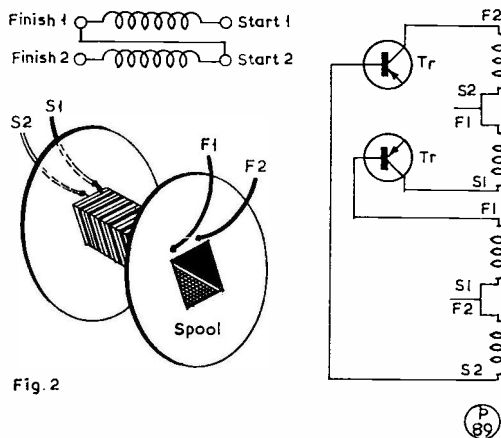


Fig. 2

These sketches, Figs. 1 and 2, show how the oscillator-transformer is made and the windings connected. The 640 + 640-turn secondary can be on a separate spool (see text). When completed, the transformer laminations must be securely bolted up to prevent vibration hum.

on this type of converter and the unit shown here was based on what G3KUM said in that article, but utilising materials to hand.

### The Transformer

In the first place, it was decided to use laminations salvaged from 50 c/s smoothing chokes and it was realised that in this way the finished converter would be lower in frequency and there would be a small sacrifice in efficiency compared with a C-core "hi-cycle" type. The oscillation frequency was the least important factor, it being decided to let this fall into its own groove using the materials to hand and two Mullard OC29 transistors, which are capable of handling the anticipated power requirements.

The most critical part of the unit is the transformer T1, and this was made from the salvaged laminations and former of an old smoothing choke. The laminations were a stack of one square-inch cross section U's and T's with the former in two sections, one of which was used for feed back and primary, and one for secondary winding. (Fig. 1).

Because the permeability of the core material was an unknown quantity it was a case of winding the primary on a cut-and-try basis and the number of primary turns was arrived at in this way and has

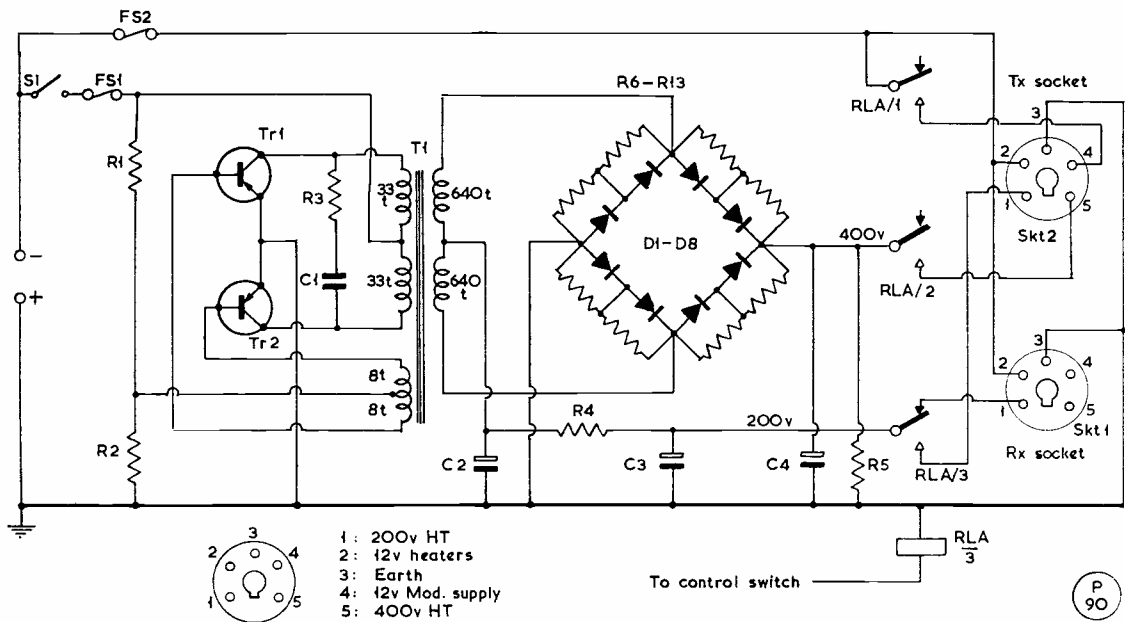


Fig. 3. Circuit complete of the DC/DC converter described by G3CGQ. The transformer is home-constructed (see text) and consists, on the primary side, of 33 + 33 turns of 18g. enam., with 8 + 8 turns of 26g. for the feed-back winding; the secondary is 1280 turns of 32g. enam., centre-tapped. This configuration gives an oscillator frequency in the .00-cycle region and an output of about 400v. The transistors in the oscillator are Mullard OC29's, which should run only slightly warm on full load (50 watts). Other values are: C1, 4  $\mu$ F; C2, C3, 32  $\mu$ F, 350v.; C4, 16  $\mu$ F, 500v.; R1, 30 ohms, 5w.; R2, 1 ohm, 5w.; R3, 10 ohms, 1w.; R4, 250 ohms, 5w.; R5, 56K, 5w.; voltage-equalising resistors R6-13 across diodes, 470K, 1-watt; silicon rectifiers D1-D8, 800v. p.i.v., 0.25 amp.; F1, 10-amp fuse; F2, 13-amp. The relay is shown in the "transmit" position and the output sockets for power take-off are Belling-Lee 5-pin.

proved satisfactory, as there is very little heat loss. The circuit (Fig. 3) comprises a 12 volt self driven, push-pull square wave oscillator, the output of which is transformer coupled to give an AC square wave voltage of 400v. with a centre tap.

The 400v. output is rectified by a bridge circuit (rectifiers D1-D8) and smoothed by C4. A 200-volt DC supply is taken from the centre tap and smoothed by C2, C3 and R4.

It will be seen from the circuit that the potential divider R1, R2 gives a forward voltage on the two transistor bases to ensure starting under load, and across the primary is a network R3, C1 to reduce to a harmless level voltage transients caused by transformer inductance and switching spikes. This is a necessary precaution. The other safeguard is R5 across the 400v. DC output, to guard against damaging voltage transients on the transistors during switching of the load, or should the load be abruptly removed.

When winding the primary it is essential that this and the feedback should be put on bifilar, to ensure balance and tight coupling, as shown in Fig. 2, together with the phasing of the primary and feedback windings to ensure oscillation. Should

oscillation not take place then the feedback connections to the two bases should be reversed, when oscillation should start. There should be some light insulation between the primary feedback windings, consisting of a single layer of waxed paper or similar material.

The secondary is wound on a separate spool as shown in Figs. 1 and 2 and is therefore completely insulated from the primary, but it should be made clear if the primary and second are wound on a single former then some heavy insulation (empire table) is necessary between the primary and secondary.

The secondary winding is calculated by: Turns = 3.2 times  $V_{out}$  = 1280 turns, centre top = 640 turns.

Following the winding of the transformer, it should be assembled by the insertion of the core laminations and there is an important point to be observed. It will be appreciated that one of the first principles in maintaining self-oscillation is the saturation of the transformer core, and switching occurs with the resulting rise and fall in the inductance of the primary coupled through the transistors. In order to enhance the saturation of the transfor-

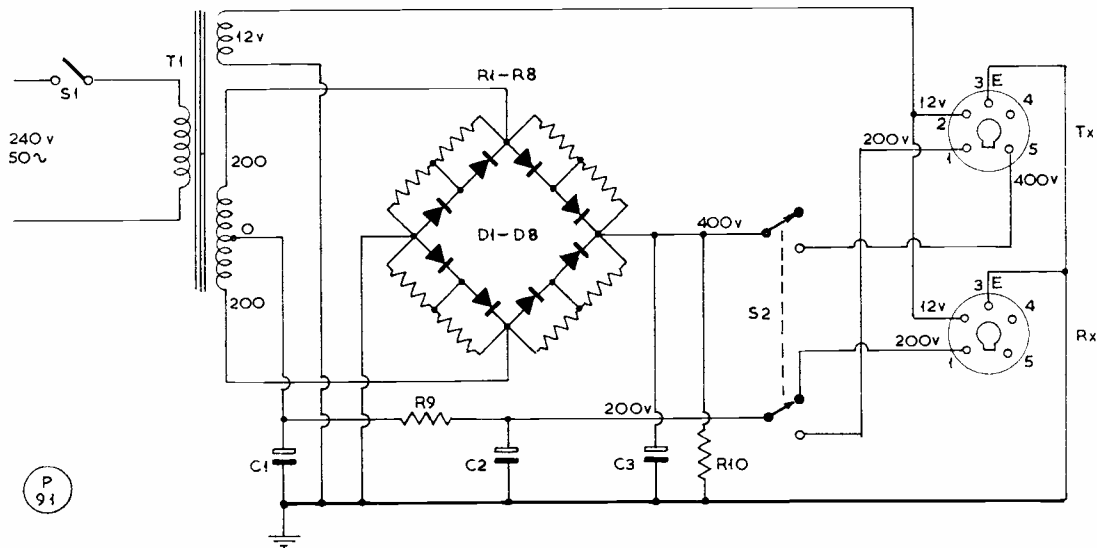


Fig. 4. Suitable circuit for a mains PSU equivalent to Fig. 3, for bench testing and running the portable gear from the home station. T1 is a mains xformer, rated 200-0-200v. at 150 mA, with a 12v. heater line; diodes D1-D8 are silicon, 400 p.i.v. at 200 mA ; C1, C2, 32 μF, 350v.; C3, 32 μF, 500v.; R1-R8, 470K as in Fig. 3 ; R9, 250 ohms, 5w.; R10, 56K 5-watt. This would be a very convenient type of power pack for any stand-by or bench testing purpose.

mer core the laminations are built up in alternate pairs placed first painted sides together, then the next pair metal sides together, instead of in the normal way of building the stack with each lamination insulated from the next.

The whole assembly is then bolted firmly together to minimise the resonance of the transformer at the natural frequency of 200-300 c.p.s.

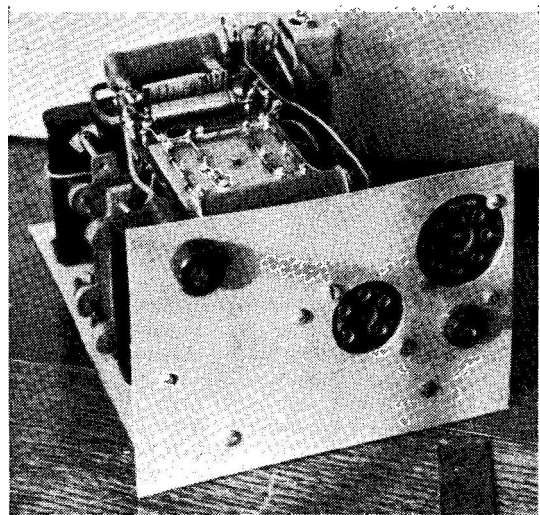
On completion of the transformer primary and core assembly, the transistors are mounted on two aluminium heat sinks 3½ins. x 2ins. insulated from each other and the chassis. In order to minimise bulk these were fitted to the transformer by insulated bolts, as was the tag-board carrying resistors and rectifiers—see photograph.

**Transformer Testing**

Following the completion of the HV secondary, and before the DC portion is wired up, the transformer requires testing for the 400 volt AC output. To do this, load it with two 240v. 25-watt lamps in series across this point, connect up the 12 volt battery and, provided the correct feedback has been achieved, oscillation should take place at 200-300 c/s and the lamps light almost to full brilliance. It is as well to let the assembly run for a 15-minute spell at this stage, and look for any section that becomes heated, as this must be avoided. In practice, only R1 and R2 should be warm and the rest, including the transistors, should be no more than just above room temperatures. Any excessive heating anywhere shows a point for

failure and damage.

The output from this power pack is used to run both the two metre portable transmitter (taking 25 watts in the PA) and the main receiver. The switching for this is included in the box and for Field Day



General appearance of the G3CGQ DC/DC converter, showing the mounting of the rectifiers and resistors on the transformer, using a piece of insulating board.

occasions provides for remote control from a single switch.

### Control Box

This switch, Send/Receive, energises the relay in the power pack, but is contained in a separate box—see Fig. 5 and photograph.

Experience has shown that on portable location, metering the input/output is of paramount importance, as for the duration of a contest severe fluctuations can take place depending on the condition of the battery. A simple arrangement consisting of a voltmeter, ammeter and the T/R switch, placed in front of the operator, will quickly diagnose the state of the battery and output of the petrol generator. The generator supply is adjusted on the voltmeter under load to 12.5 volts and maintained at that point, whilst the ammeter shows the total consumption of the equipment on either "Send" or "Receive"—hence a lot of guesswork and possible loss of power can be avoided.

There is one final point to be made in respect to portable equipment, and that is with regard to its testing and use on the bench at the home location, where it is not always practical to run the portable power supplies. In order to make full use of the transmitter/receiver, both at home base and when /P, and at the same time ensure equal performance when portable, a mains energised power pack of identical o/p power is essential. This is quite simply built around a 200-0-200v. mains transformer

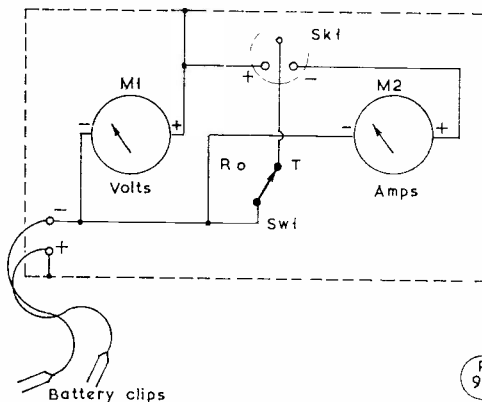


Fig. 5. Suggested control box, as used by G3CGQ, for the DC/DC power supply unit he describes in his article. It enables output and loading on the PSU side to be continuously monitored. All leads should be in heavy 30-amp cabling, and the meters are: M1, 0-20 volts; M2, 0-20 amps.

with a 12-volt heater supply, and this will give identical performance to the DC converter. (See Fig. 4.)

For the sake of simplicity it is not essential to have relay switching incorporated in this PSU, and this function has been accomplished by the use of a Yaxley type of switch.

### POINT OF INTEREST

The Index to Vol. XXIV, which you should have found loose in the copy now in your hands, shows that during March, 1966-February, 1967, we published the work of some 50 outside contributors. This cost us in the region of £1,500. Many of these authors were quite new to our pages, and some had never seen themselves in print before. So if you have what seems to be a good article to offer, let us see it—but do read the notes on p.723 of the February issue first.

### USEFUL D/F RECEIVER

The Nova-Tech Aviator II transistorised portable receiver is an interesting design worth attention, particularly by those who would like to try D/F on the LF bands during the coming season. Its coverage (in this context) includes Top Band and 80 metres, and it is fitted with a very good azimuth compass, giving the equivalent of a 10-in. diameter rose, which is integral with the set. The D/F accuracy is extremely sharp, with a null meter having adjustable sensitivity, to prevent overload by strong signals—as when you get near the quarry. The Aviator II also covers the VHF and LW/MW bands, incorporates squelch control (unusual in a portable Rx), and

can accommodate various lengths of whip antennae, supplied with the set. It is a receiver having a wide coverage with good sensitivity, and is useful for general listening as well as for its D/F application.

### WORD OF WARNING

We have been seeing more letters recently from readers who, having been overseas or otherwise inactive in the U.K., have allowed their licence renewal payments to lapse—with the result that they have found it cancelled, and that to get on the air again, they have to take the RAE and the Morse Test to re-qualify (even for the re-issue of their old call). Though this may seem hard and unreasonable—after all, a doctor or civil engineer does not have to pass his qualifying examinations again after a period out of practice, no matter how long—nevertheless for Amateur Radio in the U.K., that is the rule. So if you are going abroad for a while, or giving up amateur activity for a long spell, make the necessary arrangements with the GPO when the licence renewal comes in—you may want to start up again, some day. While on this theme, we might mention that there are many such who have been off the air for as long as ten years or more—and have then returned to Amateur Radio with all their old enthusiasm and gusto.



# THE KW-160 ON 80 METRES

## AN EASY MODIFICATION

E. JOHNSON (G2HR)

*As shown in our review in the November 1961 issue of "Short Wave Magazine," the circuitry and performance of the KW-160 are excellent. Originally intended for AM/CW operation on Top Band only, it has been found that it can be made to go very well on 80 metres.—Editor.*

**M**ANY users must have noticed that there is a second PA dip at near minimum capacity in the *pi*-tank output. This is, of course, on 80m. On Top Band, in the unloaded condition, the dip is to about 8 mA, rising to 40 mA or so under normal working conditions. The second-harmonic (80m.) dip is around 15 mA, and it was thought that this indicated reasonable efficiency—fully borne out when fed into an artificial load. One cannot really expect an efficiency better than about 50% when power-doubling, but as the transmitter can be loaded to around 12-15 watts input, possibilities of QRP 80m. operation were envisaged.

It was clear that the tank LC ratio would be far from optimum, and there would be no room for manoeuvre for matching a load with both variable condensers near minimum. Furthermore, the second harmonic of the VFO would take one into the 'phone section of 80m. only.

Alteration to the tank coil presented no problem, as a tapping was made three-quarters up from the

loading capacitor end, this giving about half the inductance. Care should be taken when soldering not to short adjacent turns.

### Adjusting the VFO

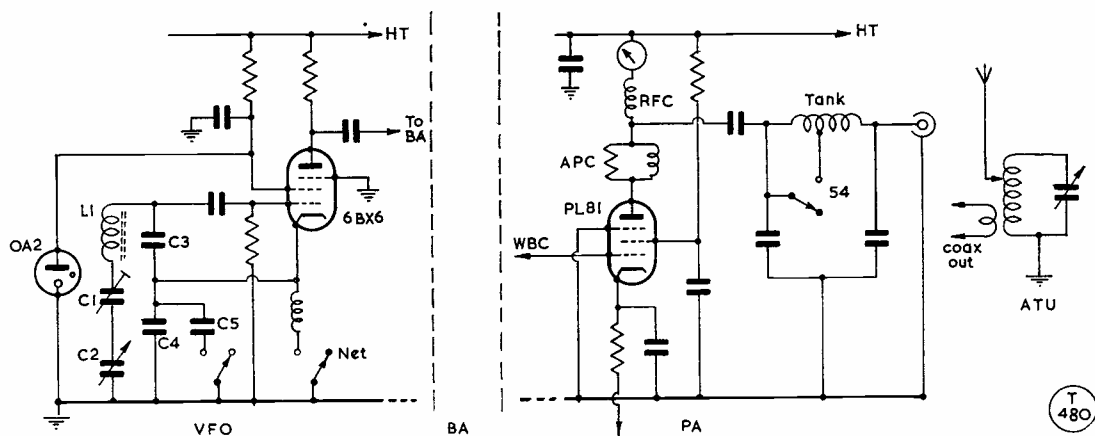
Difficulties arose when modifying the VFO. Though a pre-set capacitor in parallel with existing C1 in the diagram seemed the obvious answer, as C1 is 30  $\mu\mu\text{F}$  maximum only, it was found that the capacity of the leads (to a miniature Yaxley switch on the panel) was sufficient to make it impossible to track on Top Band and maintain calibration, even by adjusting L1. Upon reflection, there seemed no reason why extra capacity should not be switched across C4, if operation of the Clapp VFO was not adversely affected, with the advantage that one end would be "earthy."

By trial and error, it was found that .001-.015  $\mu\text{F}$  was the solution, enabling one substantially to cover the CW portion of the 80-metre band. Furthermore, no adverse effect was evident in the working of the VFO, as regards either output or stability. The additional condenser C5 is wired in on the underside of the chassis.

The inter-stage wide-band coupler confined driving of the PA to power-doubling. Alteration here would have meant substantial modification, hence it was thought one could "push one's luck!"

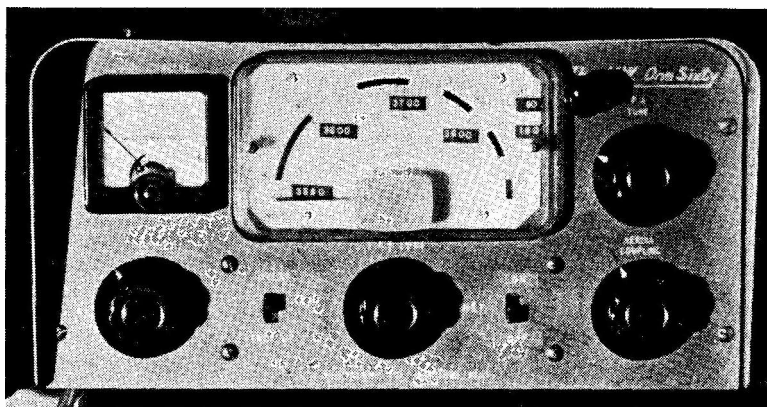
A worrying thought was the strength of any 160-metre component which might get through. For this reason, it is considered essential to use an ATU, although the *pi*-section will load happily direct into an aerial approaching a half-wave. Without an ATU it was clear from the wave-form shown on an oscilloscope that excessive 160m. RF was being radiated.

[over



In modifying the KW-160 for 80m. operation, the BA section remains untouched and the PA side is arranged to work as a power doubler. Main alterations are to the VFO (see text), the switch bringing in the .001/.0015  $\mu\text{F}$  capacitor C5, with S4 in the PA tank also changing over to 80 metres. All other circuit elements marked are as fitted in the original.

The KW-160 dial markings modified for 80-metre calibration — see article by G2HR.



### Results

So far these have exceeded all expectations, country-wide operation on 'phone having been achieved with frequent reports of S9 and S9+.

Continental reports on CW have been very rewarding, and there is no reason why the transmitter should not be followed by a linear amplifier, thus further extending its scope.

### ROYAL SIGNALS AMATEUR RADIO SOCIETY

Past and present members of the Army and its Reserve formations are invited to apply for membership of the Royal Signals A.R.S. Formed in 1961, the society now has extremely active world-wide support, its members ranging from the old guard, *e.g.* G2EC and other senior two-letter callsigns, to G3VYT of the newly-licenced fraternity, and including some intrepid DX types, such as VS9KRV and VS5JC. The less adventurous prefer the weekly nets on 80m. Enquiries, from all ranks past and present, are welcomed by the Field Secretary, Major L. S. Beaumont, G3RUS, Royal Signals A.R.S., 24th Signal Regiment, Catterick Camp, Yorkshire.

### "CREDIT WHERE 'TIS DUE"

On p.568 of the November issue, we had some observations to make about the poor quality of transmission from the BBC radio-car when reporting from-the-spot. We are glad now to say that the BBC radio-car transmission on January 30 (when reporting the Hatton garden robbery) was a great deal improved and the quality was excellent, except for some rather pronounced switching plops. But all that crackle and PSU hum has been cleared up.

### INDEX, VOL. XXIV

Every copy of this issue of SHORT WAVE MAGAZINE—the first of the new Vol. XXV, as you may have noticed from the cover!—should contain, as a free loose supplement, a full Index to Vol. XXIV. Study this Index carefully—it gives guidance to the treatment of a very wide range of subjects (it took long hours of work to compile, so we would like it to be used!). If perchance this Index was missed from your copy, as can happen, you can have one free of charge on request, with a *large* s.a.e. As

mentioned with the Index, full sets and single copies of all issues March, 1966, to February, 1967, are still available, though for some of these months only a few copies remain in stock.

### REMINDER—PICTURES

We use a large number of photographs in every issue of SHORT WAVE MAGAZINE. This means that we are always glad to see prints for possible publication—either of equipment, SWL and AT stations, or personalities. Photographs should be *good quality* black-and-white, any size (though postcard is preferred), and accompanied by full descriptive notes, on a separate sheet. Payment is made for all pictures we can use, immediately on publication.

### JOHN ROUSE, G2AHL — R.S.G.B.

Members of RSGB who see this will be glad to know that John Rouse, G2AHL, General Secretary of the Radio Society of Great Britain and Editor of the *RSGB Bulletin*, is now convalescing at home following his recent illness and is well on the way to making a good recovery.

### THE "GOT-IT-ALL" STATION

When you hear or work G3VZN, you will be in touch with a station equipped for all amateur bands 1.8 mc to 1296 mc (160m. to 23 cm.), using only the best commercial equipment, with full recording and monitoring facilities. Operating modes are to be CW, AM, SSB and RTTY, and the aerials will be carried on 80ft. masts. And who is the (millionaire) owner of this most desirable installation—none other than the Middlesex Education Authority, at their Enfield College of Technology. The fortunate fellow with the control of G3VZN is G3LAS (Berkhamsted, Herts.), whose only complaint is that the site may not be too good for VHF . . . well!

## RF PRE-AMPLIFIER FOR THE HF BANDS

SIMPLE ADD-ON UNIT FOR  
IMPROVED RECEIVER  
PERFORMANCE

F. G. RAYER, A.I.E.R.E. (G3OGR)

**M**ANY receivers can be improved by using a tuned pre-amplifier. If the receiver has only moderate pre-mixer sensitivity and selectivity, the improvement may be very great. The pre-amplifier described here is easily made, and intended for 1.8 to 30 mc.

Fig. 1 is the circuit, using a 6AK5/EF95. Heater current is 0.175 amps. at 6.3v. and the HT requirement is up to about 10 mA at 170-250v. Power can usually be borrowed from the receiver. Should a separate power pack be wanted, the circuit in Fig. 4, or a pack giving similar outputs, may be adopted.

A two-way switch allows the amplifier to be "in" or "out"—see circuit. This is useful when coils are not available for all bands covered by the receiver, or when the pre-amplifier is only needed on the higher frequencies.

Plug-in coils allow wanted frequencies to be covered easily. With some receivers, only one or two higher frequency coils may be required. Since VC1 is 150  $\mu\mu\text{F}$  and has no parallel trimmer, band coverage is different from that listed by the coil maker. The "Coverage Table" shows coil numbers, listed range, and ranges actually obtained. This was with coil cores positioned fully in the tuned windings.

### Results Obtained

The pre-amplifier shown here has been used for a long period with several receivers. The switch allows easy comparison of results with and without the amplifier. Performance was about as expected, but better than expected on 14 mc and the higher-frequency bands.

When used with a receiver having one RF stage and 470 kc IF, the reduction in 2nd-channel interference on frequencies higher than about 9 mc was very worthwhile. The increased sensitivity also allowed a fair number of DX signals to be brought up to copy strength, when impossibly weak without the pre-amplifier. The increased sensitivity was also worthwhile for weak signals with a very good RF/FC/2IF receiver having a 1.6 mc IF, though with this receiver 2nd-channel interference was so low no practical improvement could be found by adding the pre-selector.

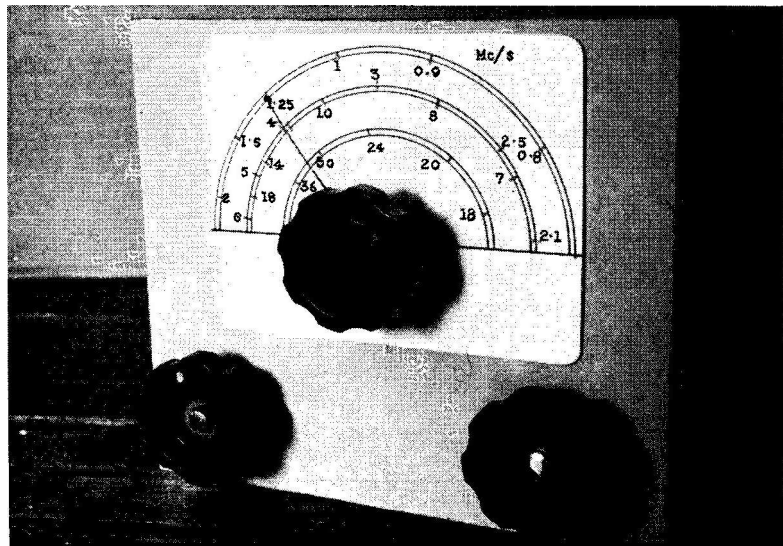
With a well-known 2RF/FC/3IF receiver having a 465 kc IF, a small reduction of troublesome 2nd-channel broadcasts hitherto found on the 14 mc amateur band was obtained. The extra gain fished up a few signals on 21 and 28 mc when using a poor aerial. On 1.8, 3.5 and 7 mc there was no apparent advantage in using the pre-amplifier.

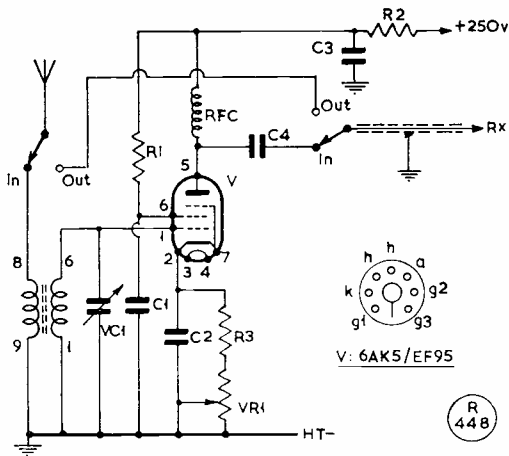
The pre-selector was used with a quite popular receiver having no RF stage and 470 kc IF, and the improvement in sensitivity and reduction in 2nd-channel signals was enormous!

These results agree well with what would be expected. The simpler the receiver, the greater the advantage of having a pre-selector/amplifier. The need for greater pre-mixer selectivity also rises with an increase in frequency, or reduction in IF, to keep down 2nd-channel signals—and this is a very important advantage. There was, of course, no apparent improvement in adjacent-channel selectivity, with any receiver.

[over

General impression of the HF-band preselector, as described by G3OGR. A simple arrangement, it will liven up a receiver which is sluggish on the higher frequencies. In this design, using standard commercial coils, full coverage is given of all amateur bands.





**Fig. 1.** Circuit of the general-coverage preselector. C1, .05  $\mu$ F, 250v.; C2, .01  $\mu$ F, 250v.; C3, 0.1  $\mu$ F, 250v.; C4, 25  $\mu$ F; VC1, 150  $\mu$ F, low-loss tuning type; R1, 39K,  $\frac{1}{2}$ -w.; R2, 15K, 1w.; R3, 180 ohms,  $\frac{1}{2}$ -w.; valve, 6AK5/EF95. Coils are Denco "blue range" 2, 3, 4 and 5, or as required for coverage. The RF choke should be 2.6 mH, usual Rx type. VR1 can be 250 ohms, sensitivity control.

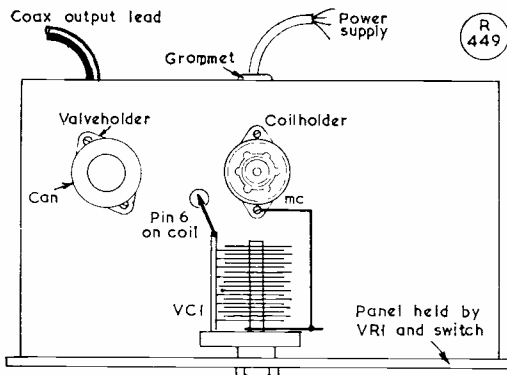
**Construction**

This is straightforward, and the layout could be almost as desired. The actual anode voltage should not exceed 180v. R2 may be reduced if the receiver or pack supplies only 200/220v. or so.

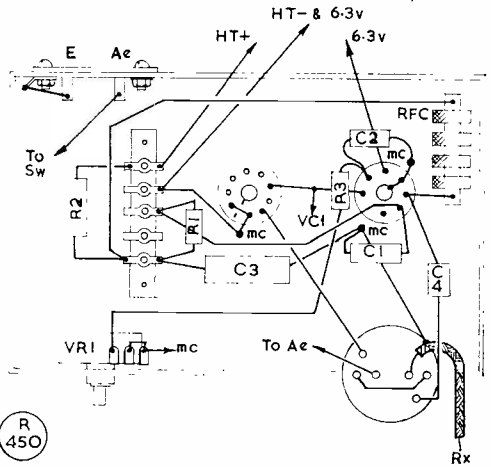
Figs. 2 and 3 are layout and wiring plans. Aerial input and anode output circuits are well separated. The RF connection to the receiver should be low-loss coax cable, not longer than required. No instability arose when using the pre-selector with screened communications receivers. If the receiver is unscreened the pre-selector coil should not be near the receiver input.

If the receiver has an "accessory" power socket, power leads can go to a matching plug. A valveholder or multi-way outlet could be fitted to the receiver, or leads could be soldered in for HT, heater and chassis.

Space was left for a reduction drive, but it seemed a



**Fig. 2.** Layout on top of the chassis.



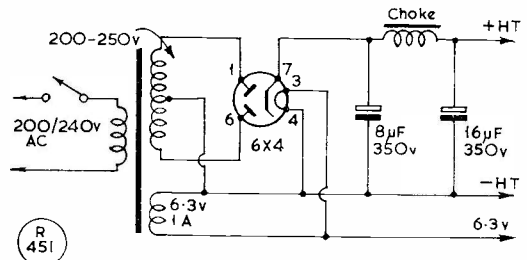
**Fig. 3.** General arrangement underneath the chassis.

little unnecessary. VC1 should have a large knob. A dial can be very easily calibrated. Tune the receiver to various bands, and peak VC1 for maximum receiver signal strength or S-meter reading on the main receiver. Make sure, if necessary, that a 2nd-channel signal is not being boosted ( $2 \times$  IF away from normal frequency) then mark the pre-amplifier scale. Numerous markings are not required—See picture p.33.

**Using the Pre-selector**

Impedance matching between the aerial and pre-amplifier depends on what is available. If a random end-connected wire has been used with the receiver, it can go on the pre-amplifier. Adding an aerial tuner or matching circuit may or may not improve signal strength on some bands, depending on original matching. If a matching unit is available, it can be employed.

Matching of the pre-amplifier to the receiver is best if the receiver has a quite high-impedance aerial terminal. But extra gain was also obtained when working into a 75-ohm receiver input. Pre-selector tuning is simply adjusted for maximum signal strength, background noise or meter reading. The co-axial lead should be earthed



**Fig. 4.** Suitable PSU for the HF-Band Preselector.

COVERAGE TABLE		
Denco Range Number	Listed Range with 39/352 $\mu\mu\text{F}$	Range Obtained
2	515-1545 kc	800-2,000 kc
3	1.67-4.3 mc	2.3-6.3 mc
4	5-15 mc	6.5-18.5 mc
5	10.5-31.5 mc	18-36 mc

at the receiver chassis or earth terminal. The pre-amplifier should *not* be used with AC/DC receivers, or those with a *live* chassis.

Coil No. 2 tunes to about 800 kc. If the pre-amplifier is used with a family radio having no RF stage, an enormous improvement can be expected in reception over the HF end of the medium wave band, or about 375-190 metres.

### RE-OPENING OF GBR RUGBY

The Post Office VLF transmitter at Rugby Radio, with the historic callsign GBR, has for forty years provided a vital link with British ships all over the world, is on the air again after extensive modernisation and reconstruction. Originally designed and built in the early 1920's by the Post Office, GBR made history as the world's most powerful transmitter using thermionic valves. When regular transmission began on January 1st 1926 it was in Morse on a frequency of 16 kc, *i.e.*, a wavelength of 18,750 metres.

By the end of 1965 the very low-frequency radio transmitter at Rugby was by far the oldest Post Office transmitter in regular use and certainly the most famous. In wartime, both callsign and time signal were heard by British vessels in every theatre of operation, from warship to submarine.

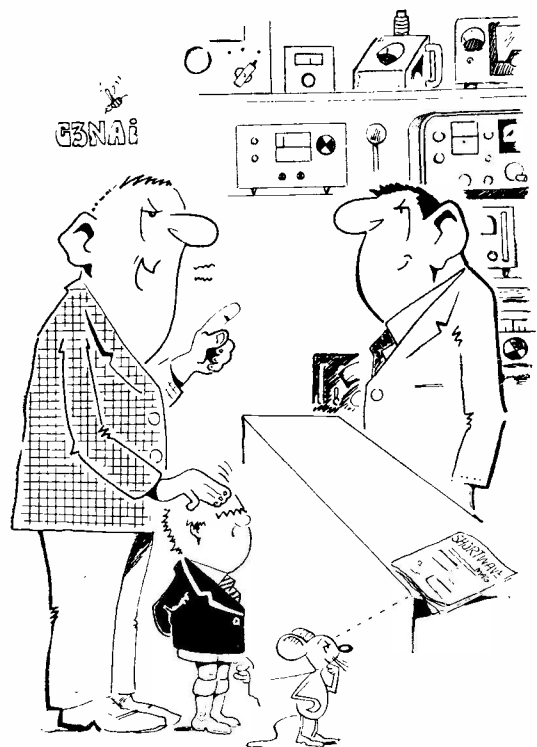
The transmitter had an adventurous history. Its aerial system was extensively damaged in the severe winters of 1940 and 1947 which put it out of action for several weeks on each occasion. In 1943 the transmitter itself was accidentally destroyed by fire, and was rebuilt in six months with only minor changes from its original design.

### Reconstruction

More recently it was decided to increase the radiated power and modernise the operating capability of the transmitter, and this has involved complete re-design of the valve amplifiers and the modulating equipment, as well as extensive modification of the main aerial tuning circuit. The old transmitter ceased operations at the end of 1965, after 40 years' notable service, and has been rebuilt by the Post Office Engineering Department in the space of a few months. The most striking changes are in the main amplifier stages, in which three amplifier panels each of 18 water-cooled valves have been replaced by three vapour-cooled amplifier valves which can

be used singly or in combination, and in the modulator which can generate precision frequency-shift signals as well as the original CW at speeds up to 72 bauds. A new control centre has been installed which will also serve the other two low-frequency transmitters in the building.

The new transmitter went into regular use for Navy Department traffic and time signal emissions on Dec. 1st, 1966. The output power of the transmitter is 450-500 kW and the power radiated from the aerial will exceed 60 kW at 16 kc. Both power and signalling speed have been approximately doubled. The transmitter, now one of the most powerful and effective units in Western Europe, was first in the world to have its carrier frequency stabilised to the accuracy of a primary frequency standard and this has been progressively improved over the last 15 years, the present limit of variation being less than 5 parts in  $10^{10}$ . It is expected that this can be improved still further, to 1 part in  $10^{10}$  or better, with the aid of an atomic frequency standard (a rubidium gas cell) in place of the existing quartz resonator. This development will enhance the value of the 16 kc transmission, already extensively used by scientific investigators throughout the world, as an international standard of frequency and time.



*"... A Drake 2B, a KW-2000A with power supplies, and a crystal set, not too expensive, for the boy here ..."*

• • • SWL • • •

SHORT WAVE LISTENER  
FEATURE

CORRECT USE OF AERIALS—IMPORTANCE  
OF THE ATU—DISCUSSING THE SLP—  
READERS' NEWS, VIEWS AND GOSSIP

By Justin Cooper

READING through the correspondence this month, and particularly through the SLP reports, your conductor was very struck by the paucity of information about the aerial systems used; and in the comparatively rare cases where it receives a mention, the aerial is usually a "piece of wire," strung round the garden or the loft, and coupled direct into the receiver or some form of preamp.

One gains the impression that the use of a pre-amp in front of the receiver is something that is done to make up for the poor aerial system by providing more gain, which is a somewhat short-sighted approach to the whole problem.

With the best will in the world, it is not possible to provide an "active" device which does not introduce some additional noise—and the limit in reception comes when the signal disappears into the noise. On the other hand, when using a random length of wire, the provision of some form of aerial-tuning-unit to match the aerial correctly to the receiver usually results in two or more "S-points" of signal-strength improvement in a given signal, at no penalty in the way of increased noise, as the ATU is not an "active" device. Put in a slightly different way, if you have a receiver which is correctly matched to the aerial, you would not dream of expecting it to give of its best, or even work at all, if the aerial terminal were to be shunted by a .001  $\mu$ F condenser down to earth—but the aerial, if not properly tuned before it is coupled to the receiver, may have just that effect!

Clearly, then in terms of hearing DX, the poorer the aerial system, the more important the ATU, and it is fair to say that, although the SWL with a poor aerial, coupled directly to the receiver, may hear the odd VK on Twenty, if he uses the ATU he will be able much more consistently to hear the VK when conditions are less than very good.

Furthermore, it is fair to say that, in order to hear the DX, the aerial must have a pattern of response which favours the low-angle incoming signals, so that they have made the fewest number of hops in arriving from the transmitter at the far end. In order to achieve this, a horizontal aerial should be as high as possible, preferably at least a half-wavelength at the frequency under consideration—a requirement that is not easily met on, for instance, Top Band!

As in a lot of cases rotary beams are not practicable for various reasons, one solution is to use a ground-plane for the favourite band, with as many

radials as possible, and for the other bands to put up a wire as high as possible—if necessary sacrificing length in favour of gaining extra height—and feed the aerials to the receiver *via* some form of ATU. The latter need not be complex; a suitable one is shown on p.688 of the January issue of SHORT WAVE MAGAZINE, and in the SWL case it is best set up by a process of cut-and-try on a weak signal on each band. As far as a receiving-station-only rig is concerned, it will be found that, provided one can hit resonance on each band, the position of the tappings is not too critical.

**The Boxing Day SLP**

All this is decidedly relevant to any discussion of the logs sent in for the SLP on Boxing Day, since conditions on 21 mc during the selected period were a bit ribby. On the other hand, there is no doubt at all that the level of activity was quite high. This state of affairs resulted in a situation in which the lads with good aerials, well coupled to the receiver, were "taking them in" at a goodly rate throughout the period, albeit with low signal-strength reports, while the less well-blessed reported a dead band after the first hour or so.

Without a shadow of doubt, the "master log," once again, is that sent in by *Andrew Niblock (Ilkeston)* who logged 104 stations in 18 countries; the whole lot were, with the exception of ZS's, in the area covered by Zones 2 to 13—that is, North and South America plus the Caribbean. This compares with the grand total of 27 countries heard, scattered through all the logs sent in. Of the nine countries not accounted for in Andrew's log, the majority were Africans in the area of Zones 36 and 37, the rest being, once again, from the Caribbean. The band seems to have suffered generally from a high noise level, which made logging the African stations a trifle tricky, particularly towards the latter end of the period, when the band was fading out anyway. As for the CW logs, the two best were those sent in by *George Howe (Hunstanton)*; a relatively short list, but well prepared, and with no detectable errors—and *D. H. Foster*, late of Rainham (Essex), and now near Swansea, again with a brief but accurate and well-prepared effort.

The data given will enable most readers to check their own logs for the period—which was 1600-1900 GMT, December 26, on the 21 mc band.

Turning now to the remainder of the SLP logs,



An interesting picture of a father-and-son SWL station—Clive Edwards, 73 All Saints Road, Warwick, is on the left, and they have some useful Rx gear. The shack is built in the roof-space and Clive says "It is the second home of my father and myself"—we can imagine! So far, about 120 countries have been confirmed by QSL card, and some of them can be seen in this photograph. Our "DX Zone Map" is on the wall in the background.

there can be no doubt at all as to the improvement in the general standard of presentation of the results—all were readable with ease, and the crystal ball was not called into play once! A useful point was to draw attention to signals which, due to QRM or lack of strength, were classified as "doubtful copy." An interesting fact here was that *all* of these had the prefix correct as cross-checked against the log.

### The General Correspondence

The first on the clip this time comes from *R. A. Gape (Leigh-on-Sea)* who has been dabbling with Q-multiplier circuits; he has settled on one that is going well but finds it seems to have a heavy insertion loss in the "peak" position. Be careful here, as the noise of the receiver is directly related to the bandwidth, so that the Q-multiplier *will* knock down the bandwidth and the noise together; on the other hand, if in fact there is a drop in the apparent gain through the system, it is probably caused by misalignment of the IF strip, curable by aligning all the tuned circuits to the same (correct) frequency. A further fact about Q-multipliers is that they need a first-class coil to give of their best, and may be

decidedly "flat" if great care is not taken to have the absolute maximum "Q" in the tuned circuit of the multiplier.

Incidentally, the boob last month—for which we don sack-cloth-and-ashes—in answering that query on W prefixes, produced a strong reaction, ranging from mild rudery to straight correction (one of these was wrong, anyway!), through to the long and interesting letter from WA2WOR. Morgan points out that K, W, WA, and WB calls are issued to holders of technician, conditional, general, advanced, and extra class licences. The novices have been issued calls from the WN, KN, and WV series, although Morgan doubts whether KN is in current use, not having heard any on the air for some time. Morgan has been licensed since 1952, but is still a regular reader of this feature, and says he is firmly convinced that SWL'ing is the right way to start in Amateur Radio. Well, there can be no doubt about that, as the record has proved from the very beginning. These days, far too many amateurs come in "cold," never having even listened round on Top Band before taking RAE.

A first letter from *John Linford (Poole)* contains an entry for the SLP, which covered *all* the band, both CW and Phone; John uses a 120-foot length of

wire, fed through an ATU to a Denco DCR-19 receiver—a very good specimen of immediate post-war design. He is more interested in the LF bands, and finds much to please him in listening to the DX on SSB around the top end of Eighty.

W. Felton (Lincoln) has added radials to his vertical aerial, which have improved reception of the DX, and, possibly more important, reduced the TV timebase interference on Eighty down to negligible strength.

The leader in the SLP, A. Niblock, has received news that he is to pack his bags and come South to the London area in the fairly near future, but will be staying in digs for a while yet, so as to complete his course at Tech. College; so he has the problem of finding lodgings where a receiver is acceptable.

The letter from P. D. G. Milloy mentions one of the most annoying sources of interference: S9 sharsh, in this case coming from a neighbour's strip-lighting, which brought operations in the SLP to an abrupt halt at sundown.

Another new correspondent is D. C. White (Looe), who enclosed an SLP entry, an offering for HPX, and discusses the way in which his interest was aroused. It appears he first became indoctrinated as a result of hearing local G2BSA on 80m., through a transistor portable. From that to a BC Rx, via 19 and 52 Sets, to the present arrangement of HRO5 and PR30 preselector. Obviously, Dave likes 21 mc best of all, for he has a ground-plane up for this band, the rest taking a chance with a 40-foot length of wire.

Chess-playing over the air, between a G and a W, rather startled John Tring (Sutton, Surrey); this is not common, but is by no means a new thing, as your aged conductor remembers when he was younger quite a group at this sort of thing.

The piece last time on the subject of "BC sets in tin boxes" seems to have touched one or two spots. Alan Grove (Hayes) defends his receiver, which he claims is in this category, by saying the cure is half-an-hour with a TRF receiver! Not really true, Alan, unless something is drastically wrong with the TRF. As for the surplus stuff, an HRO, CR100, AR88 or similar receiver, if in good condition and unmodified apart from the provision of a little more BFO injection, can be guaranteed to leave one of the tin-box type standing. If it won't, then it needs servicing!

A change of receiver for P. Coull (New Romney), who now has a KW-77 which has "done things" for the HPX score; but on the other hand a sad letter from Geoff Cowling, up in Goole, who is wrestling with the drive cord on a CR-100. Drive-cord adjustments are never easy at the best of times.

**Pirates**

More news of these pests, this time from Stewart Foster (Lincoln) who has word from SV1AB of an outbreak of phoney SV calls. Genuine ones are in the series SV1AA to SV1BQ plus the SVØ crop; thus there are such "things" as SV1DL, SV1FA, SV1RS, SV2HB, SVØHB, SVØUB, SV1JA . . . all quite imaginary. To add to that little lot, Stew also mentions the

"ZA" signals that are kicking around, and the rumours and counter-rumours about them. For what it is worth, your conductor, in the absence of evidence to the contrary, regards them as all duds, in a similar manner to VKØRS, whose alleged "U.K. QSL manager" knows nothing about him, according to Stewart. Difficulty soon will be to find a legit signal on the band—which will lead to a certificate for working a "good station" in each country!

Snakes and Ladders is the game for Charles Harrington, who has moved from Hounslow to Maidenhead, and has made a new start; so from

**HPX LADDER**

(Starting January 1, 1960)

Qualifying Score 200

SWL	PREFIXES	SWL	PREFIXES
PHONE ONLY		PHONE ONLY	
D. Douglas (Dundee)	972	T. Bailey (Burgess Hill)	378
T. R. Popham (Exeter)	965	G. Cowling (Goole)	373
P. Cayless (Exeter)	929	E. K. Law (Walsall)	362
S. Foster (Lincoln)	801	G. Piscunov (Novosibirsk)	362
A. W. Nielson (Glasgow)	755	B. Stephenson (Ripon)	358
D. Rollitt (Navenby)	678	D. J. Mortimer (Gloucester)	358
P. Milloy (Doncaster)	668	N. R. Clyne (Hounslow)	354
E. R. Chivers (Lydney)	658	D. Edwards (Coalville)	352
A. Niblock (Ilkeston)	683	W. C. Torode	
J. Singleton (Hull)	679	(London, W.C.1)	350
C. Squires (Saltash)	648	R. Wyatt (Basildon)	340
W. Felton (Lincoln)	636	A. P. Ashton (Stowmarket)	339
R. G. Preston (Norwich)	614	E. Parker (Hove)	339
G. S. Taylor		C. Freeman (Nuthall)	327
(Wolverhampton)	581	J. Miller (Cheltenham)	315
C. Edwards (Warwick)	556	P. Freeman (Chessington)	315
J. Fitzgerald		M. R. Warburton (Sale)	313
(Great Missenden)	553	(AM only)	
M. Woollin (Leeds)	550	R. Glaister	
C. D. Morris		(Haywards Heath)	312
(Tenbury Wells)	549	K. Southgate (Leigh-on-Sea)	290
T. Pinch (Plymouth)	542	P. Smith (Linby)	287
W. Smith (West Bromwich)	542	K. F. Ballinger (Worcester)	277
J. Hodgson (Gainsborough)	540	B. Walker (Doncaster)	270
D. G. Cooke (Nottingham)	532	P. D. G. Milloy (Doncaster)	268
K. C. Staddon (Stroud)	516	(AM only)	
S. J. M. Blaber		A. Hydes (Enfield)	262
(Haywards Heath)	516	B. Thomas (Castleford)	256
D. Fitzgerald (Dublin)	510	A. McCudden (Glasgow)	254
J. Tozer (Plymouth)	507	G. J. Smithies (Halifax)	251
T. Wylie (Elderslie)	505	T. Farkasch (Benfleet)	251
B. Cullen (Dublin)	505	A. Niblock (Ilkeston)	250
W. Moncrieff (Hampton)	505	(AM only)	
G. Wylie (Johnstone)	496	J. Singleton (Hull)	240
P. Baxter (Winchester)	477	(AM only)	
G. Bowden (Crawley)	473	C. K. Skelcher (Larkhill)	236
M. G. Allen (Heston)	470	I. T. Paterson (Carstairs)	235
N. Hembrey (Northiam)	461	D. Boniface (Ripon)	234
R. Coates (Lancaster)	455	R. T. Jackson (Leigh-on-Sea)	230
P. A. Cayless (Exeter)	453	J. M. Dunnett (Singapore)	209
(AM only)		S. Cusworth (Wakefield)	207
D. Bailey (Dagenham)	452	R. A. Gape (Leigh-on-Sea)	205
P. Coull (New Romney)	451	T. R. Popham (Exeter)	202
A. G. Scott (Liverpool)	450	(SSB only)	
D. H. Foster (Swansea)	445		
J. W. Thompson (Tollerton)	441		
B. Macklin (Winchester)	435		
S. Swain (Havling Island)	431		
G. Watson (Sheffield)	420		
J. Dixon			
(Barrow-in-Fumess)	421		
S. Hardisty (Accrington)	421		
J. Tring (Sutton)	414		
Mrs. M. Worbey (Dartford)	406		
A. Jones (Newport, Mon.)	405		
L. Case (Widnes)	404		
B. J. Turner (Westcliff)	404		
D. C. White (Looe)	387		
Miss P. Longbone (Hull)	387		
H. M. Graham (Harefield)	383		
A. P. Legg (Sutton, Surrey)	378		
			(Maidenhead) 201

CW ONLY	
R. de Buis (Felixstowe)	463
M. Woollin (Leeds)	391
R. Bacon (Thetford)	384
B. A. Smith (Ruislip Manor)	363
S. J. M. Blaber	
(Haywards Heath)	307
J. Miller (Cheltenham)	303
P. A. Cayless (Exeter)	273
J. M. Dunnett (Singapore)	270
T. Pinch (Plymouth)	244
T. Wylie (Elderslie)	228
G. Wylie (Johnstone)	221
C. Harrington	

(NOTE: Listings only include recent claims. Failure to report for two consecutive issues of "SWL" will entail removal from the Table. Next list, May issue, for which the deadline will be March 23.)



King of the Castle, Charles is now starting at the bottom again in HPX. Another CW man is *R. Bacon (Thetford)* who makes a good rise in spite of the failure of his modifications, mentioned last time.

*T. R. Popham (Exeter)* proposes to get his score up to the thousand mark, and then retire, so as to give the others a chance, while he starts again! The catch is that in the period after he "retires" he is going to put up a few super aeriels! In the summer, he and *Pete Cayless (Exeter)* are going portable in Wales, with coverage of Top Band included, and will be sending reports out to the stations heard.

Back on the theme of Novices, *R. Jackson (Leigh-on-Sea)* has not heard any of the WN or WV types; they are limited as to the power input (a maximum of 75 watts DC input), tied to crystal-control in prescribed sub-bands, and confined to the key. In addition, the licence is renewable only by progressing through to one of the more advanced classes, being valid only for the year. Another *Leigh-on-Sea* type is *Keith Southgate*, who is using a converter in conjunction with a TCS receiver, aeriels being a 132-foot wire and a ten-metre dipole.

#### A Good Receiver

Solution to this argument about cheap receivers, as propounded by *R. Coates (Lancaster)*, is to set to and build from one of the published designs, such as the G3HTA—first published in *SHORT WAVE MAGAZINE* for December, 1964, and, as your scribe has proved in the last few weeks, a fine receiver by any standards. One built by a friend cost him about £25, quite a lot of labour with the metal work (although a pre-punched chassis and panel would have eliminated this) and patience in setting it up with minimal test-gear. The result is as good as the better commercial jobs, and it looks beautiful, too. Dick also mentions his adventures in the way of making a start on RTTY, over a period of seven months.

*P. D. Milloy (Doncaster)*, offers a contribution to the "Comic of the Year" heard on the bands—the W who gave a signal-strength report of "minus 0.5S!"

As far as SWL'ing is concerned, a policeman's lot can be a happy one, in the opinion of *T. Wylie (Elderslie)* who finds that his irregular hours enable him to get on the bands at odd times, to the benefit of his score. He mentions his method of learning Morse—by listening round, and a mite of hard work; he is stuck at "tens" for the moment, but will no doubt break through the barrier soon.

A fine example of what an SWL report should be, passed on from G6FO, to whom it was addressed, comes from *Eric Trebilcock (Victoria, Australia)*. It reports on a "CQ W6" on 20m. CW which went unanswered but was 559 with Eric out there, who goes on to mention that no W6's came back to the call, gives Rx details and the aerial, etc., used for reception. In fact, a *useful* report. Eric Trebilcock is a very well-known DX/SWL, who has been reporting all round the world for something like 40 years—his speciality being CW/DX on the amateur bands.

"Weirdie" callsigns seem to crop up at regular intervals these days, the latest being OIIE, stated to be on one of the North Sea oil rigs, reported by *S. Cusworth (Wakefield)* in the course of his interesting letter. Another one is W2YEJ/6P2, who is mentioned by *Anthony Legg (Sutton, Surrey)*. The first seems a little oily, to say the least of it, but the other is maybe a misreading—has anyone else any knowledge of this one?

*John Miller (Newport, I.O.W.)* writes to say he has joined the R.A.F. and will be in blue by the time this offering is read; however, he has passed the RAE, and hopes to go on and get the ticket, meanwhile listening from home during leave periods.

The HRO receiver belonging to *P. Smith (Linby)* is now going like a good 'un, after a realignment of the BFO. A point here is that the HRO, as aligned by the maker's handbook, has the BFO offset so that zero-beat is at one end of the scale instead of at the middle when the receiver is taking a signal "on the nose." A further improvement can be had by increasing the BFO injection capacitor from 2 to 22  $\mu\text{F}$ .

*Glyn Watson (Sheffield)* has a lot of controversial things to say about the HPX Ladder, which he would like to see changed; the trouble is that all the suggestions from readers seem to be self-cancelling! Not to worry though, rest assured the position is under constant review.

#### Sorry, Not Usable

Three nice pictures this month, one from *C. Witts (Gloucester)*, another from *Bruce Edwards (London, N.11)* and a colour one from *Reg. Holway (Taunton)*; sad to say, the black-and-white ones were not "bright" enough to be reproducible, and, of course, the colour one cannot be used either. What is called for is what the photographers among us would call a "plucky" print, to cater for the flattening of contrast that inevitably occurs in the process of reproducing.

A problem—*Peter Ivey*, who writes from



"... You can speed up to three words a minute now, Fred ..."

*Frow, Pentrosfa, Llandrindod Wells*, has an Indictar Unit Type 26, and a waveform generator Type 72, which he needs conversion data for, or a circuit diagram. As for the snag of the 400 c/s ("high-cycle") power input frequency, the answer is to change the power supplies! Though it is also possible to generate a 400-cycle input to feed the thing, using transistors.

Farewell note from *Andrew Marriott (Bishops Stortford)* who is now G3VWC. Yes, your conductor knows—he has had to straighten out his S-meter needle since Andrew came up on Top Band!

*Iain Paterson (Carstairs Hospital)* has contrived to hook VK3AJN, working ZC4GY which pleased him no end, and followed it up with IT1ALG in Sicily for new ones. Iain's list is shorter this month, due to his other commitments, but is still as keen as ever.

That CR-100 owned by *A. P. Ashton (Stowmarket)* is a persistent brute, and gave up once again during the period under review; however, Phil was not to be beaten and, muttering incantations under his breath, he wove a spell to make it work again, with hopes that this time the gremlin has really gone.

The usual long and interesting letter from *Geoff. and Philip Bowden (Crawley)* has a revealing comment on Geoff's struggles with Subject No. 55—"The RAE classes are tough, but I wouldn't forgo the interest and fun of our class for a pension!" How right he is in approaching RAE in this light; and how much easier for the lecturer as well as the class if the subject is *not* absorbed by the students in the manner of an unpalatable dose of medicine!

*B. Stephenson (Ripon)* says he has not gained any tape correspondence as a result of the note in this column in January; nevertheless he has found quite a lot to keep him active and has been looking around for a TV set with which to attack the TV/DX. Another Ripon reader, *D. Boniface*, who usually writes in on the TV/DX theme, has this time added an entry for the HPX Table, which is lower than it needed to have been owing to the loss of two of his earlier log-books. An interesting one heard was 8R1P, this being the new prefix for Guyana. As a matter of interest, it is understood that 8R1P, who was previously VP3AA, offers an award to stations who have worked him from any six of his *fourteen* previous locations! Denis seems to have had a good spell with the sporadic-E TV/DX since the turn of the year, and is keeping his fingers crossed that he may be able to see TV stations *via* the F2 layer during the coming season.

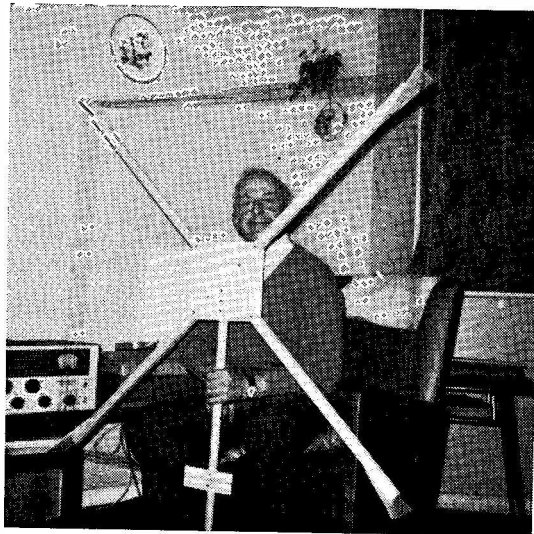
### Some QRM Problems

A load of questions appear in the letter from *D. Douglas*, apart from a spectacular entry in HPX, which he now proposes to retire from—and start again! As to the questions, the first one concerns interference from a TV relay station; this may be caused by faulty earthing, but if not, it is suggested that the trouble be notified to the Relay Company,

and the GPO people, as it would seem likely that such noise would also cause quite a bit of nuisance to neighbours. The second question is one of modifications to the AR88D—a difficult one indeed! One would feel the first, and most important, thing is to get it absolutely "on the nose" so that it is as good as the handbook says it should be, with the calibration correct at all the points against a 100 kc crystal check, and the IF circuits aligned so that the selectivity curves are to the book figures. When that is done, it is *very* doubtful if you will feel the need for any alteration apart from fitting it with a converter for the HF bands to give a little more bandspread. It takes an Rx of some class to equal an AR88 in good order although it must be admitted that the majority in service in AT and SWL stations are far from perfect, mainly due to misalignment. The final query is a request for details of the RF24, 25 and 26 Units. Any comments on these problems should be sent direct to David at 28 Craigmount Road, Dundee.

Another new chum is *C. Claydon*, who hails from *Kinghorn, Fifeshire*, and joins the HPX Table with a CW list. A mode which gives Chris great pleasure.

Another chap with a question about surplus: This time the matter is one of details of the functioning of the APN-1 Radio Altimeter, which friends of *Dave Bailey (Dagenham)* have christened the UFO (Unidentified Flying Object).



SWL Leslie Tagliaferro, 10 Gorrington Valley Road, Lower Willingdon, Sussex, has been an SWL for more than 40 years, and has experienced "all the stages and excitements of constructing receivers ever since crystal-set days." Hence, he knows the value of a frame-aerial, of the type often used in the early 1930's to give selective and directive reception on the medium-wave band. With a good frame, you could really sort them out at DX. And frames could be made as sharp as a needle for directivity. Leslie is still doing it with a new type of frame-aerial, and on the 80- and 160-metre bands—he describes results as "really exceptional," and "ideal for cutting out static and QRM." Now working for his RAE, Leslie hopes to go VHF/UHF when the ticket comes through.



Fine array of equipment owned by Stuart Ralph, 59 Church Road, Earley, Reading, Berks., who has been an SWL for about ten years. His main Rx (left) is a Minimitter MR44/II, with a Codar PR-30X preselector above it; next is a home-built PSU and then a Heathkit OS-1 'scope, used mainly in conjunction with the receiver. The other gear includes a 12w. transistor amplifier, a tape recorder, and a Hallicrafters S.38E, used for general-coverage listening and also as IF/AF strip for VHF converters for two and four metres. His aerials consist of dipoles in the roof space. Stuart remarks that his "main interests are SSB on 15-20-80m., with occasional CW listening on these bands."

By the time this issue is out to readers, Dave will be at *1 West Close, New Costessey, Norfolk*, to which address any information should be sent.

*Martin Goldman* would like to hear from anyone in the Leeds area who would be interested in getting in on an RAE course at the local Technical College; he is at *8 Nunroyd Road, Leeds 17*. Martin also mentions his receiver, an R107, and wishes it covered the HF bands and possessed more bandspread on those it does cover; again the answer is to use a good crystal-controlled converter, working into the '107 as a tunable IF strip.

A Lincoln reader, who has problems of a different sort is *D. Rollitt*. He has a good aerial and a good location, but this results in his aerials being severely buffeted by winds, and once again the ground-plane has obeyed the dictates of gravity. This is a tough one to solve, David, but perhaps, as the pole seems to stay up, there is a possible answer. G3KRC used to run a mobile whip which could be bent over like an arch, made by using glass-fibre fishing-rod sections with brass ferrules between the sections; these were covered with the outer conductor of some coax scrap, slipped over the glass-fibre section and sweated to the brass ferrules.

*Mrs. M. Worbey (Dartford)* is the only representative from the distaff side this time; she blames the aerial for her short list, which should be a good reason for driving the OM out to do something about it! Nonetheless, her list makes up in quality for what it lacks in quantity.

A real old-timer, *G. W. Howe (Hunstanton)* puts in a first entry for the SLP, although he has been an SWL since way back before the War. George mentions that in pre-war days the French Government, for one, used to ask SWL's to report on certain specified transmissions and wonders if such activity still goes on? Not to our knowledge, OM. The nearest thing these days is the QSL'ing of BC stations. As a matter of interest, George is an old brass-pounder and at present uses an Eddystone 840C, Codar PR-30 preselector and indoor Joy-stick aerial.

*K. Haynes (Romford)* is using a Windom aerial in conjunction with an Eagle RX-60N receiver, and is taking a stab at the RAE in May.

A bumper addition to his HPX score comes in from *E. Parker (Hove)*, who has spent quite a lot of time on the 28 mc band and found its behaviour quite fascinating, as have so many before him. Ernie mentions 7XØAH as a query station; this one is in

French Sahara. He also says he would like to see more articles on receivers and reception aids in general, as these are, as he puts it, the "rod and line" with which the "fish" are landed—and of course, he is dead right. But anyone looking through the *Magazine* over a year of issues would surely agree that a great deal of material on the Rx does appear.

*Chris Skelcher (Larkhill)* has hard words to say about the 80-metre pundits, and in particular the chaps who openly admit they only give five-and-nine reports as long as the chap is readable, so that he shall not think his gear is going up the wall! Well, it takes all sorts to make a world—as someone very eminent once said, there are lies, damn lies, and statistics!

To round off, we have another "retirement" to put on record, in that *S. Wilson (Ossett)* is now the owner of G3VMW. Congratulations, Steve, and all the best with the new call.

With pressure on space this time, we are not able to mention some of the letters, although all entries for the Tables have been taken in; this does *not* mean we don't want letters, but rather that, on this occasion, the letters containing only claims and comments of a more personal nature (which your conductor so delights in reading), have been overwhelmed by those of more general interest. So, this being the case, we acknowledge and thank the following correspondents for letters, SLP logs and HPX claims: A. Hydes (Enfield); T. Bailey (Burgess Hill); C. Edwards (Warwick); W. Bachell (Southend); N. Hembrey (Northiam); J. Fitzgerald (Gt. Missenden); W. Moncrieff (Hampton); T. Pinch (Plymouth); J. A. Hodgson (Gainsborough, Lincs.); B. Macklin (Winchester); R. G. Preston (Norwich); T. P. Dacle (Rotherham); J.

Dixon (Barrow-in-Furness); G. S. Taylor (Wolverhampton); P. Baxter (Winchester); G. J. Smithies (Halifax); S. Swain (Hayling Island); R. Glaister (Hayward Heath); S. J. M. Blaber (Haywards Heath); H. W. Graham (Harefield); J. Tozer (Plymouth); J. R. Daws (Leeds); D. Richards (Welwyn Garden City); A. G. Scott (Liverpool, 25); D. H. Foster (Swansea); P. Freeman (Chessington); C. Squires (Saltash); T. Farkasch (Benfleet); and J. Singleton (Hull).

#### The Next SLP

As those who follow the regular DX feature will know, an Activity Period for Ten Metres has been set for April 16, during 1000-1800 GMT—see "Communication and DX News." This advance date should ensure that transmitting readers throughout the world will be alerted and, of course, activity makes activity.

SWL's are invited to take part, by logging all they can hear, under three separate headings: Phone, CW and G stations, the latter information being required for statistical purposes. Fair logs should be sent in by April 28, as for the Tx fraternity.

\* \* \*

With the start of the new Volume, and as the result of requests by many readers, your scribe's name now appears in the title of the feature. But the QTH is still c/o The Editor!

And that's it for this time. We look forward to your letters for the next piece, which should be sent to arrive by **Thursday, March 23**, addressed "SWL," SHORT WAVE MAGAZINE, BUCKINGHAM. In the meantime, 73 to all and may your DX be delectable and your Easter holiday a successful one.

### TASMANIAN FIRE HORROR—VK7's

#### On The Air

The great fire that ravaged the Island of Tasmania during the second week of February, besides causing many casualties and doing a great deal of expensive damage, also cut off nearly all communications with the Australian mainland. In ordering a state of emergency on February 7, the Governor directed that VK7 amateurs should hold themselves in readiness to help with communication. At the moment of writing it is not known how effective this could have been, as there was also widespread failure of the electricity supply system. Oddly enough, VK7 is a part of the world we very seldom hear from, though we have a few readers out there. The total of VK7's actually licensed, at the last count in October, 1966, was about 190. Tasmania is listed as the Seventh District in the Australian radio amateur licensing system. It is only a little smaller than Scotland but has less than 8 per cent of Scotland's population.

### JAMBOREE-ON-THE-AIR, 1967

This important and well-established event in the Scout calendar will take place this year over the week-end August 5/6—perhaps rather an unfortunate

choice, because of the clash with the general holiday period, but necessary because this time the Jamboree is to coincide with the Diamond Jubilee of Scouting and the 12th World Jamboree in Idaho, U.S.A. When the time comes, the usual backing for local Scout groups would be appreciated from those who can make their stations available for demonstration contacts with other Scout stations throughout the world. Contact your local Scout group.

#### "SPECIALLY ON THE AIR"

It is about now that we remind those interested that we are glad to make space available for details of AT-stations to be operated in the presence of the public for some special outdoor occasion—such as country fairs, agricultural exhibitions, county shows and the like. For such events, the GPO will usually issue a special call sign for the period. What we need in the way of information for adequate advance publicity is: Call sign, period or dates of activity, bands to be worked and mode, organising body or group responsible, title and location for the event, and address for QSL's and enquiries. If there is anything laid on for April or later (apart from the Mobile Rallies, which are dealt with separately) and publicity is needed for the occasion, please let us know by March 15, *latest*.

# THE MONTH WITH THE CLUBS

By "Club Secretary"

(Deadline for April Issue: March 10)

(Please address all reports for this feature to "Club Secretary," Editorial Dept., SHORT WAVE MAGAZINE, Buckingham.)

TWO useful suggestions "from the floor" have come to hand from active Clubmen recently and deserve some mention in this space. The first is concerned with the question of making one's self known in the district, in the radio context. Many groups have a publicity officer and usually he is mainly concerned with the job of passing out information as to the dates, venues and programme details of his group; but rarely, if ever, does he make any serious attempt at obtaining publicity of a useful type in such organs as the local Press. However, there is often a local paper of standing which will be only too pleased to print a "spread" about Amateur Radio, and even a photograph, if it can be tied to some local event. In addition, there is often a broadsheet, published either as an "advertiser" or sponsored by the local council, for the benefit of new residents, which will take a note of the Club secretary's name and address for a purely nominal fee. A very good example of local-newspaper coverage was shown to the writer not so long ago by the Maidenhead group, and it is understood that, before it was run in the local paper, the group were given an opportunity to see and comment on the proposed write-up.

## Keeping the Members

A second point concerns the equally important business of keeping the members thus obtained. In this case the comment comes from the Echelford group, who have evolved the principle of dividing the work of running the Club and its activities between as many members as possible, in order that as many people as may be are given a sense of involvement in the group, without the feeling that it is necessary to be almost QRT themselves if the Club is not to suffer or the doghouse have a permanent resident.

## CLUB REPORTS

The first on the pile for this month is **Swindon**, who are meeting fortnightly at Headlands School, Cricklade Road, Swindon; on March 8 a lecture with exhibits on "Mobile Working" by G3NZV, which is followed on the 22nd by a talk and informal discussion with Mr. Hancock of the GPO. Incidentally, the Swindon *Newsletter* (from which this information is culled) has a most interesting controversy going on around the topic of the Field Day participation—quite one of the best friendly slanging-matches to cross this desk for some time!

**Verulam** have safely negotiated the AGM, and for March, will be running the "return half" of a home-and-away Quiz against Harrow RC, this event being held on the 15th, at the Cavalier Hall, Watford Road, St. Albans.

On the other hand, **Harrow**, in addition to the Quiz noted above, also have sessions on March 3, a Junk Sale; 10th, for a Practical Evening; 17th, when a film and slide show is to be given; and a "miss" on the 24th, which is Good Friday. **QZZ**, which is the title of the Harrow news-sheet, carries a good article on the Very First Contest—the Trans-Atlantic Tests of 1920—by G2UV, who took part, an interesting one on the JOTA affair last autumn, and a "funny" by G3HBN which should ensure that *no* members pass the R.A.E. To cap it all, the editors of **QZZ** apologise for its shortcomings—they must have their sights set really high!

On now to the S.A.R.A. group of Clubs, and here the first one to report is **South London Mobile**, who are at Clapham Manor Baths on the evening of March 11, for a talk, details of which are not yet finalised. As for **Wimbledon**, they get together at St. John's Hall, 124 Kingston Road, London, S.W.19, to hear G3RKK on the important subject of "Stabilising VFO's," the date being March 10. The last of the S.A.R.A. trio is **Purley**, who have a Junk Sale, which they say is "Always worth the trip," organised for March 17 at the Railwaymen's Hall, Whytecliffe Hall, Purley.

North of the Border for the next port of call, to **Radio Club of Scotland**, who advise that they get together every Friday evening, the venue being 336 North Woodside Road, Glasgow.

A group with a specialist slant to their Amateur Radio are British Amateur Radio Teleprinter Group, more usually known as **BARTG**, who advise that they recently held an AGM, as a result of which Dennis Goacher, G3LLZ, becomes hon. sec.—which means he appears *twice* in the address panel!

## Club Contest

**Grafton** Radio Society announce the dates for their Annual Top Band Contest for 1967, the CW end being run off on April 1, and the Phone on the 8th, the time being from 2230 to 0100 BST on both sessions. A full set of detailed rules may be obtained by sending an s.a.e. to G3SIL, at the address in the panel.

[over

The letter from **Ainsdale** says that the Club is perking up again after some sad losses during the past year; they are all set up to have the Annual Hot-Pot during the earlier part of March, although the date is not mentioned; so anyone thinking of attending would be well advised to contact the hon. sec., whose address appears in the panel.

The **Royal Signals** Amateur Radio Society have sent a copy of their journal, *Mercury*, which carries the full report of a lively AGM, an article on Oscilloscopes by G5YN, cartoons, and news of members. The RS A.R.S. has a membership of 500, and is looking out for new ones. In order to keep in contact, they have regular nets, on the last Sunday in each month, from 1000 to 1200, and again 1400 to 1600, U.K. time in each case. For the CW addicts the frequencies are 3530, 14050, and 21050 kc, while the Phone (SSB and AM) types will be found on 3700, 14120, and 21150 kc.

Three letters this month from **Shefford**, who are in business each Thursday, starting at 7.45, at the Church Hall, Shefford. On March 2, the matter in hand is Field Day planning, followed by a Junk Sale; on the 9th, they have been able to secure the Tektronix Film Show on Oscilloscopes—lucky chaps!—and on the 16th, there is an “Any Questions,” which suggests that *someone* will be put through the hoops. There will be no meeting on the 30th, as the Hall will be closed.

Another crowd who like films are **Edgware**, who say that the last one was such a success that the dose will be repeated on March 13. This will be the only date for this month, owing to the Easter holiday which clashes with their normal second meeting.

A first-class meeting-place is now enjoyed by the chaps in **Hull**, who have a well-equipped shack, and a large lecture room at their disposal, at 592 Hessele

Road, Hull. They will be using it on March 3 for a Morse Competition, which sounds intriguing, followed by a session on the Club Project on the 10th, a discussion about Field Day being fixed for March 17. On Thursday 23rd, the Society Transmitter will be put on the air. A warm welcome is extended to anyone interested in Amateur Radio.

Now to **Midland**, who are well-known in the area for their habit of being bigger and better than the others—this month they are to cap it all by hearing W6KSD give a talk on Parametric Amplifiers entitled “You too can make ‘em!” This will be held on March 21, at the Midland Institute in Margaret Street, Birmingham, 3.

The **Cornish** publication *Link* is having, as so many Club sheets do, some trouble with shortage of contributions; but it is to be hoped that it does not fall by the wayside. The Club meets at the S.W.E.B. Clubroom, Pool, Camborne, on the first Thursday in each month, and in addition there are thriving VHF and SSB groups, both of which use the Coach and Horses, Pydar Street, Truro, for meetings. It is understood that the VHF crowd are to be found there on the third Thursday in each month, but no information is to hand as to the SSB group meetings.

\* \* \*

A cure for those interminable AGM sessions is to combine it with the Annual Dinner and invite the XYL's—which *should* stop the argument ending in a free-fight. The **East Worcestershire** survivors will foregather at the Old People's Home, Park Road, Redditch, for the March meeting; but the date is not given, and since we were told that the February meeting was to be by J-Beams, which now seems to be the plot for March, we are somewhat confused. However, no doubt a call to the East Worcestershire hon. sec. at the address in the panel should enable the problem to be resolved. (A later note advertises the J-Beam lecture for March 9.)

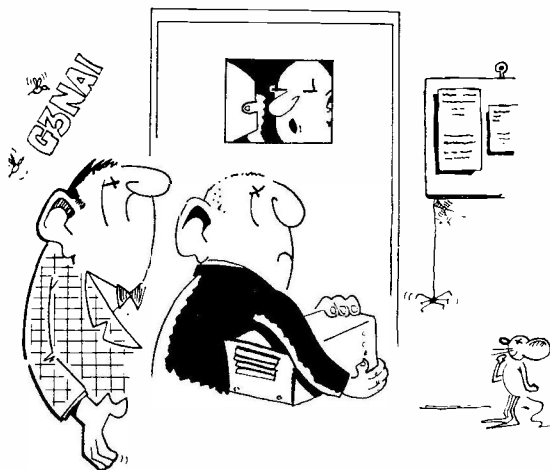
**British Rail** are now well and truly in existence, and G2QB is the president, with Mr. Martin of BR Headquarters, who has helped so much in the formative stages, as vice-president. A newsletter is being prepared and the editor is R. Mannion, 43 Elgar Road, Sholing, Southampton, to whom all contributions should go, the deadline being the 20th of each month.

*Radial* is the means by which the members of **RAIBC** keep in touch, in addition of course to the Club Nets, which are on 3·7 mc every Tuesday at 1000 and Wednesdays at 1400, clock-time.

A new Hq. is now in use by the chaps of **Echelford**, namely St. Martin's Court, off Kingston Crescent, which involves a change also of the meeting night to the last Thursday in each month. Thus for March, the date to reserve is the 30th, when it is hoped to put on a demonstration and lecture on RTTY.

The **Mid-Warwickshire** crowd are to be found at 7 Regent Grove, Leamington Spa, each Monday evening between 8 and 9.30 p.m.; alternate meetings

## CLUB ROOM



“... Are you AM or SSB ...”

are "formal" and these are programmed as the 13th, for a Mullard Film Show, and 27th, for a talk on the Scottish Islands, illustrated with slides, given by Mr. Mackenzie. The other Monday evenings are "open" with special facilities laid on for Beginners and Juniors. Visitors are always welcomed. The last page of their *QUA* is given over to a questionnaire which should help the committee immensely in the essential work of producing a programme which will keep up the interest.

Another *QUA* comes in from the **Cray Valley** group, also with a questionnaire on its last page, this time in connection with local four-metre activity. The formal meetings are held at the Eltham Congregational Church Hall, 1 Court Road, London, S.E.9,

and the date to book would appear to be Thursday, March 2, albeit a call to the hon. sec. to make sure would be advisable as we are not certain on this date.

March meetings for **Liverpool University** are set aside for a visit to Granada TV on March 8, followed by a talk on the subject of "Quartz Crystals" which will be given by G3NNW. On the other hand, at **North Kent**, March 4 is the date on which they are having their Annual Dinner and Dance; other meetings for the month are not mentioned, but once again a reference to the panel should sort the matter out. Incidentally, the venue for all North Kent events is the Congregational Church Hall, Bexleyheath.

A good way of getting a bit of free publicity, which has been mentioned by the **Harlow** group, is

### Names and Addresses of Club Secretaries reporting in this issue:

ACTON, BRENTFORD & CHISWICK: W. G. Dyer G3GEH, 188 Gunnersbury Avenue, Acton, London, W.3.  
 A.E.R.E. (HARWELL): V. J. Galpin, Building 347.3, A.E.R.E., Harwell, Didcot, Berks.  
 AINSDALE: N. Horrocks, G2CUZ, 34 Sandbrook Road, Ainsdale, Southport (77604).  
 A.R.M.S.: N. A. S. Fitch, G3FPK, 79 Murchison Road, London, E.10. (*Leytonstone 6700*).  
 BRIGHTON (Tech. College): R. A. Bravery, G3SKI, 7 Cope Hill, Brighton, 5.  
 BRISTOL (Group): J. Thorn, G3PQE, 6 Plumtree Close, Winscombe (2023), Somerset.  
 BARTG: D. J. Goacher, G3LLZ, 51 Norman Road, Gorse Hill, Swindon (21740), Wilts.  
 BRITISH RAIL: H. A. J. Grey, Eleven, Swanton Drive, East Dereham, Norfolk.  
 CAMBRIDGE UNIVERSITY: J. A. Lush, G3TGY, Queens College, Cambridge.  
 CHESTER: P. J. Holland, G3TZO, 19 Kingsley Road, Boughton Heath, Chester.  
 CIVIL SERVICE (London): G. Lloyd-Dalton, 2 Honister Heights, Purley, Surrey.  
 CORNISH: M. J. Harvey, Chycarne Farm, Troon, Camborne (2085), Cornwall.  
 COVENTRY: R. E. Rogers, 205 Brownhill Green Road, Coundon, Coventry.  
 CRAWLEY: R. G. B. Vaughan, G3FRV, Tralee, 5 Filbert Crescent, Gossops Green, Crawley (23359), Sussex.  
 CRAY VALLEY: C. W. A. Davis, 6 Braemar Gardens, Sidcup, Kent (*FOOiscray 5077*).  
 CRYSTAL PALACE: G. M. C. Stone, G3FZL, 10 Liphook Crescent, London, S.E.23. (*FORest Hill 6940*).  
 CULCETH: I. J. Sumner, G3VPX, 406 Warrington Road, Glazebury, Warrington, Lancs.  
 DUDLEY: R. Fisher, G3PWX, 63 Swan Crescent, Langley, Oldbury, Birmingham.  
 EAST WORCS: J. Bazley, G3HCT, Brooklands, Ullenhall, Solihull, Warwickshire. (*Henley-in-Arden 2176*).  
 ECHELDFORD: D. Walmsley, G3HZL, 153 Worple Road, Isleworth, Middx. (*POPesgrove 3329*).  
 EDGWARE: G. S. Fitton, G3RAA, 18 Beverley Drive, Edgware, Middx.  
 EX-G RADIO CLUB: F. W. Fletcher, G2FUX, 53 St. Ives Park, Ringwood, Hants.  
 GRAFTON: E. A. Rudolph, G3SIL, 29 Pangbourne Drive, Stanmore, Middx.  
 HARLOW: R. Brown, G3TOF, 177 Radburn Close, Harlow (23517), Essex.  
 HARROW: R. C. Ray, G2TA, Wintons End, Springfield, Bushey Heath (1762) Herts.  
 HULL: D. J. Peacock, G3NOP, 336 Cottingham Road, Hull.  
 IPSWICH: J. Rhind, G3UJR, 67 Rosecroft Road, Ipswich (42504), Suffolk.  
 LICHFIELD: S. W. Williams, G3VIQ, 65 Wallfield Road, Alrewas (491), Nr. Burton-on-Trent, Staffs.  
 LIVERPOOL UNIVERSITY: A. Clemmetson, G3VZK (*Secretary's address wanted*).  
 LIVERPOOL (A.R.S.): I. Barton, G3TYE, 23 Moss Side, Liverpool, 14.  
 LOTHIAN: A. J. Masson, GM3PSP, 20 Merchiston Park, Edinburgh, 10.  
 MAIDENHEAD: E. C. Palmer, G3FVC, 37 Headington Road, Maidenhead, Berks.  
 MANSFIELD: F. N. Bewley, G8HX, 116 Westfield Lane, Mansfield, Notts.

MID-HERTS: H. R. Thornton, G3PKV, 43 Fordwich Road, Welwyn Garden City, Herts.  
 MIDLAND: C. J. Haycock, G3JDJ, 29A Wellington Road, Handsworth, Birmingham, 20.  
 MID-SUSSEX: E. J. Letts, G3RXJ, 87 Meadow Lane, Burgess Hill, Sussex.  
 MID-WARWICKSHIRE: K. J. Young, 180 Northumberland Court, Leamington Spa (26426), Warks.  
 NORTHAMPTON (Social): B. Hayes, G3JBU, 31 Beverley Crescent, The Headlands, Northampton (33944).  
 NORTHAMPTON (SWRC): V. R. Hartopp, 61 Cedar Road, Northampton.  
 NORTHERN HEIGHTS: A. Robinson, G3MDW, Candy Cabin, Ogden, Halifax (64329), Yorkshire.  
 NORTH KENT: P. T. Baber, 64 Latham Road, Bexleyheath (8655), Kent.  
 PRESTON: H. A. Woods, G2AXH, 13 Merrick Avenue, Farrington Park, Preston (85706), Lancs.  
 PURLEY: A. Frost, G3FTQ, 62 Gonville Road, Thornton Heath, Surrey (*CR4-6DB*).  
 RADIO CLUB OF SCOTLAND: A. Barnes, GM3LTB, 7 South Park Terrace, Glasgow. (*STD 041-339-4080*).  
 R.A.I.B.C.: Frances Woolley, G3LWY, 331 Wigan Lane, Wigan, Lancs.  
 READING: G. A. A. Gale, G8APH, 1 Willwyne Close, Caversham, Reading (77423), Berks.  
 REIGATE: D. Thom, G3NKS, 12 Willow Road, Redhill, Surrey. (*Reigate 45033*).  
 ROYAL SIGNALS: Major L. S. Beaumont, G3RUS, 24th Signals Regiment, Catterick Camp, Yorkshire.  
 SALOP: W. Lindsay-Smith, 22 Kingswood Crescent, Coptthorne, Shrewsbury. (*Oswestry 2895, office hours only*).  
 SALTASH: D. Bowers, 95 Grenfell Avenue, Saltash, Cornwall.  
 SHEFFORD: D. A. Pike, 11 Hazel Grove, Stotfold, Beds.  
 SOUTH BIRMINGHAM: A. Bishop, 40 Cecil Road, Birmingham, 29.  
 SOUTHGATE: A. Dutton, 77 South Lodge Drive, Southgate, London, N.14. (*LABurnham 3390*).  
 SOUTH LONDON MOBILE: B. Negri, G3LXN, 17 Voltaire Road, Clapham, London, S.W.4.  
 SOUTHPORT: N. K. Waring, c/o 33 Chestnut Street, Southport, Lancs.  
 SOUTH SHIELDS: D. Forster, G3KZZ, 41 Marlborough Street, South Shields.  
 STRATFORD-UPON-AVON: I. A. Cobbold, G3RPI, 5 Avenue Road, Stratford-upon-Avon. (*STD 0789-2167*).  
 SURREY: R. Morrison, G3KGA, 33 Sefton Road, Croydon, CR4-7HS, Surrey. (*ADDIScombe 5982*).  
 SUTTON & CHEAM: P. Ball, G3HQT, 55 Maycross Road, Morden, Surrey.  
 SWINDON: D. Goacher, G3LLZ, 51 Norman Road, Gorse Hill, Swindon (21740), Wilts.  
 TORBAY: D. T. Hinds, G3VNG, 46 Thurlow Road, Torquay, Devon.  
 VERULAM: G. Slaughter, G3PAO, 6 Leggats Wood Avenue, Watford, Herts.  
 WIMBLEDON: K. Alexander, 23 Pepys Road, West Wimbledon, London, S.W.20.  
 WIRRAL: J. J. M. Phillips, G3PXX, 52 Allans Meadow, Neston, Wirral, Cheshire.  
 WOLVERHAMPTON: J. P. H. Burden, 28 Coalway Road, Wolverhampton.  
 WORTHING: P. J. Robinson, G6KFKH/T, 46 Hillview Road, Worthing, Sussex.  
 YEOVIL: D. L. McLean, G3NOF, 9 Cedar Grove, Yeovil, Somerset.  
 YORK: J. A. Rainbow, 14 Temple Road, Bishopthorpe, York.

to give a talk to some other organisation—in this case the Young Farmers' Club (!) at Ongar. G3TOF and G3PRN would seem to have provided the demonstration to support the talk ably given by G3GRQ. Club events are planned, including a Mobile Rally on September 24, and participation in the Harlow Town Show in June, in addition to the normal programme of talks on the Tuesday evenings, and matters on Thursdays.

Prize-giving, social evening, and Annual Dinner, all rolled in to one, is the ploy at **Torbay** this month; on March 11 they foregather at the Templestone Hotel in Torquay for this beanfeast.

**Coventry** are not to be distracted by frivolities, and so are in session on the 3rd, the programme for which is still to be settled, and on the 10th, when they are to hear the WIBB tape-and-slide lecture.

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The old stand-by for the meeting after the AGM is a Junk Sale, which is always popular and gives the new committee a chance to organise a programme. **Southgate** are doing just this on March 9, at Parkhurst School, Wood Green, London, N.22.

Linear Amplifiers are always good for a lecture—if you can find someone who knows about them—and **Acton, Brentford & Chiswick** have been successful. The speaker will be G3CCD, the date March 21, and the venue, as usual, the Chiswick Trades and Social Club, 66 High Street, London, W.4, and the welcome to visitors or potential members as warm as ever.

The Annual General Meeting will be held, by the **Lichfield** crowd, at the Swan Hotel on the evening of Monday, March 6. The officers will have a story of steadily rising membership to relate—which is a good sign that they will probably be made to do another year's stint ! !

A film show is the main item at the **Reigate** affair on Wednesday, March 8. On the day this issue appears they will be in session at the Lakers Hotel for the Annual Dinner and Dance, for which we understand that each member is limited to 35 (!) guests only.

Halls Croft, Old Town, **Stratford-on-Avon**, is the place to search for the local lads; on March 9, the tape lecture on "The Human Machine as Radio Operator" should provide plenty of food for thought, while on the 23rd, they have a film show which promises "something for everybody."

The **A.R.M.S. Mobile News** this month carries a comment on the important matter of insurance cover when operating at Mobile Rallies and similar events; a write-up on the TW Two-metre mobile gear; reciprocal licensing matters, and (sad to say) "advance information" of an Amateur Radio station, GB2GG, to be mounted in the Woburn stage-coach, "The Harrier," on April 1. A laugh at the expense of our hobby, and rather insulting to those whose interest lies in attempting to preserve these relics of yesteryear—but then, the date is given as April 1.

### Super QRN!

April 12 sees the Annual General Meeting of the **Northern Heights** group, preceded by a discussion on Field Day matters slated for March 29, and followed on April 26 by a lecture and demonstration by G3IKS on "Lightning," during which it is understood a 500,000 volt discharge will produce a flash in air about 2 feet long. Sounds interesting! Incidentally, this group has just acquired another XYL member, G3VZB, to whom our congratulations are due.

A good measure of the success of a lecture is the number of questions asked; **Wirral** have chosen "Top Band Aerials" as the topic of the month, to be dealt with by their own G3PPE on March 1 at Harding House, Park Road West, Birkenhead, and your scribe is prepared to lay a small bet that the questions will fall thick and fast! A different sort of question will be asked on March 15—by the auctioneer at the Junk Sale.

Every Friday evening the **South Shields** lot are to be found in the Trinity House Social Centre, Laygate, where they have G3DDI, the Club Station, available for use. The March programme includes a constructional competition and a lecture, but details will not be settled until the last moment; on the other hand, the April programme is far more definite and includes a very important subject—that of "Safety in the Amateur Radio Context," with G2BCY pointing out the risks.

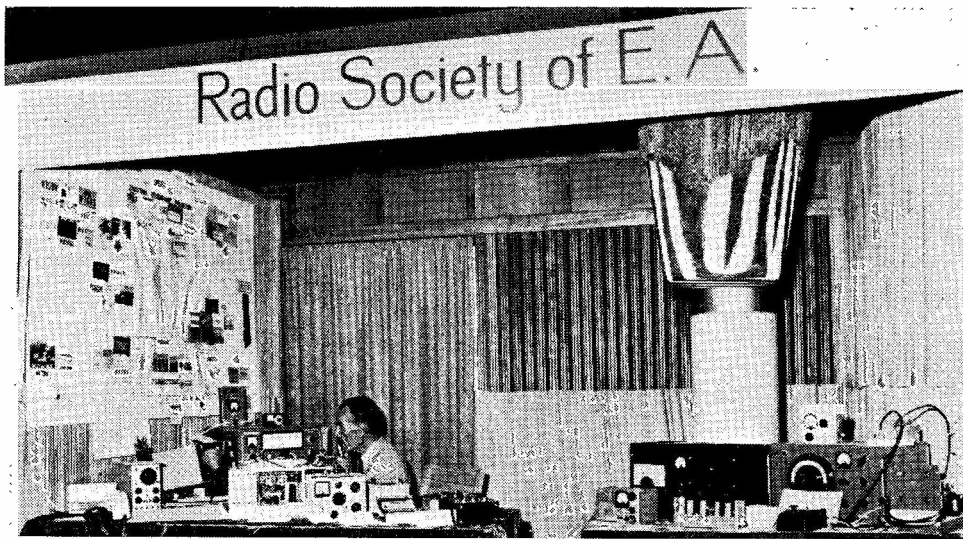
The formal meeting of the **Wolverhampton** lads is held at the Golden Lion on March 6, and covers the fascinating subject of D/F, the lecture being delivered by G3GKZ. In addition, there is an informal get-together at the Hq. address, which is Neachells Cottage, Stockwell Road, Tettenhall, this affair being slated for the 20th. Also we are asked specially to mention the meeting on April 3, at the Golden Lion, when G6GR will be talking about "Private Radio-Telephone Systems."

Bumper bundle this month comes from the **Mid-Sussex** hon. sec., who has sent us all the back numbers of his group news-letter, with the neat title of *Mid-Sussex Matters*, together with a covering letter and details of the membership position; one gets an impression that here is a young and lively group of "good types," who are whipping up activity in the Burgess Hill area very successfully, even though several members are away for quite long spells.

Hawker Siddeley Dynamics, **Stevenage**, is the place to look for the locals—but if you are going by public transport a longish walk can be avoided by letting the hon. sec. know of your existence beforehand; this slight disadvantage is nothing as compared with the advantages of their present Hq. This year, the programme is already settled right up to *September*, the March business being "An Open Night on the Air," on the 2nd, followed by a Quiz entitled "What do you know about Amateur Radio" on the 16th.

Another of the many groups who have changed their venue of late is **Bristol** (Group), who are now in





It is interesting to know that radio amateur groups overseas also take part successfully in local exhibitions. This was the show put on by the Radio Society of East Africa for an Exposition in the City Hall, Nairobi, Kenya in November last. The transmitting gear was operated under call sign 5Z4IR/A, and on duty when this was taken was 5Z4IR himself. The RSEA has about 90 members in the three countries it represents—Kenya, Tanzania and Uganda. We gather that there is a certain lack of activity on the part of RSEA transmitting members and one of the major headaches of the Kenya group is that, since December 1963 when the country became a republic, their authorities have refused to issue any new amateur licences.

Transport House, Victoria Street, Bristol. March 31 is the date to reserve, for the annual general meeting. On the other hand, the chaps at **York** have recently jumped this AGM hurdle, and are now busy with the normal business of the year; in March this takes the form of a film show, at which the "Ship-to-Shore" network will be the theme, the date being the 16th and the venue 61 Micklegate, York.

**Worthing** are in session every Tuesday, but the main meeting for this month is on March 14, when they hear all about "Components—Old and New" and enjoy the fruits of their labours in a constructional contest.

**Lothians** have been having some first-class stuff on the programme of late, with a lecture-demonstration by Hewlett-Packard, and a lecture on RTTY which ended up by printing-out a picture of the late President Kennedy on a page-printer, from a pre-punched tape—which must have caused a little headscratching!

**Southport** are now going great guns, and for March have G2DBY, in his capacity as the local GPO man, coming to lecture them on "Interference." This interesting one takes place at the Club Hq., The Esplanade, Southport, on March 15. The April programme is deliberately being kept "informal" as they have quite a few members taking the R.A.E., and as far as possible all efforts are to be bent towards ensuring that they pass.

\* \* \*

A new grouping writes in to tell about themselves: **Preston Amateur Radio Society** are lucky to have found a regular meeting-place at St. Paul's School, Pole Street, Preston, where they get together on the 2nd and 4th Tuesdays in each month. The committee are busy working on the matter of the programme, and we have no doubt the problems will have been resolved by the time this piece reaches the bookstalls.

The letter notifying us of the call allocated to **Brighton Technical College** was written in Painswick, Gloucester—which possibly accounts for the absence of dates and times of meetings—but, nevertheless, a line to the hon. sec. should make that clear, or listen for G3VXT on Top Band and D/F him!

"Fiddling Phasing Rigs" by G2FQR is on the programme of **Reading** group, on March 14, followed by the consideration of "Crystal Filters," a practical demonstration by G5XB. Incidentally, part of the session on the 14th will be set aside for a discussion of "ways and means" of avoiding the snags that cropped up last year in NFD.

Last month **Liverpool** and District managed just to miss the deadline, and so, of course, we have all of last month's programme to hand, but nothing of the doings in March. However, we can say the pattern is one of weekly sessions, every Tuesday, each meeting having something of interest, such as a talk, a quiz, a film show or what-have-you. All that effort on the part of the committee justifies all the support possible.

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**Ipswich** are new to this piece, although they have been going for three years; they are to be found on the last Wednesday in every month, 7.30 p.m., at the Red Cross Hq., Gippeswyk Hall, Ipswich.

The **Ex-G Club**, which caters for Britons overseas so admirably through its *Bulletin* writes in, via G3NMH, to say that claims and cards for their certificate should go to H. E. Perkins, G3NMH, 24 Hook Street, Hook, nr. Swindon, Wilts., and *not* to G2CWL as hitherto—because G2CWL is himself about to become an Ex-G by emigrating.

Two newsletters which are put out a couple of days before the group meetings are those of **Surrey**, and **Crystal Palace**. This process ensures a good turnout for the meetings, but of course also means that our report is “adrift” most months. Thus all we can say, in both cases, is “Get hold of the secretary—his address is in the panel—and learn of something to your advantage!”

As we mentioned last time out, **Culceth** were only formed just before Christmas, but nevertheless they seem already to have settled down to a pattern of “good talks and expansion”—and long may this continue. The place to look for is the Harrow Inn, Culceth, nr. Warrington, every Friday evening, starting at 7.30 p.m.

March at the **Salop Hq.** means 2nd and 4th Thursdays officially, but now there is a transmitter and receiver at the Hq., there tend to be unofficial meetings in the Clubroom on the other Thursdays as well. The formal affairs are a lecture on VHF/UHF Mobile Radio Systems, by G3AOS, and on March 23, a Sale of Surplus Equipment.

Yet another new one to these columns is from **Mansfield**, who are to have the AGM on March 3. It sounds as though the committee are dead thorough here—a special brew of talking (as against singing) beer is to be made available for this meeting.

“The best lecture yet at this Club” is the **Saltash** verdict on the recent talk by Joe Pengelly, the BBC TV announcer, who discussed the whole question of “High Quality Tape Recording and Reproduction,” with practical demonstration to prove his point. As for March, the 10th is Constructors Night, and the 24th is set aside for an evening of Films by Mullard.

**Dudley** have named their newsletter *Local Oscillator* and an interesting little sheet it is; it tells us that the Hq. of the group is the Dudley Art Gallery on every other Friday. Thus Friday, March 10, is given over to Tom Douglas, G3BA, who will talk about VHF, and normally the next meeting would be on the 24th, but this is deleted owing to its being Good Friday, and hence the next one in fact is April 7, when G3PWJ will discuss the Fundamentals of Television.

Suffice it to say of **Maidenhead** that their “home” meetings are held at the Victory Hall, Cox Green, Maidenhead, on March 6 and 21—but they also have a whole raft of visits to places of interest laid on for the near future, details of which can best be obtained by attending the meetings and talking to the hon. secretary.

No less than three lots from **South Birmingham**, by way of a couple of back numbers of the *Newsletter*, and a note giving late news. The newsletter for December was a little illegible, and so no solution to the Crossword was given in the January sheet; a little unfair, as your scribe managed to finish it! March 15, at the Scouts Hut, Pershore Road, Selly Park, Birmingham, 29, sees a Club Forum.

Over at **Crawley**, the Annual Dinner is all set for March 17, when friends (and enemies!) are all welcome. The main meeting of the month is to take place on the 22nd, when Mr. Huggins of the GPO will talk about “Curing BCI and TVI.”

### Long Record

**Sutton & Cheam** write to inform us that they are holding their 19th Annual Dinner and Dance on Saturday, April 8, at the Woodstock Hotel, Sutton, Surrey, the price being 27s. 6d. per person. Tickets and further information can be obtained from the hon. treasurer, G3DCZ, 60 Dudley Drive, Morden, Surrey.

The chaps at **Cambridge University** seem to make a habit of DX-peditions during the vacations; Easter is no exception, and so from March 18 to April 7, all bands 1.8 mc to 28 mc will be worked, 24 hours a day, from Douglas in the Isle of Man, signing GD6UW. Any request for skeds, or direct QSL replies, should go to the hon. sec., whose address will be found in the panel.

We seem to be mildly in Dutch with the **Northampton** crowd, insofar as the group who report to this column is known as the “Northampton Radio Amateur Social Club,” and is only one of *four* groups in the area! Sorry for the slip—we can only plead that nobody told us! As to the matter of the programme, Daystrom, Ltd., who produce the well-known Heathkit range, will be giving a lecture-demonstration, with G3HXN doing the talking, on March 16, at the Old White Hart, Cotton End, Northampton.

And by an odd chance the very next report is from—**Northampton** Short Wave Radio Club, with which group the J-Beam boys are closely identified. After 18 years at the old Hq. in Duke Street, they are now at the Kingsthorpe Community Centre, Kingsthorpe Hall, Northampton, where work is going on with the installation of transmitters and receivers for all bands, including two metres—so we can expect great things from G3GWB (which is NSWRC’s own call, and well known in two-metre contests). Meetings are on Thursdays at 7.0 p.m. and a welcome awaits all visitors.

### Good Idea

The **Mid-Herts A.R.S. Newsletter** for February discloses an interesting idea—they have a list of members holding gear which is available for temporary loan, with member G8ACP in charge of the arrangements. In this way, the Club’s own equipment can be stored, or made use of, between contests. At the recent annual dinner, G5UM and XYL, lately of the district, were the guests of some 38

members and friends. Jack was made the recipient of a well-earned presentation (a 10-ele Yagi, no less) in recognition of all he has done for the group over the years. Next meeting for Mid-Herts is on March 9, at the Vineyard Barn, Welwyn Garden City, to see the GPO film "Ship-to-Shore."

The **Yeovil** AGM threw up G3NOF (we mean, in the nicest possible way!) as their hon. secretary for yet another term—how many years has he been doing it for now?—with G3BEC as president, supported by a committee of six. On March 10, some of the neighbouring Clubs will be visiting Yeovil for a talk and demonstration on UHF aeriels, by G3JMY.

### Heathkit Lecture

We are asked to announce that the **Civil Service** RS has booked the lecture-hall at the Science Museum, South Kensington, London, for a free-ticket lecture and demonstration by Daystrom, Ltd., on kit construction and hi-fi equipment and techniques. The free tickets can be had for the asking, but must be applied for to secure admission—write either the hon. sec., or G3JXZ, QTHR.

The **Harwell** (AERE) boys have, as they say in *QAV*, "at last achieved a significant reshuffle of our cabinet"—meaning that some official faces have changed as a result of the AGM. This is no bad thing for everybody concerned—those who want to retire after years of (unthanked) service, and those who feel they may be able to offer something new

or constructive. The present plans include a fund-raising operation for new gear for the Club (noted in *QAV* as "a change from raising masts and aeriels"!). The Harwell chaps have always been very keen on, and successful in, contest participation, and list about 15 such events for this year, in which they hope to take part either on a Club basis or as single-member entries. We might add that *QAV*, produced by Cliff Sharpe, G2HIF, remains as interesting, amusing and as well-written as ever. AERE had better not lose him!

Finally, a report from **Chester**, giving their forthcoming meetings as: March 14, Quiz conducted by G3ETH; March 21, Tape Lecture; and March 28, lecture on DX Operation, by G3EWZ. All at the YMCA, Chester, starting promptly at 8.0 p.m. The Club Net nights are given as March 7 and April 4, opening at 8 p.m. and presumably on Top Band, though this is not stated.

\* \* \*

And that seems to be about the lot for this time; nice to see so many extra telephone numbers added to the collection, and addresses checked and brought up to date. When writing in about future activities, please say *where* the meeting is to be held, unless it is obvious from the letterhead, so that a prospective visitor can find you armed only with his copy of the *Magazine*. Deadline for the next issue will be first post on **Friday, March 10**, addressed to "Club Secretary," SHORT WAVE MAGAZINE, BUCKINGHAM.

The handsome certificate offered by the BARTG for world-wide RTTY (radio teleprinter) operation. The basic requirement is confirmed two-way contact with 25 countries.



**For anything radio you may want to buy, sell or exchange — use the Readers' Small Advertisement section in "Short Wave Magazine" — See pp.54-63**

## MOBILE RALLY CALENDAR

The dates are filling up fast for this Season's events. The sooner they are notified, the easier it is to avoid a clash. Not that this is always necessary if the meetings are well spaced geographically—though it is extraordinary how many /M's there are who aim to get round all the Rallies possible, and are prepared to travel colossal distances. Well, it makes an interesting outing and sets an objective for those keen on motoring for its own sake.

Mobile Rally dates will be posted in this column as we get to hear about them—it is for organisers to let us know if they want publicity here. Remember that once a date and a venue are fixed, they should be sent in immediately—the other details can follow later, to catch the appropriate issue. A deadline will always be given—for the April issue it is *March, 15*, addressed: Editor, SHORT WAVE MAGAZINE, BUCKINGHAM.

**April 30** : North Midlands Mobile Rally, at Drayton Manor Park, near Fazeley, Tamworth, Staffs., half-a-mile off the A.5 at Fazeley. There will be excellent catering facilities, ample parking space and plenty for the family to do and see—there is a Zoo, for one thing. This Rally is organised jointly by the Midland and Stoke-on-Trent Amateur Radio Societies.

**April 30** : Medway A.R.T.S. Rally at British Uralite Works, Higham, near Rochester, Kent.

**May 6-7** : International Rally Week-End in Belgium, starting in Brussels at ON4UB on the Saturday, and taking in a meeting and lunch on the Sunday, with a dinner at the Red Cross Hq., Brussels in the evening. All who would like to go across from the U.K. should apply to: Hq., U.B.A., 80 Chaussée de Vleurgat, Brussels 5, Belgium.

**June 11** : Mobile Rally at Mote House, Mote Park, Maidstone, Kent.

**June 18** : Hunstanton (bucket-and-spade) Rally, organised by the local group.

**June 25** : West of England Mobile Rally, the 10th in the series, at Longleat House, near Warminster, Wilts.

**July 9** : South Shields Amateur Radio Club Mobile Rally, at South Shields.

**July 16** : Mobile Rally organised by the Worcester & District Amateur Radio Club, at Upton-on-Severn, Worcs.

**July 30** : Saltash & District Amateur Radio Club annual Mobile Rally, at Calstock, Cornwall.

**September 3** : Swindon & District Amateur Radio Club Mobile Rally at Lydiard Park, Swindon, Wilts.

**September 15-17** : Third International Amateur Radio Convention and Rally at Knokke, Belgium.

**September 24** : Harlow & District Radio Society annual Mobile Rally.

Anything else for the April issue, by March 15, *ps*. In future, we shall only give the details for each event in the issue nearest its date. This will save space and repetition. Organisers should therefore watch for the deadline date for the issue in which they wish their notice to appear.

## MORE ABOUT MAIL DELAYS

We are sorry to seem to be harping on this subject, but a statement by the PMG, in the House on January 20, cannot be allowed to pass unnoticed here. It was to the effect that "83 per cent of fully-paid letters are delivered not later than one day after posting." This sounds fine, but it means that no less than 17 per cent of the first-class mail is now officially admitted to be delayed—one may only wonder what can happen to the printed-paper rate mail, such as the wrapped copies of SHORT WAVE MAGAZINE for subscribers. Even if we did post fully-paid there would still be this 17 per cent delay, apart from the fact that it would be necessary to charge the extra postage—which for us would otherwise amount to a postal surcharge of some £100's a year (we are already carrying the last increase).

So we shall continue as before, posting all U.K. subscriber copies on the Thursday morning before the Friday of publication—which is exactly what we have been doing for years! Clearly, there is nothing else we can do, and any complaints about delayed delivery should be referred to the local head postmaster and *not* to the Editor of SHORT WAVE MAGAZINE!

Of course, the present PMG, like all Postmasters-General before him, has all sorts of pie-in-the-sky plans promising "Improved Service"—but all that ever actually happens is that the cost goes steadily up and the standard of the service deteriorates. Hammer your M.P., not us!



"... Using push-to-talk at the moment ..."



## THE OTHER MAN'S STATION

## VQ8AX

**T**HIS is the station operated as VQ8AX by A. S. Foster, GM3OXA, now at the R.N. Communications Centre, Vacoas, Mauritius, where he has been since March, 1964, becoming VQ8AX in July of that year.

He first became interested in Amateur Radio in 1956—not, as he says, “by the classic method of over-hearing a local amateur on the family BC set” (at that time the family lived in the remote north-west of Scotland), but by buying a copy of *SHORT WAVE MAGAZINE*. From this beginning he was led by easy stages to Subject No. 55, the RAE and the Morse Test (which he took at the Customs & Excise office in Edinburgh), becoming licensed in March 1961 as GM3OXA. The first QSO was with GM3NOM and the gear used at that time was a K.W. Valiant and an Eddystone S.640.

Then GM3OXA got married, and packed it all in till he was posted to Mauritius, where it was no trouble at all to obtain VQ8AX. Operations started in November 1965, with the gear much as seen in our picture.

VQ8AX is now centred round a home-built double-conversion receiver based on various *Magazine* designs and suggestions, and his transmitter is a Heathkit HW-32 SSB job with a home-built 2/TT21 linear amplifier, working being mainly on 20 metres. A Codar PR-30X preselector is used with the Rx side, and the ancillaries include a signal generator, an ATU, 100 kc xtal standard, a GDO and a tape recorder. Initially, a Joystick was used for aerial, and with it, some 80 countries were worked on the 20-metre band in about six months.

The present aerial is a two-element inverted Vee-Vee at 50 feet up, built of bamboo with wire for the elements. It should be mentioned, by the way, that VQ8AX is located 1,200 ft. a.s.l., with a clear take-off in all directions . . . and very nice, too!

While a bug is available, for CW working an ex-German JU.88 aircraft key is much preferred. As regards the general run of operating, the favourite mode at VQ8AX is now 20-metre Sideband, and there is no question that with the gear as described here, he puts out a tremendous signal.

In addition to his family, other interests include the local Sub-Aqua Club and all the other off-duty activities to be enjoyed in the delectable island of Mauritius. In fact, VQ8AX says he will be very sorry to have to give up his exotic call on return to London (and G3OXA) in July of this year, for a home-duty spell of at least twelve months. However he hopes after that to be off abroad again—and at his age of only 25 now, he has plenty of time and opportunity for that, the lucky chap.

\* \* \*

We are always glad to see material for “The Other Man’s Station”, which has been a feature of *SHORT WAVE MAGAZINE* since before Hitler’s War. What we require is a good photograph (black-and-white, *not* a microscopic colour slide), with fairly complete details covering not only gear used and activity and experiences as a radio amateur, but also such personal notes as may be of interest for publication. Of course, we pay for the story as published, immediately on its appearance in print.

# NEW QTH's

This space is available for the publication of the addresses of all holders of new U.K. call signs, as issued, or changes of address of transmitters already licensed. All addresses published here are reprinted in the U.K. section of the "RADIO AMATEUR CALL BOOK" in preparation. QTH's are inserted as they are received, up to the limit of the space allowance each month. Please write clearly and address on a separate slip to QTH Section.

- G3LBW**, J. R. Bird, 15 Conway Road, Redcar, Yorkshire. (*re-issue*). (*Tel. Redcar 2577.*)
- G3TRO/A**, L. J. Carter, c/o Mrs. E. Swain, 34 Gordon Road, Canterbury, Kent.
- GW3UOO**, D. Rogers, 18 Ty Wesley, Heol Awstralia, Ponciau, Wrexham, Denbighs.
- G3UQZ**, D. E. G. C. Sanderson, 175 Johnson Road, Erdington, Birmingham 23.
- G3VKQ**, C. D. McEwen, 45 Pearce Avenue, Parkstone, Dorset.
- G3VRW**, P. R. Lamb, 96 Mitella Street, Burnley, Lancs.
- G3VTI**, A. R. Burford, 14 Kent Close, Aldridge, Walsall, Staffs.
- G3VTY**, K. R. Robson, 6 West End Rise, Horsforth, Leeds, Yorkshire.
- G3VUS**, D. Latimer, 36 Fife Street, Barrow-in-Furness, Lancs.
- G3VUV**, E. J. Smith, 11 Kingsway Gardens, Westville, Hucknall, Notts.
- GM3VVM**, H. Graham, 328 Kintyre Avenue, Linwood, Paisley, Renfrewshire.
- G3VXF**, B. E. Ellis, 24 Green End Road, Boxmoor, Hemel Hempstead, Herts.
- G3VXS**, J. Peach, 56 Basford Park Road, Maybank, Newcastle-under-Lyme, Staffs.
- G3VYM**, E. H. Caley, 13 Chestnut Avenue, West Wickham, Kent. (*Tel. HURstway 5881.*)
- G3VYN**, M. S. Turner, 32 Southwell Road, Hall Road, Norwich, Norfolk, NOR.18-C.
- G3VYY**, B. G. Hamilton, 907 Crumlin Road, Ballysillan, Belfast 14.
- G3VZD**, N. R. Blaxter, 11 Broad Street, Kings Lynn, Norfolk.
- G3VZH**, C. J. Doran, 89 Lennard Road, Penge, London, S.E.20. (*Tel. SYDenham 6963.*)
- G3VZJ**, A. R. Clemmetsen (*ex-G8ALA*), 4 Kings Drive, Whitley Bay, Northumberland.
- G3VZM**, F. Houghton, Lily Ponds Cottage, Cottage Drive West, Gayton, Wirral, Cheshire.
- G3VZN**, J. B. Butcher (G3LAS), o/b/o Amateur Radio Society, Enfield College of Technology, Queensway, Enfield, Middlesex.
- G8ATW**, A. L. Andrews, 163 Golf Green Road, Jaywick, Clacton-on-Sea, Essex. (*Jaywick 543.*)
- G8AWG**, R. Laphorn, Fourwinds, Green Close, Kingsbridge, S. Devon. (*Tel. Kingsbridge 2677.*)

## CHANGE OF ADDRESS

- G2BDR**, L. Fox, 38 Greenfields Road, Innage Lane, Bridgnorth, Salop. (*Tel. Bridgnorth 2844.*)
- G3AHE**, G. James, 3 Lynworth Terrace, Blacksmith Lane, Prestbury, Glos.
- GM3BQA**, J. S. McCaig, Woodlands, Whitekirk Road, North Berwick, East Lothian.
- G3COQ**, D. Oswald (*ex-GM3COQ*), 5 Southfield Close, Leckhampton, Cheltenham, Glos. (*Tel. Cheltenham 21091.*)
- G3CSE**, C. W. Smith, 128 The Commons, Welwyn Garden City, Herts.
- G3HBZ**, N. E. A. Rush, 77 Maryland Way, Sunbury-on-Thames, Middlesex. (*Tel. Sunbury 2262.*)
- GM3JOL**, J. Murray, 7 Chemiss Road, Methilhill, Methil, Fife.
- G3KUZ**, A. R. Lloyd, 61 Baker Street, Rochester, Kent.
- G3LEQ**, G. L. Adams, 6 Carrington House, Windsor Road, West Mersea, Colchester, Essex.
- G3LEQ**, G. L. Adams, Donegal, Bayview Road, Bangor, Co. Down. (*Tel. Bangor 4400.*)
- G3LYX**, J. R. Crellin, 35 Meadow Way, Carlton Colville, Lowestoft, Suffolk.
- G3LZO**, J. Thomas, 4 The Crescent, Dunsop Bridge, Clitheroe, Lancs. (*Tel. Dunsop Bridge 201.*)
- G3MCX**, W. J. Kennedy, 1 Woodside, Chelsfield, Orpington, Kent.
- G3MDD**, B. S. Mudge (*ex-VS6ED/V56DV*), 38 Farm Road, Dunmore Farm Estate, Abingdon, Berks.

- G3NRB**, N. H. Kempt, 7 Raffin Green Lane, Datchworth, Herts. (*Tel. Knebworth 3438.*)
- G3NRE**, J. E. Allen, 62 Taylor Road, Kings Heath, Birmingham 13.
- G3OEM**, R. A. McCarty, 1 Baden Road, Brighton 7, Sussex.
- G3OHY**, R. J. Bennett, 40 Moorside, Scot Lane, Aspull, Wigan, Lancs.
- G3PIM**, E. N. Allcoat, 28 Victoria Street, Nuneaton, Warks.
- GM3PLO**, J. Gray, Decca Transmitting Station, Dounby, Kirkwall, Orkney.
- G3RFA**, D. E. Garrington, 210 Stretford Road, Urmston, Manchester, Lancs.
- G3RFH**, K. J. Randall, 2 BO PO's Mess, H.M.S. *Hermes*, B.F.P.O. Ships, London.
- GW3RXD**, G. Llewelyn, 8 Maes Llwyn, Amlwch, Anglesey.
- G3RYZ**, M. G. Byrne (*ex-9M2BM*), 16 Downham Gardens, Tamerton Foliot, Plymouth, Devon.
- GW3SUH**, K. Hughes, 58 Whiterock Drive, Graigwen, Pontypridd, Glam. (*Tel. Pontypridd 4307.*)
- G3TBG**, G. Goulbourn, 24 The Woodlands, Upton, Wirral, Cheshire.
- G3TDV**, G. Fidler, 150 Trew hitt Road, Heaton, Newcastle-on-Tyne 6.
- G3TYJ**, A. S. Carpenter, 10 Avenue Road, Frome, Somerset.
- G3UCE**, L. B. Uphill, 349 Heysham Road, Morecambe, Lancs. (*Tel. Heysham 51760.*)
- GM3UCH**, W. P. Wright, 460 Main Street, Stenhousemuir, Larbert, Stirlingshire.
- G3VNM**, W. J. Bond, Hollycote, Rumsam, Barnstaple, Devon.
- GW3VL**, P. R. Jenkins, 57 Pantbach Road, Birchgrove, Cardiff, Glam.
- G8APG**, D. White, 77 Weston Road, Runcorn, Cheshire.
- G8AQA**, P. Nickalls, The Rectory, Nailsea, Bristol, Somerset. (*Tel. Nailsea 3227.*)

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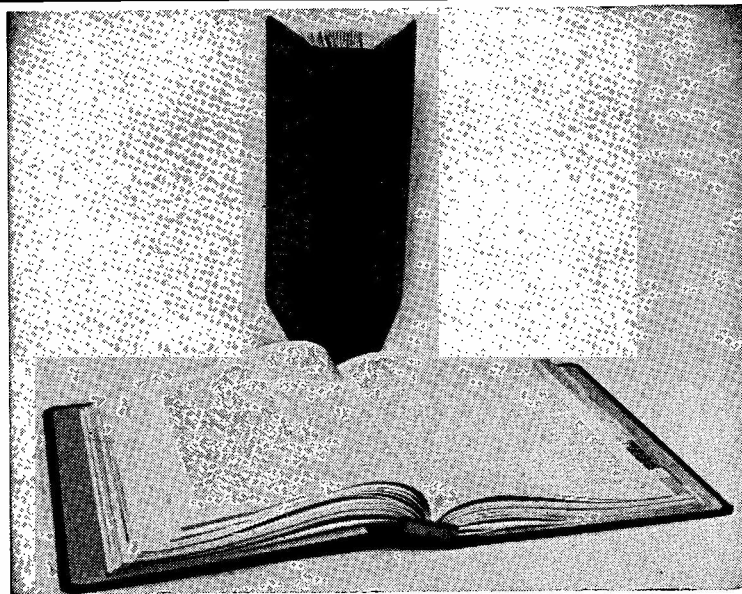
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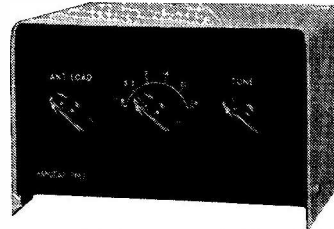
**SELLING:** QQV02-6 valves, ex-equip., 20s. each. Also EF80, PCF80, 12AT7, 12AU7, 10F1, ECL80, EAC91 and 9003, 1s. 6d. each. Several other types, state wants, with s.a.e. Money-back guarantee.—Box No. 4438, Short Wave Magazine, Ltd., 55 Victoria Street, London, S.W.1.

**SALE:** M. & G3 Sideband Transceiver, 160-80-20m., 90 watts p.e.p., mains and mobile PSU, price £100, no offers.—G3TNL, QTHR.

**WANTED:** Pair good-quality high impedance headphones, also Eddystone mains filter Type 732. Price and full description. — Hardisty, Gleneagle, Carleton, Carlisle, Cumberland.

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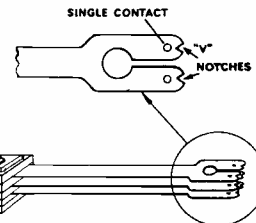
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**WANTED:** An R.C.A. AR88D, with manual. SELLING: R.1155N receiver, good on Top Band, no PSU, price £7, plus carriage.—Parry, Police Station, Cilycwm, Llandoverly (386), Carmarthenshire, Wales.

**SALE:** A 52 Set, with PSU, complete set valves, phones, handbook, Collins Tx and power supply; also 308 Set, price £30 or near offer.—Walker, Tel. POPesgrove 9186 (London).

**BALUNS—**To G3HZP design, price 15s. including post/packing. Cores stacked and insulated to wind yourself, details supplied, 10s. incl. p/p.—James, G3HZP, 23 Rampton Road, Willingham, Cambs.

**SALE:** Hammarlund HQ-170A, mint condition, in manufacturers' carton, complete with matched speaker, price £90. Owner going Hi-Fi.—Tomes, 15 Balham Park Road, Balham, London, S.W.12.

**SELLING:** K.W. Viceroy Mk.III, with separate KW PSU, in excellent condition, price £95.—Walmsley, G3IBB, 7 Scotton Gardens, Catterick Camp, Yorkshire.

**WANTED:** Hustler Mobile Antenna. **SALE:** TCS-12 Tx for 40-80-160m., with all plugs, PSU and modulator, in FB condition, £12. Also K.W. Viceroy Mk.IIIA, as new, price £100.—G3POR, QTHR.

**WANTED:** Hammarlund Tx Type HX-50A or HX-50A/160. Also cheap Top Band only Tx, and 70 cm. converter for 28 to 30 mc IF.—Box No. 4440, Short Wave Magazine, Ltd., 55 Victoria Street, London, S.W.1.

**FOR SALE:** Receivers R.1475, coverage 2.0 to 20 mc, complete with PSU, £12 10s., carriage 12s. 6d. Without power pack and in working order, £8 10s., carriage 10s. Money order only, please.—Goble, 115 Dyas Road, Great Barr, Birmingham, 22A.

**WANTED:** K.W. Valiant transmitter, suitable for rebuild; incomplete or any condition acceptable. **SALE:** PTC-115, two-metre Tx, with xtals, or EXCHANGE for W.H.Y.?—Walters, Greenacres, Little Liverpool, Coton in the Elms, Burton-on-Trent, Staffs.

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**SALE:** Eddystone S.740 Rx, coverage 500 kc to 30.6 mc, with S-meter, and in good condition, £16 or near offer.—Renwick, G3JIC, 21 The Grove, Windle, St. Helens, Lancs.

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## SMALL ADVERTISEMENTS, READERS—continued

**FOR SALE:** Receivers: Drake 2B with Q-multiplier and speaker, £90. Heathkit RA-1 and RG-1, each £30. Mosley CM-1 with Q-multiplier and speaker, £55. Geloso front end, £4. Sideband Tx, Hallicrafters HT-30, £65.—Edwards, 71 Deakin Road, Erdington, Birmingham, 24. (Tel. ERD 2282).

**SALE:** HA-350 Rx, absolutely as new, with 160m. converter, in original packing, price £62 10s. Neat 500-watt Linear (four EL38's) with components for PSU (silicons), £6 10s. Calibrator, 100/10 kc, for 240v. AC, 15s. Audio signal generator, ("RSGB"), 240v. AC, 17s. 6d. SWR meter, with 0-50 microamp. meter, 15s. Jason FM tuner, 35s. Mullard 3-3 Amplifier, with 10-in. speaker, 30s. AC motor 1/4th h.p., 240v., 30s. Carriage extra, s.a.e. with enquiries, pse.—Hedges, G2HCV. Eastcliffe, Brooks Hill Drive, Harrow Weald, Middlesex.

**BEGINNER** Wants receiver costing under £4, repairable would suit. Also mint Eddystone types 750, 940 or 680; would collect bargain. — Rayer, G3OGR, Reddings, Longdon Heath, Upton-on-Severn, Worcs.

**FOR SALE:** K.W. Valiant, 10 to 160m. Tx, aerial c/o relay fitted, in excellent condition; can be demonstrated, only £25. — Porter, G3VXK, 11 Cranmore Avenue, Liverpool, 23. (Tel. WATERloo 1610).

**SALE:** Correspondence Course for the R.A.E., in mint condition, price £13 or near offer. — Box No. 4442, Short Wave Magazine, Ltd., 55 Victoria Street, London, S.W.1.

**WANTED:** Urgently, PSU giving 1250v. at 400 mA, or suitable transformer. Mosley Tri-Band Beam TA-33, or similar. Sectional mast, 30 to 40 feet.—Munn, G3JBQ, 6 Willow Crescent, Great Houghton, Northampton.

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**SALE:** AR88D, new and immaculate, with trimming tools, instruction book and speaker, price £45 (will deliver to 50 miles). Woden UM3, unused, 30s. Mosley transistorised 160-metre converter, 60s. Top Band Command Rx, as new, ready for 12v. mobile, what offers? All items carriage extra. — Smith, G3RB, 15 Malcolm Court, West Monkseaton, Whitley Bay, Northumberland.

**WANTED:** HRO bandspread coils, also GC 1.7 to 4.0 mc. FT-243 xtal, 8.06 to 8.07 mc. Two-metre converter. — Box No. 4443, Short Wave Magazine, Ltd., 55 Victoria Street, London, S.W.1.

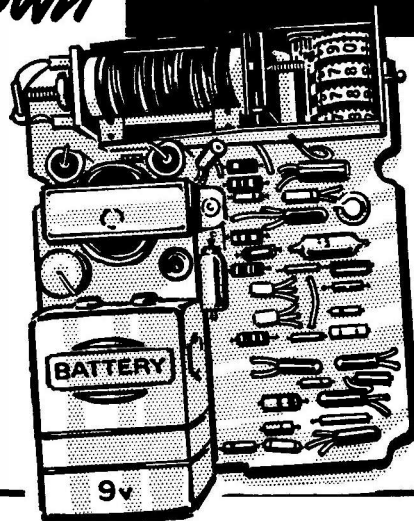
**SELLING:** Heathkit DX-40U and VF-1U in good condition, price £25 or offer.—Coles, 113 Berrow Road, Burnham-on-Sea, Somerset.

**FOR SALE:** Components for Electroniques amateur-band Rx front end, including all coils, switch wafers, tuning condenser, four Series II IF transformers 3/85 kc and 1/1.6 mc, 2/HSO Osc. coils 1/85 kc and 1/1.6 mc, with both valves, price £8. Also one pair 10-transistor Walkie-Talkies, cost £30, at £23. — Warner, 3 Marlowe Grove, Peterborough, Northants. (Ring 71092 after 6.30 p.m.).

**SALE:** SSB Tx, phasing type, 20/80m., 180 watts, £15. Modernised "Commander" Rx, coverage 1.7 to 31 mc, with bandspread for amateur bands, £18 10s.—G3TFX, QTHR (Tel. CY 27640).

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### SMALL ADVERTISEMENTS, READERS—continued

**OFFERING:** Drake 2B Rx, 100 kc calibrator and Q-multiplier. Sommerkamp FL200B Tx, hardly used. Also R.109A, 6v. battery Rx, 2-0 to 12 mc. Offers?—Wright, 10 Avenue Road, Gorleston, Great Yarmouth, Norfolk.

**SALE:** Cowl-gill beam motor, with Selsyns and indicator, unused since purchase, £5 10s. Also octave, C-C, pedal assembly for electronic organ, £5.—Swinnerton, G2YS, 29 Beacon Way, Rickmansworth (76864), Herts.

**SELLING:** American Heathkit IT-21 Valve Tester, £20. HW-30 two-metre transceiver, with p-t-t, £17.—Donald, GM3SKS, 5 Woodrow Circus, Glasgow, S.1, Scotland.

**WANTED:** GDO and Z-Match, also brass Morse key, and RSGB "Bulletins" 1959, or Sept., Nov., Oct. issues only.—Peach, G3VXS, 56 Basford Park Road, Maybank, Newcastle-under-Lyme, Staffs.

**WANTED:** QRO PA or tuned cavity for 432 mc. Also QQV03-20A and QQV06-40A.—Davies, G2FXA, 35 Kensington Road, Stockton-on-Tees, Co. Durham.

**SALE:** National HRO with PSU and set of nine coils, and AR88-type noise limiter, £25. Also PSU for Tx, 600-300-150-6-3v., £5. Numerous other bits.—Ring Deeley, Four Oaks 1695.

**OFFERING:** Eddystone EC-10 receiver, with self-contained Eddystone mains unit, £42 10s. K.W. Vanguard, 10 to 160 metres, factory built, latest style cabinet and in mint condition, £45. Minimitter transistorised PSU, 12v. to 300v., with built in relays, £6. E.M.I. Voicemaster 65A 4-track tape recorder, eight separate controls and S-meter for recording, with instruction manual, tape and microphone, including record-playing attachment, £25. Open to offer all items.—Everley, G3PPK, ring Hayes 5033 (day), or Uxbridge 36989 (night).

**SALE:** R.216 receiver, no mods., clean and working, price £23. PSU extra if required. Also a ZC1, at £5.—Lee, G3GYK, ring Ferndown 3603.

**SELLING:** Eddystone 888A amateur band receiver, with S-meter, immaculate, £50. Or EXCHANGE for photographic equipment, or quality tape recorder.—Smythe, 17 Binns Road, Glasgow, E.3, Scotland.

**FOR SALE:** Two 1500v. 200 mA transformers, 20s. each; two units of metal rectifiers to suit, 20s. each. Four HV LF chokes, 7s. 6d. each. Eight 1500v. 10 mF condensers, 7s. 6d. each. One modulation transformer, 200-watt, suit 807/807 into 813. 20s. One transformer giving 1000-1000v. and 750-750v. at 250 mA. 20s. Callers only; these are heavy items.—Hogg, G3NRZ, 20 Sunbury Avenue, Mill Hill (3161), London, N.W.7.

**SALE:** HA-350 receiver, with speaker and 100 kc calibrator, only six weeks old, cost £83, offered at £60 or very near offer.—Broder, 19 Avon Court, Keswick Road, London, S.W.15. (Tel. VANDyke 9901).

**BARGAIN:** Only a month old and not even used, a CSE 2-A10 Tx and Green TMR-5 Rx, ideal mobile rig. Cost £79, first £68 secures. Changed mind and now going SSE. Deliver in Kent, Surrey or Sussex. Box No. 4444, Short Wave Magazine, Ltd., 55 Victoria Street, London, S.W.1.

**FOR SALE:** Eddystone EC-10, complete with battery, manual and AC/PSU; cost £53, price £35 or near offer. Carriage paid 100 miles at purchaser's risk or buyer collects. Write or phone.—Dudbridge, G3UUG, Grev Gables, Amberley (3101), Stroud, Glos.

**SALE:** Hallicrafters S.27C VHF receiver, coverage 130 to 210 mc, AM/FM modes, working but needs slight attention, price £20, buyer to collect (Kent).—Box No. 4445, Short Wave Magazine, Ltd., 55 Victoria Street, London, S.W.1.

**OFFERING:** Compact Communication Receiver, 12v. transistor PSU 300v. 150 mA, plug-in coils, S-meter, new, £24.—Stevenson, 48 Woodgrange Drive, Southend-on-Sea (62237), Essex.

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 Shure 201 mics. ... £4 10 0  
 Shure 444 mics. ... £10 10 0  
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 SWR indicators ... £6 18 0  
 2 and 4m. converters.  
 2 and 4m. transmitters.

**PCR** and built-in p.s.u. £7 10 0  
**Eddystone S640** ... £20 0 0  
**Eddystone 888A** ... £70 0 0  
**AR88D** ... £45 0 0  
**Hallicrafters HT40**  
 Tx ... £33 0 0  
**Eddystone 870A** ... £15 0 0  
**SR550** ... £45 0 0  
**Codar AT5** and A.C. p.s.u. £20 0 0  
**Codar AT5**, A.C. and D.C. p.s.u.'s ... £26 0 0  
**KW Viceroy Mk. 2** ... £90 0 0  
**KW Viceroy Mk. 3** ... £120 0 0  
**Panda ATU** ... £3 0 0

SMALL ADVERTISEMENTS, READERS—continued

**REQUIRED:** Minimitter Converter, 12-volt, for the six amateur bands. Please state condition and price. All replies acknowledged (Nottingham).—Box No. 4446, Short Wave Magazine, Ltd., 55 Victoria Street, London, S.W.1.

**SALE:** CR-100/8 receiver, working, £15. Buyer collects, evenings.—Rogers, Noah's Ark, Southview Road, Crowborough, Sussex

**SELLING:** R.C.A. AR88LF, with matching speaker and handbook, BFO modified for SSB, price £30. Will deliver to 60 miles.—G3MCL, QTHR. (Tel. Winchester 61334.)

**WANTED:** Transmitting Valves 813, or 4B13, also 811.—Bryan, 3 Guildford Close, West Worthing, Sussex. (Tel. Worthing 6151.)

**WANTED:** Filter and/or Carrier Crystal for SSB. Also Xtals for Ch. 43, 44 and 45.—Broadbent, G3AAJ, QTHR. (Tel. 01-WAN-6741.)

**OSCILLOSCOPE** OS-8B/U, circuit diagram, also data sheet, 5s. post free; a number available.—Carter, 14 Falmouth Road, Whitley Wood, Reading, Berks.

**SALE:** VFO for 3.5 mc, with stab. PSU (silicons) in diecast cabinet, 50s. IF strip for 9.7 mc, modified 12v., 12s. 6d. Two-metre Tx, with QV03-10 and modulator, for 12v. input, unboxed, 45s. Valves: 832, 10s.; PT-15, 10s. Xtals: 1877 kc, 5s.; 7475 kc, 4s.—Line, 7 Dinmore Avenue, Northfield, Birmingham, 31.

**WANTED:** Parmeko Neptune transformer as specified for G3BDQ Rx; 250-0-250v., about 100 mA, 6.3v. around 3.5A; 200-0-200v. would suit. Also HC6U 35 mc xtal; and FT-241 Ch.327, 329, or 54th types around 455 kc. Full details, please.—Maxwell, GW3UMD, 367 Gower Road, Killay, Swansea, Glam., South Wales.

**VHF Rx** required in EXCHANGE for, or will Sell, top-quality Hi-Fi amplifier system (stereo-mono). E.M.I. stereoscope, preamp. self-powered, every facility, two power amplifiers, Armstrong A10 Mk. II, and Goodsell custom-built Mullard 20-watt. All in mint condition. Offers or proposals?—Newstead, 79 Pinnacle Hill, Barnehurst, Kent.

**WANTED:** Copy "Short Wave Magazine" for November '56, buy or borrow, pse.—Vost, G2DF, 26 Pinewood Avenue, Warrington, Lancs.

**SALE:** Panda PR-120V 150-watt transmitter some mods. done but FB condition and performance, price £25 or near offer? Buyer collects.—Clarke, G3LST, 30 Tomlins Close, Hutton, Brentwood, Essex.

**SELLING:** National NC-100XA amateur band receiver, fully serviceable, £10, buyer to collect.—Kind, 4 Oak Terrace, Harrogate (67260), Yorkshire.

**PRIVATE PURCHASER** Requires good AR88D, with manual; spares and trimming tools an advantage. Have for SALE Lafayette HE-30, £20.—Pryse, 36 Hart Road, Byfleet, Weybridge, Surrey.

**FOR SALE:** K.W. Vanguard Tx, Mk. I, coverage 10 to 160m., £30 or near offer? Buyer collects or carriage extra. Also RAE Correspondence Course, with questions and answers, 60s.—Hulme, G3UJD, 78 York Road, Farnborough, Hants.

**WANTED:** B. & W. Audio Phase Shift Network, Type 2QA or Type 350. Also xtal for 9.0 mc nominal frequency.—Bird, G3MGX, 71 Higher Road, Halewood, Lancs. (Tel. Hunts Cross 2297.)

**SELLING:** Hallcrafters Station for 10 to 80 metres, with SX-140 receiver, 25:1 tuning; crystal calibrator. HT-40 transmitter, 70 watt. HT-18 VFO/Xtal/NBFM Exciter, 3-watt drive, all with maker's handbooks. Cost £130 new, asking £50 for quick sale. Also a 4/102 Gelson exciter, with valves and dial, still in box, 60s.—Bartram, G3GPX, Warren Lane, Elmswell, Bury St. Edmunds, Suffolk.

# PHILADELPHIAN ELECTRONICS Ltd.

## For First Class Communication Equipment

We have now been appointed agents for the R.L. Drake Company of Miamisburg, Ohio, and are now carrying full range of DRAKE equipment for the radio Amateur.

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### THE BEST AMATEUR RADIO BARGAIN OF 1967

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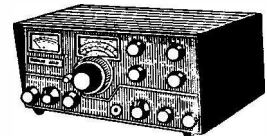
Features:

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- ★ Or tunes any 500 Kc. range between 3.0 and 30 Mc. with an accessory crystal.
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- ★ Excellent overload and cross modulation characteristics; insensitive to operation of nearby transmitters.
- ★ Optional accessories: speaker, speaker/Q mult. notch filter, calibrator, top band, and noise blanker.

TR-4 transceiver 10-80 metres ... ..	£265 0 0
RV-4 remote VFO and speaker ... ..	£49 10 0
MS-4 speaker ... ..	£9 10 0
AC-4 power supply ... ..	£49 10 0

We should also have received some T-4X transmitters and R-4A receivers by the time this advert appears.

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	£	s.	d.
Swan 350 transceiver ... ..	205	0	0
Swan 400 ... ..	250	0	0
230 A.C. power supply, speaker ... ..	45	0	0
406 Phone band VFO and 22 adaptor ... ..	50	0	0
410 full coverage VFO and 22 adaptor ... ..	57	0	0
VX-1 plug in VOX ... ..	16	0	0
SSB-2 Selectable Sideband kit for 350 ... ..	8	15	0
100 Kc. Calibrator kit for 350 ... ..	9	10	0

**SHURE Microphones by return of post**

Shure 201 microphone ... ..	4	10	0
Shure 202 noise cancelling mike ... ..	5	0	0
Shure 444 microphone ... ..	10	12	6
Eddystone 940 receiver as new ... ..	90	0	0
AR88 LF in good condition ... ..	30	0	0
DX 100U in good condition ... ..	60	0	0
KW Vanguard in good condition ... ..	40	0	0
Pye 72 Mc base transmitter as new ... ..	25	0	0
Rye Ranger high band remote boot mounting with control ... ..	25	0	0

also a few low band boot mount models without controls, we'll dig out some details if you are interested.

All equipment guaranteed, easy terms arranged

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## ARE YOU GOING MOBILE OR PORTABLE THIS YEAR?

You will need a good converter. The JXK range has been specifically developed to provide exceptional performance under field conditions. The current drain is about 5 ma.; easily provided by the internal battery; the construction is light, sturdy, and physically compact. The converters have acquitted themselves well in the mêlée of field days and are also in regular home station use.

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- ★ **JXK 70 cm. Converter**  
IF's 12/14, 18/20, 24/26, 27/29, 28/30 Mc/s. **£16**
- ★ **JXK 2 metre Converter**  
IF's 1.8/3.8, 2/4, 4/6, 12/14, 18/20, 20/22, 21/23, 24/26, 28/30 Mc/s. **£14**
- ★ **JXK 4 metre Converter**  
IF's 2.1/2.7, 4.1/4.7, 13.1/13.7, 18.1/18.7, 20.1/20.7 Mc/s. **£14**
- ★ **JXK 70 cm. Preamp** **£7**
- ★ **JXK 2 metre Preamp** **£7**

Texas Instruments GM290A UHF transistors, 19/6. TIXMOS VHF transistors, 7/6. 2C39A, £2.

All units are mounted in 14 s.w.g. aluminium instrument cases, size 4½" x 2½" x 1½", in silver grey hammer finish with white engraving. The internal construction is of copper and uses extensive shielding and modern VHF transistor techniques. Batteries are supplied.

Please add 3/9 post and packing PER ITEM  
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Hammarlund SP-600-JX, 540 kc/s.-54 mc/s. ...	£125 (40/-)
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Eddystone 940, 480 kc/s.-30 mc/s. ...	£100 (30/-)
Eddystone 888A, Bandsread receiver ...	£85 (25/-)
Eddystone 680X, 480 kc/s.-30 mc/s. ...	£85 (30/-)
Heathkit Cheyenne Transmitter, Comanche Receiver, with p.s.u. and speaker ...	£85 (40/-)
Star, SR-500, Bandsread receiver ...	£72 (25/-)
G.E.C., BRT-402-E, 150-385 kc/s., 510 kc/s.-30 mc/s. with calibrator ...	£70 (30/-)
Eddystone 840C, 550 kc/s.-30 mc/s. (NEW) ...	£66 (free)
R.C.A. AR88D, 540 kc/s.-32 mc/s. A world beater, at Hallcrafters SX71, 560 kc/s.-34 mc/s. and 46-56 mc/s., with bandsread ...	£65 (30/-)
Trio JR-60-U, 540 kc/s.-30 mc/s. and 142-148 mc/s., bandsread and xtal cal. (NEW) ...	£61/19 (25/-)
Star, SR-550, Bandsread receiver ...	£50 (25/-)
Eddystone 840C, 550 kc/s.-30 mc/s. ...	£48 (25/-)
Lafayette HE-80, 540 kc/s.-30 mc/s. and 142-148 mc/s. ...	£46 (25/-)
G.E.L.E.S.O. G-207-DR, bandsread receiver ...	£45 (30/-)
R.C.A. AR88E, 75-550 kc/s. and 1.5-30 mc/s. ...	£42 (40/-)
Eddystone EC-10, 540 kc/s.-30 mc/s. transistorised ...	£40 (20/-)
Heathkit RA-1, bandsread receiver ...	£35 (20/-)
Heathkit GC-1U Mk. II, 600 kc/s.-30 mc/s. with bandsread ...	£35 (20/-)
Minimitter MR-44, bandsread receiver ...	£34/13 (15/-)
Marconi CR100, 60-420 kc/s. and 500 kc/s.-30 mc/s., with noise limiter ...	£32 (25/-)
Eddystone S.640, 1.8-30 mc/s., with bandsread ...	£30 (30/-)
Hallcrafters SX24, 550 kc/s.-43 mc/s., with bandsread ...	£25 (25/-)
R.206 Receiver with power unit, 550 kc/s.-30 mc/s. ...	£23 (40/-)
Eagle RX-60-N, 550 kc/s.-30 mc/s. with bandsread ...	£22 (20/-)
Lafayette HA-63, 550 kc/s.-31 mc/s. ...	£20 (20/-)
NEW AVOMETERS, Model 7, Mk. 2, £22/5/-; Model 8, Mk. 3, £24; Model 9, Mk. 2, £24; Multiminor, Mk. 4, £9/10/-.	
NEW BROWN'S HEADPHONES, Type "F," 120 ohms, 2K or 4K, £3/4/- (3/6). Noise excluding, high quality, electro-dynamic, low impedance, £6 (3/6).	
NEW KW EQUIPMENT, Vespa, with A.C. p.s.u., £120; KW2000A, with A.C. p.s.u., £220; KW201 bandsread receiver, £105.	
NEW GREEN EQUIPMENT, TMR-5 receivers, £35; Mark V Converters, £12.	

Our latest list of over 50 receivers, and other interesting items sent on receipt of s.a.e.

CARRIAGE for England, Scotland and Wales shown in brackets.

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SMALL ADVERTISEMENTS, READERS—continued

**SALE:** BC-221, with stabilised PSU, charts and manual, in very good condition, £20. Absorption wavemeter, 3.0 to 35 mc, brand new, 20s. Prefer buyer collects.—Stephenson 82 Morris Lane, Leeds, 5, Yorkshire.

**WANTED:** Original Vox/Xtal calibrator internal plug-in unit for KW-2000. Will pay reasonable price, plus parcel post; out here. Full details, pse.—Hancock, 7Q7PH, Box 48, Dedza, Malawi, East Africa.

**SALE:** KW-2000 transceiver with microphone, AC/DC PSU, price £175. New SR-165 receiver (cost £48), at £31 10s. New Kokusai filter, £7.—Reynolds, G3IDW, Orchard Cottage, Hook, Swindon, Wilts. (Tel. Wootton Bassett 603).

**CLEARING SHACK:** Name your price with s.a.e. Battery radio Rx; RF-27 Unit; TU Units; Woden UMI, UM2 mod. xformers; mains transformers, chokes, and power packs. Relays, meters, xtals and Collins 1:1 20-watt mod. transformer. Ceramic formers and bases; various switches. Commander LW receiver. A CO/VFO-PA Tx four-band coverage with coils. Hundreds of copies "Short Wave Magazine," RSGB "Bulletin" and "Practical Wireless." Pay your own postage. No callers. Offers and enquiries.—Gardner, G3HRV, 38 Brackley Street, Walkden, Worsley, Manchester.

**VANGUARD Wanted,** under £25. Consider collecting. Write or call with details.—Hawkins, 3 Longmeadow, Warren Estate, Frimley, Surrey (off A.325).

**EXCHANGE:** New factory-built Heathkit HW-30 two-metre transceiver (with xtal for 145.1 mc) for good commercial 21 mc CW Tx, TVI-proof.—Box No. 4448, Short Wave Magazine, Ltd., 55 Victoria Street, London, S.W.1.

**SALE:** Eddystone 840C; T.W. two-metre converter; T.W. 70 cm. converter; two-metre 6/6 slot-fed J-Beam; 8/8 slot J-Beam for 70 cm.; CDR beam rotator and control unit; two power units; and several meters. The lot for £60, prefer buyer collect.—Boor, 18 Lime Tree Avenue, Gainsborough, Lincs.

**SELLING:** National NC-190X communications receiver, with matching speaker, Codar pre-selector, Joystick with ATU, all in excellent condition, only £50 the lot.—Dudson, TERMINUS 5385, 9.0 a.m. to 5.0 p.m.

**FOR SALE:** Codar A.T.5 Tx, £13; PSU, £6; PR-30X preselector, £5 10s.; Eddystone EC-10 transistor Rx, £34; Olympic 10 to 160m. Z-match, £5 5s.; RF-40 F/S meter, 25s. All in very good condition and carriage paid.—Box No. 4449, Short Wave Magazine, Ltd., 55 Victoria Street, London, S.W.1.

**OFFERING:** Complete AM/CW station. Hallcrafters SX-101A receiver, with instruction manual and set new valves; transmitter with fully switched PSU, all voltages to 1500v., 150w. output with 813 PA; double-beam 'scope; Triplett signal generator. Offers for lot or in part; early removal forcing sale.—Reid, GM3NFR, 55 Nithsdale Drive, Glasgow, S.1, Scotland.

**SALE:** BC-348R, little used, with neat internal semiconductor PSU and handbook, price £15; would consider delivering.—Roscoe, GM4QK, 39 Letham Road, Strathaven (3332), Lanarkshire, Scotland.

**FOR SALE:** Minimitter Mercury Tx, coverage 10 to 80 m., 150 watts, AM/FM/CW, in perfect condition, with manual, price £60; prefer buyer collects, or carriage extra if forwarded.—Willoughby, DL2YU, 29 Mackenzie Drive, Shorncliffe, Kent.

**SALE or EXCHANGE:** Marconi Marine "Ocean-span" Tx, complete with PSU for 230v. AC. Slight modifications necessary for amateur-band coverage. Will consider EXCHANGE for smaller amateur transmitter and frequency meter.—Lax, G3VVL, c/o Lloyds Bank, Cleethorpe Road, Grimsby, Lincs.

## SMALL ADVERTISEMENTS, READERS—continued

**WANTED:** All-band or 10-15-20m. CW only or CW/SSB exciter. Price and full details, please.—van Brenkelen, c/o Clark, 165 Loreny Drive, Shortlees, Kilmarnock, Scotland.

**FOR SALE:** Modulator for mobile, 15-watt, with interchangeable two-metre and four-metre rigs, and transistor PSU rated 120 watts. This equipment won 1st prize in a recent construction contest. Price £15.—32 Elliott Road, Chiswick (6976), London, W.4.

**SELLING:** A Swan 350, the latest model, in mint condition, with spare (unused) matched finals and other rare items; price £225 or very near offer? Would consider part-exchange for factory-built 150-watt AM/CW transmitter. Going VHF.—Wylie, G3MEF, QTHR.

**SALE:** Labgear LG.50 table-topper Tx, in good condition, coverage 10 to 80m., 60-watt AM/CW, price £25, or £20 if collected. Also S.86, £10.—Payne, G3KCR, 2 Nevill Road, Crowborough, Sussex.

**EXCHANGE:** Laboratory Type TS-375A VTVM, complete with probes, etc., cost £50, FOR a receiver or W.H.Y.? Also WANTED Tuning Units for the APR-4.—Box No. 4450, Short Wave Magazine, Ltd., 55 Victoria Street, London, S.W.1.

**OFFERING:** A 25-watt four-metre transmitter, remotely controlled, ideal for fixed or mobile operation, size only 8in. x 6 $\frac{1}{2}$ in. x 15in. deep, constructed by professional engineer to a very high standard, Vulcan-blue finish, at present set up for 70-29 mc. Complete with AC/PSU and 12v. rotary for /M, new Aeos-45 microphone, cables and detailed notes, circuits, etc. Everything included except the antenna. Condition perfect, only needs seeing. Price £30 complete, or near offer? Write in first instance.—Adkins, G3SEV, QTHR.

**SALE or EXCHANGE:** National HRO, with eight coil packs and PSU, 19 gns. Mk. III type G2DAF Rx, new components, £54 19s. Oscilloscope Type 57/USM38, complete with probes, £34 19s. LM-15 Frequency Meter, with charts and PSU, 19 gns. B.44 Mk. II, £5 19s. Transistor Rx, with amateur-band coverage, £11 19s. Williamson amplifier, with pre-amp., £24 19s. Unused three-speed auto-changer, £5 19s. Or EXCHANGE The Lot for a KW-2000. Your s.a.e. for a component list.—Lee-Rand, G3UXA, 9 Oakway, Feltham, Middlesex.

**SELLING:** Western Union Type 2B Tape Printer, spare tape and fork, £10. CFS Adaptor ZA.39384 and PSU ZA.39385, in original steel transit cases, the pair for £10. Monitor Unit No. 101, comprising Indicator Type 103, 3in. screen giving green trace, with large PSU Type 917, £10 together. Cossor Type 917, £10 together. Cossor Type 339 double-beam oscilloscope, 4in. blue trace, £10. All this lot for 240v. AC, complete with cables and circuitry, delivered to 50 miles. Try an offer?—Gray, 225 Longton Road, Trentham, Stoke-on-Trent, Staffs.

**WANTED:** For copying, handbook and/or circuitry for KW-77 receiver Mk. III. For SALE: Eddystone 888A Rx, with S-meter, £65.—Pallant, Wheatley, Martins End Lane, Great Missenden, Bucks.

**WANTED:** A beam, Hy-Gain 12AVQ, Mosley V-3Jr. or MA-3.—Brown, G3NQX, 21 Princess Street, Leyland, Lancs.

**FOR SALE:** Eddystone 940 general-coverage HF receiver, in mint condition, price £80, buyer collects. Owner giving up.—Ring Matthews, Motherwell 3224 (Scotland), after 6.0 p.m.

**OFFERS?** B.44 modulation/output transformer, new. Pair 813's, complete with bases. Pair 5B254M. Pair 5B257M, 12-volt heaters. Pair 5763's. Pair 829B's. An RF amplifier, contains 3/829's, blower motor and a host of parts. Brand-new SCR-522 Tx, complete with 832's.—Box No. 4451 Short Wave Magazine, Ltd., 55 Victoria Street, London, S.W.1.

**S.S.B PRODUCTS**Electronic Equipment Manufacturers  
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**"SPHINX" Transmitter.** 75 watts P.E.P. 160m., 80m. (40m.), 20m. S.S.B./A.M./C.W. Latest model available from stock. Self-contained with built-in power unit. Best quality parts used. Built to last and give outstanding speech quality. Each one individually air tested. Price £78. De-luxe version £84. O/P socket on rear for feeding 15/10m. converter. (2v. 3.5mc. USB.)

**"LAFAYETTE HA350,"** 75 gns. or—160m.—10m., 80 gns. This 160m. conversion has proved a great success and is internal. No question now that this is the best value on the receiver market. Available from stock. Write Now!! Part exchanges.

**"PYRAMID" LINEAR PARTS.** 80-10m.—800w., 1/P. 400 watts P.E.P. O/P. Built-in power unit. Size: 14 $\frac{1}{2}$ " x 6" x 11 $\frac{1}{2}$ " deep. Cost of parts only £49/15/- + 25/- carriage. Tremendous value for money, compared with any other makes. 3 meters on panel making tuning and loading easy. For our lists. S.A.E. please.

**SCARAB** xtal filter kit inc. carrier xtal (436 kc/s.) I.F.'s, Mica's, etc., £6/19/6, 2/- p. & p. Ready made and aligned for excellent speech quality, etc. Size: 3" x 2" x 1", £8/7/6, 2/- p. & p. Uses new miniature xtals. Undoubtedly the best buy in Filters. All details on circuitry around filter sent.

**CANNONBALL TX.** S.S.B./A.M./C.W. 160m.—1.8 to 2 mc/s. Measures 8" x 6" x 6". Requires 6v. 1 $\frac{1}{2}$  amp s 260v. 70m/a. Xtal filter. Direct Freq. Calibration. (80m. and 12v. models available), £28/10/-, 7/6 p. & p.

**NAPOLEON.** S.w.r. bridge. For/Ref. sw. Sensitivity Control. Steel case in hammer blue. Very good quality accurate instrument. 70-80 ohm., 5 gns., 4/6 p. & p.

**"DELTA" CO-AX.** Relay control unit. Mains A.C. i/p. Press to talk button and override sw. Several auxiliary C/O contacts, etc. In hammer blue case. Wonderful value at £7/5/-, 6/- p. & p.

**SILPLUG.** Replaces 5v. Rect's. 500v., 39/6. 750v., 49/6. 1/- p. & p. We use only newly made diodes and quality parts (not surplus or rejects). High safety factor!

**CLASS "D" WAVEMETERS.** SPECIAL OFFER. Converted to 240 A.C. 1/P. Fully smoothed and recalibrated. With handbook and phones, £6/19/6 each, carriage 8/6.

6HF5 valves, 31/6 each, 2/3 p. & p. } BRAND NEW  
6146 valves, 30/- each, 2/3 p. & p. }  
BUG KEYS, KY102, 85/- and 4/6 p. & p.  
ELECTRONIC KEYS, D.A.I., £16/10/-, 4/6 p. & p.  
G.D.O. Lafayette, £12/10/-, 3/6 p. & p.  
AUDIO MIXER. Pre-amp. 4 1/P's. Transistorised, 45/-  
3/6 p. & p. (HI-Z-1/P and O/P.)

**EDDYSTONE 640.** Overhauled, £25.  
**HEATHKIT RA1,** £35. Excellent condition.  
**1475 RX.** Extremely stable, 2-20 mc/s., £12/10/- (15/-).  
**PWR UNIT.** For 1475, 12v. A.C. mains 1/P, £6 (10/-).  
**COLLINS T.C.S.12** and pack 240v. A.C., £12/10/-.  
**HALLICRAFTERS SX73,** £95. Very superior Rx.  
**SPHINX CABINETS, LATEST.** 6-colours available (size as Pyramid) flush lid, removable base plate, only 79/6 each, 8/6 carr.

**DYNAMIC MIC'S.** Selected for S.S.B. TX's. DM16, DM21, 99/- each, 3/6 p. & p. BM3 xtal mic., only 37/6 (3/6)  
**NEW MINIATURE (HC/6U Type) XTALS.** 9 mc. 455 kc/s. with sockets 29/- and 34/-, 2-Filter xtals and carrier. Matched set (436 kc/s.) £5/2/6.  
**HA350 MECH. FILTERS,** £9/10/- each, 2/- p. & p.  
**V.T.V.M. 6" SCALE,** 30 c.p.s. to over 5 mc/s. 1/P-Z-11 meg. 30 ranges. Only £15 new, 6/- p. & p.

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**YUKAN SO PROFESSIONAL THE YUKAN SELF-SPRAY**  
**Get these AIR DRYING GREY HAMMER or BLACK WRINKLE (CRACKLE) Finishes**

Yukan Aerosol spraykit contains 16 ozs. fine quality durable easy instant spray. No stove baking required. Hammers available in grey, blue, gold, bronze. Modern Eggshell Black Wrinkle (Crackle) all at 14/11 at our counter or 15/11, carriage paid, per push-button self-spray can. Also Durable, heat and water resistant Black Matt finish (12 ozs. self-spray cans only) 13/11 carriage paid.

**SPECIAL OFFER:** 1 can plus optional transferable snap-on trigger handle (value 5/-) for 18/11, carriage paid. Choice of 13 self-spray plain colours and primer (Motor car quality) also available.

Please enclose cheque or P.O. for total amount to: **YUKAN, Dept. SW3 307a Edgware Rd., London W.2.**  
 Open all day Saturday. Closed Thursday afternoons.

Other Yukan Air Drying Aerosols include:  
 Zinc Chromate Primer.  
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SMALL ADVERTISEMENTS, READERS—continued

**SALE:** Transmitter, coverage 80-160m., as p.753 February 1966 issue "Short Wave Magazine," complete with PSU, price £6, carriage 15s. Condensers 200+200+100 mF at 350v., 10s. each. Green TMR-5, cost over £40, asking £20 for quick sale. Panoramic Adaptor, 2 1/2 in. presentation, 455 kc, 115v. AC, £15. Carriage extra all items.—Ring (evenings only) Snelling, G3NMY, Cromer 2664, or Blake, G3MWV, Cromer 2872.

**JUST A WORD** about sending in a Small Advertisement: Draft it for minimum wordage and maximum meaning and, if you have one, always quote your passport in Amateur Radio—your callsign, which is uniquely your personal identification. It can help in all sorts of ways. Single-copy orders (4s. P.O.) for April issue by March 29, pse.—Advertisement Dept., Short Wave Magazine.

**SELLING:** National HRO, with eight coils and PSU, speaker and spare valves, £15 or a near offer? HE-40 receiver, little used, £8 or offer. Signal Generator, £3. Prefer buyer to inspect and collect.—Brown, 2 Newport Road, Wavendon, Bletchley, Bucks.

**SALE:** Unused 52 Set, internal mains PSU, case and also 19 Set, complete with all valves. First £16 secures both; buyer collects or sends carriage.—Ritt, 171 Northridge Way, Hemel Hempstead, Herts.

**SELLING:** Miniciter and Minipa (Minimitter products), mounted, with heater transformer and meters, only requires wiring to maker's instructions, price £10. Woden UM3 mod. transformer, £3. Carriage extra.—Phillips, G2BAT, Firdowne, Gomeldon, Salisbury, Wilts.

**NO-OFFER Sale:** For £80 all in. A Hammarlund HQ-170; K.W. Vanguard for 10 to 160 metres; BC-221 complete with charts. (London area).—Box No. 4452, Short Wave Magazine, Ltd., 55 Victoria Street, London, S.W.1.

**SELLING UP!** Heathkit TV Generator, HFW-1, £30. Heathkit 10-12U 5in. 'scope, £30. Audio signal generator AG-9U, £20. As new.—Brown, 5 Haddon Road, Leamington Spa, Warwickshire.

**EXCHANGE or SALE:** "Elizabethan" 5RV-type 150-watt Tx, rack-panel mounting, with Woden UM3 mod. xformer, speech clipper, four relay-controlled heavy duty PSU's, eight meters, Ae. relay, LP filter, microphone, etc., price £28 complete. G.E.C. Resistance/Capacity Bridge, £7. "RSGB" two-metre Tx, 30w., less driver and PA valves, in TU5 case, with four xtals, £3 10s. Tx for 160m., with separate PSU, £7. Buyer collects, or will EXCHANGE the lot for a good receiver.—GW3FPH, QTHR.


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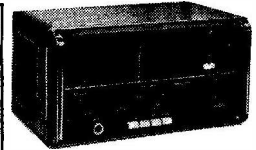
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Dear Reader,

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During the month, I have had many letters showing surprise that the Sommerkamp FT100, FL200B, FRI00B and FL100B are made in Japan. It has now been reported that production of the FT100 has been stopped and the model discontinued. I have also received many encouraging letters about buying British equipment and the excellent value of KW equipment. One customer pointed out that one can buy two KW2000A Transceivers for the price of one Brand X made in U.S.A. I liked another customer comment in the space provided on our guarantee registration card when he returned his card for a KW201 Receiver—"Excellent value for money, stable as a rock, am delighted with performance on all bands." (Thank you G3STM.) The matching transmitter for the KW201 receiver is the KW Vespa about which we have had many favourable comments. For those who have not already heard, the lucky winner of the KW Vespa contest held last November was 9M2BS in Malaysia. We wish him plenty of DX. For those who require a little more power from the "Vespa" the 6146B in place of the 6146 will give almost 20% more output without modification to the equipment. Carrying out this replacement will not, of course, make the guarantee null and void. We are, however, concerned at the RSGB regulations for NFD 1967 recently published. Limiting the plate dissipation figure for the PA valve in the transmitter to 13.5 watts precludes the use of a KW2000 for the Contest, which was used by so many stations last year with suitable power supply modifications. Unless the 6146 is replaced by another slightly smaller valve the KW2000 cannot be used in this year's contest nor can those old faithful Club transmitters with an 807 P.A. To meet the regulations a 2E28 could be used (although this can still be run at 500 watts D.C. input) and at first glance this valve looks to be a direct replacement for the 6146 except for the heater current requirements. I suggest you check with us first about the validity of the guarantee.

A new vertical aerial, covering 10-80 metres without radials, has been put on the market by Hustler (U.S.A.). We have a small supply in stock but before recommending them we propose trying one out ourselves. They look good; but that's the kind of people we are—we like to know what we are talking about—it always keeps us one step ahead of our competitors.

Yours faithfully, ROWLEY SHEARS,  
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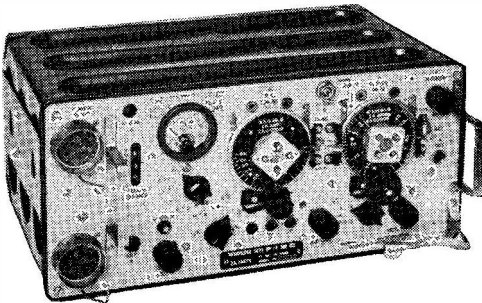
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