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1953

The RADIO AMATEUR

Incorporating "SHORT WAVE NEWS"

FOR THE TRANSMITTER AND LISTENER

IN THIS ISSUE . . .

Practical Frequency Modulation. Petrol Generator Supplies for NFD. Grounded Grid Amplifiers. OTC to ORU. Bias Supply for the 807. Crystal Grinding. Short Wave Station List. Talks about VHF, and our usual Amateur Band, Broadcast Band, and VHF News features etc., etc.

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Vol. 8 No. 5
May, 1953

incorporating " SHORT WAVE NEWS "

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EDITORIAL

With the ushering in of the month of May, our plans for summer activities are usually complete and preparations well ahead. The first big outdoor event is of course National Field Day. This year's NFD will be more than usually interesting in view of the change in the regulations which should ensure a better distribution of activity between the two station groups.

But besides this national event, many club and society activities will have been arranged. D/F contests are regaining the popularity they held before the war and if combined with some social occasion such as a " high tea " after the event, to which the ladies are invited, these can be very pleasant and sociable occasions indeed.

We know of quite a number of SWL groups who enjoy themselves immensely by " operating portable " for a change, going out into the countryside for a listening session away from all the man-made QRM of the cities.

One particular project we would recommend to our readers is that of operating 70 Cms gear portable. A bit of a teaser ! Yes, perhaps so, but well worth the effort. We feel they would help to stimulate activity and interest on this band if they staged some portable sessions at scheduled weekends, preferably operating from some high location and working in co-operation with one or two other groups. Some good QSO's achieved in this manner would fire the enthusiasm of the participants, give needed experience in the use of 70 cms gear and encourage more activity on this band.

A.C.G.

THE EDITOR invites original contributions on short wave radio subjects. All material used will be paid for. Articles should be clearly written, preferably typewritten, and photographs should be clear and sharp. Diagrams need not be large or perfectly drawn, as our draughtsmen will redraw in most cases, but relevant information should be included. All MSS must be accompanied by a stamped addressed envelope for reply or return. Each item must bear the sender's name and address.

Component Review. Manufacturers, publishers, etc., are invited to submit samples or information of new products for review in the section.

CHEQUES and Postal Orders to be made payable to Data Publications.

ALL CORRESPONDENCE should be addressed to " The Radio Amateur," 57 Maida Vale, Paddington, London, W.9. Telephone CUN. 6518.

PRACTICAL FREQUENCY MODULATION

by

Evert Kaleveld

PAØXE

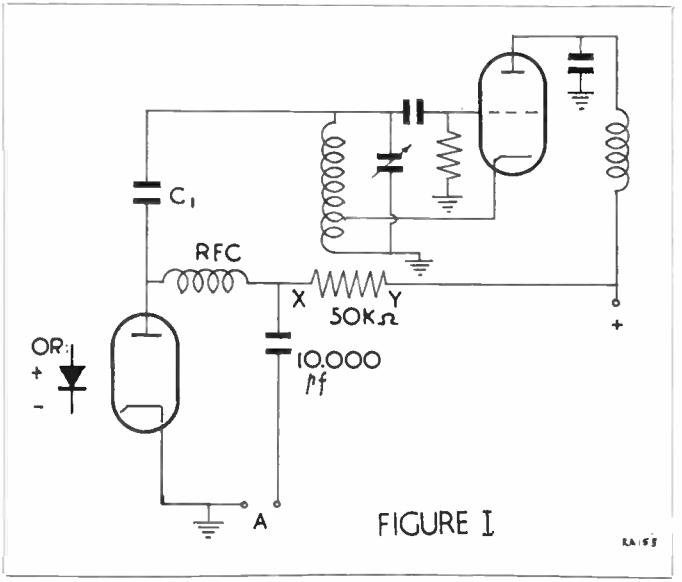


FIGURE I

Since January 31st, British amateurs have been allowed to use frequency modulation on the lower frequency bands. This was indeed great news for the phone enthusiast who was worried with BCI and TVI, as the use of FM allows running any input without the slightest QRM in nearby broadcast or TV receivers. It was great news, too, for the CW man as the use of FM permits him by adding only very few components to his existing VFO to change his gear into a nice phone rig, not only suitable for cross-town QSO's but also really capable of many DX possibilities.

With regard to the possibilities of FM, tests carried out in Holland where FM has been allowed for a number of years, indicate that during good conditions little difference between AM Heising modulation and FM is to be found, either being received on normal AM receivers.

Low power amplitude modulation systems, such as grid modulation were, during good conditions without QRM, at a disadvantage. Only during heavy QRM does AM remain readable longer than FM when using a normal receiver, but as soon as a real FM detector is switched in, there is no difference between the two systems.

However, as most receivers are not as yet equipped for the reception of both AM and FM, it must be admitted that FM seems slightly less efficient. Still it is very worthwhile getting going on FM and the writer's 50 watts together with the ground plane described last month, very soon gave him WAC on NBFM.

Fig. 1 shows a narrow band frequency modulator, which is very easily made and yet gives very good results. Commercially, this system is used by Western Electric and it is capable of a fully linear frequency characteristic. An AF voltage between 1 to 6 volts is applied across the connections A. This voltage can easily be given by a crystal microphone followed by a double-triode amplifier, or by a carbon microphone and a single triode amplifier. The RF choke prevents the modulation and AF systems from loading the oscillator too much. The diode—which can be either a crystal or a vacuum tube—is coupled via C1 to the oscillator. The value of C1 depends on the lowest frequency on which the system is to be used, as well as on the frequency on which the oscillator works. Generally speaking, it is best not to operate the oscillator on the same frequency as the PA. To get enough swing without distortion, at least doubling is advised, i.e. a 1.7 Mcs oscillator should be used if the PA is to operate on 3.5 Mcs. The best thing to do is to use an air-spaced compression type trimmer of between 3-30 pf for C1 and adjust it as explained later.

The theoretical explanation of the system is as follows :—

Every diode can be considered as a small condenser, the space charge of which can be considered as the dielectric. By changing the voltage on the diode, we change the space charge and consequently the capacity. This capacity variation can be between ½ and 1 pf, sufficient to produce very nice FM.

The advantages of this system are :—

1. Simplicity and cheapness.
2. Physically small ; can therefore be added to any VFO.
3. Gives practically no detuning, therefore no need to recalibrate the VFO.
4. No need to switch out for CW. Only necessary to turn down the volume (or deviation control).
5. Very easy to adjust. Any diode can be used.
6. Fully symmetrical, first class modulation quality.
7. Absolutely no AM possible.

Another idea is to remote-tune the Tx by this method of frequency modulation. Instead of a fixed resistor, a variable resistor is used of 1 or 2 megohms. This resistor can be connected by any length of unshielded cable to the VFO. By turning the resistor it is possible to shift about 2 kcs on the fundamental frequency.

A variation of this system is shown in Fig. 2. It is just as good as the system of Fig. 1, the only difference being the diode, which is a crystal diode. It is capable of the same easily-adjustable frequency modulation as the circuit of Fig. 1. Fig. 2 shows a Clapp-oscillator, while Fig. 1 shows an ECO. As already stated any VFO circuit can be used. Should a Clapp be used with the modulator of Fig. 1, then the modulator can be connected as shown in Fig. 2.

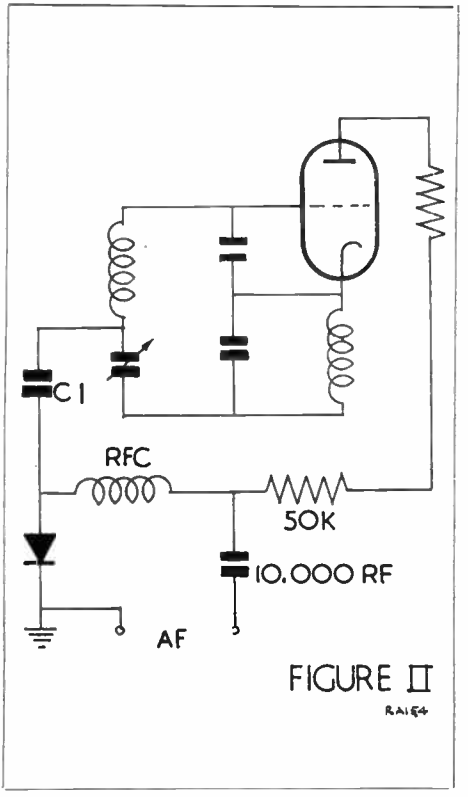


FIGURE II

Adjustment

One thing is important : do not use more AF voltage than is strictly necessary. Listen on your AM receiver to the VFO with the beat frequency oscillator and the AVC off and the crystal filter, if fitted, in its sharpest position. As the gain—or deviation—is increased, the sound will get stronger and stronger until it gets distorted. This position of deviation control is different for each band and may even vary with different receivers. The centre of the carrier should have no modulation on it at all when the system is well adjusted.

Should it be impossible to reach sufficient modulation with the gain control turned full up, it may be necessary to increase C1. But for the sake of stability, try to use the smallest value of C1 possible on the lowest frequency band to be used.

Generally speaking, your reports on this method of phone working will be very good, except perhaps, from the amateur with a very selective receiver in which he cannot, switch off the AVC. So give this method a try and lots of success to you with many TVI and BCI free QSO's.

EQUIPMENT WANTED

We have been asked by G2TG, to draw our readers' attention to the needs of the Sea Cadets in regards to radio equipment. S.C.C. Units have not much money of their own to spend on W/T gear, and 2TG asks that anyone with any gear to spare would be doing a good service to the Sea Cadets by donating any such equipment to them. They are greatly in need of receivers, but transmitting equipment would be equally acceptable. So how about it ? Why not send a proportion of your next Club Junk Sale to them ?

All communications re this matter should be sent to Lieut. W. Stockburn, RNVR, District (Staff) Officer, W/T., 40, Netherburn Road, Sunderland.

PETROL GENERATOR A.C. SUPPLIES FOR FIELD DAY

by Dr. ARTHUR C. GEE, G2UK

By far and away the most convenient form of power supply for field days and portable use is a petrol driven generator. In spite of the output restrictions imposed on the transmitter during NFD, the use of a communications type receiver is almost universal and this alone is a heavy user of power often severely taxing the capacities of accumulators to supply its needs. In most cases it is far easier to use its original power pack—providing an AC power supply can be arranged.

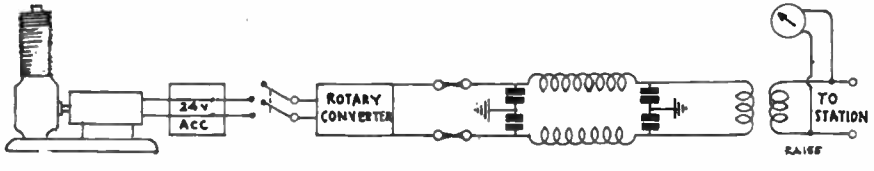
Unfortunately, small petrol generators giving an AC output are hard to come by in this country—and when found they are inclined to be "pricy." There are, however, still a number of war surplus generators giving 24-32 volts DC output. Not only can these be purchased reasonably cheaply—well within the financial capabilities of many radio clubs—but they can quite often be hired out for NFD weekend or other similar occasions. A number of garages acquired these petrol generators for accumulator charging and emergency supplies and a bit of scouting around will as likely as not unearth one, which its owner will be prepared to let out for a small fee.

Now there is also on the surplus market, a very useful rotary converter which has an AC output of some 100 watts or so at 230 volts and an input of 24 volts DC. There are various types available and a perusal of the surplus dealers advertisements will soon indicate a source of supply. The one shown in the illustrations herewith is the AM version and is known as Rotary Converter Type 1, ref. 5U/111.

This converter used in conjunction with a 24 volt petrol generator provides an ideal AC supply for the portable station. During last year's NFD, the writer used such a set-up, which provided adequate current to run an Eddystone 640 receiver and a three-valve transmitter using its normal power pack. The generator and converter ran continuously for the whole period of NFD without giving any trouble at all and it will certainly be used in future for all portable work.

It is advisable to connect a 24 volt accumulator across the output of the generator between the leads going to the input of the converter. A couple of quite small 12-volt car batteries, connected in series, will do fine. They help to steady the feed to the converter and also enable the station to continue to operate when the petrol generator is stopped for refuelling.

Some concern was felt at first on the question of QRM from the engine and converter. A normal spark plug suppressor looked after the petrol engine alright, and a couple of mains chokes in each AC lead, bypassed to earth with .01 mfd capacitors, quietened this source of QRM considerably. It is a great help in keeping converter produced QRM to a minimum, if the AC output is fed through a 1 to 1 ratio transformer or via a variac or similar unit. Also, locate the "power house" as far away from the station tent as possible, using a good long length—50 to 100 yards—of flex or other power cable to bring the supply in. Here again, some ingenuity may be needed to "borrow" such a length of cable—on the strict understanding of course that the reel will



Schematic showing arrangements of gear for A.C. supply from 24 volt petrol generator.

The various items of gear required for the system outlined in this article. Our front cover shows the weather dodger suggested for when the rain comes!

be returned in exactly the same condition as it was when it was borrowed ! Such a feed line—if it can be acquired—will cut down QRM to a very low level indeed. In fact all the mush is cleared off the line, and the AC sounds just like the brand that comes out of the plugs at home !

It is advisable to have an AC voltmeter permanently wired across the output of the converter so that the petrol engine can be adjusted to give the correct AC line voltage. Another one on the operating table is useful, so that the operator can make sure the engine attendant is not letting the side down !

And finally, don't forget to take a " weather dodger " along, so that some protection can be afforded the power supply from the rain that usually makes its appearance sometime during NFD ! As can be seen from the illustrations, this can be readily improvised from a piece of canvas and four short stakes, held up by guy ropes.

GROUNDED GRID R.F. AMPLIFIERS

by

H. E. SMITH, G6UH

(These notes were compiled from experiments carried out on 145 Mcs, but is emphasised that most of the figures can be applied to operation on the 28 Mcs band provided that a good high gain pentode or tetrode is used ahead of the mixer stage to ensure a high degree of image rejection.)

Some little confusion of ideas still exists regarding the use of grounded grid pre-amplifiers, and many amateurs are put off by reading in handbooks such phrases as " the grounded grid stage is a power operated device and requires more input for a given output than the grounded cathode type of circuit," or " the grounded grid stage provides no voltage amplification, in fact a voltage *loss* is sustained from input to output." It is quite easy to put a wrong interpretation on such statements, and as the average handbook does not go into any great detail regarding the construction of Grounded Grid Amplifiers, one is more than ever inclined to think that there is something in them to be avoided, except perhaps by the *Specialist*.

A few simple observations may assist in clearing up any mystery which may appear to surround the subject. Provided suitable valves are used, the construction of a really efficient G.G. stage is simplicity itself. Although the G.G. stage provides no *voltage* amplification, it *does* provide a *power gain*, and what is still more important, a high signal to noise ratio. The term " suitable valves " means valves which have been designed for use as G.G., amplifiers. For VHF work, the Mullard EC91(6J4) and the Brimar 12AT7 are two outstanding examples, not to mention the more expensive Lighthouse types and disc seal triodes.

A high slope valve provides the greatest gain with the lowest noise figure. (This applies to *any* RF amplifier, G.G. or not). Now let us take the usual two valve arrangement shown in Fig. 1. A stage gain of 20 db has been claimed for this circuit, and in actual practice a figure of 19 has been obtained. This arrangement is commonly used on 145 Mcs, and a circuit of this type was built and described by G2UJ in the *Bulletin* some while ago. If the circuit is studied carefully, however, it will be seen that the high impedance output from V1 has to be fed into the cathode of V2. Therefore it is impossible to utilise all of the signal from V1. Something like a third of the signal is lost in transformation, whether it be by capacitive potentiometer as shown, or by using a low-impedance coupling coil. It was considered that some alternative method might provide additional amplification without seriously

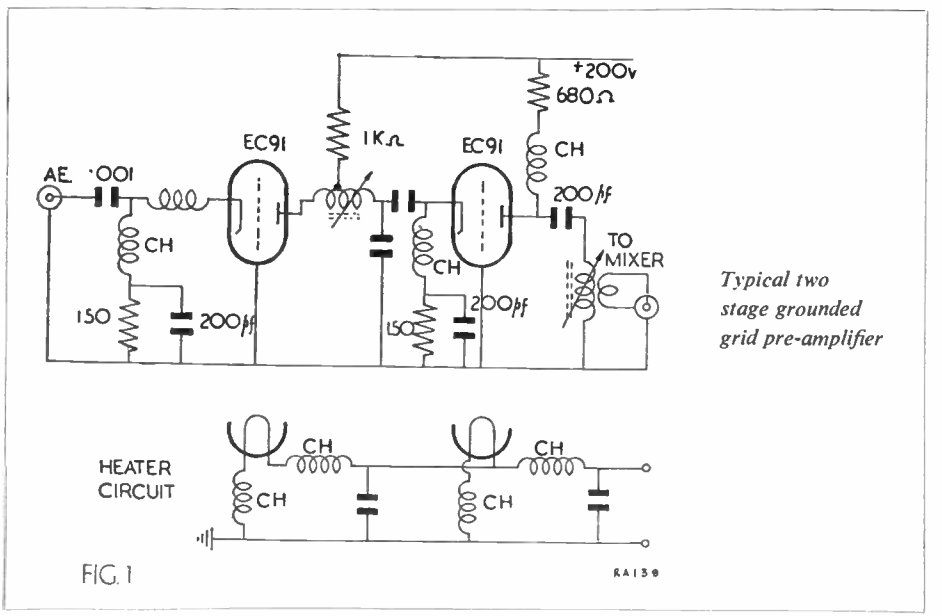


FIG. 1

Typical two stage grounded grid pre-amplifier

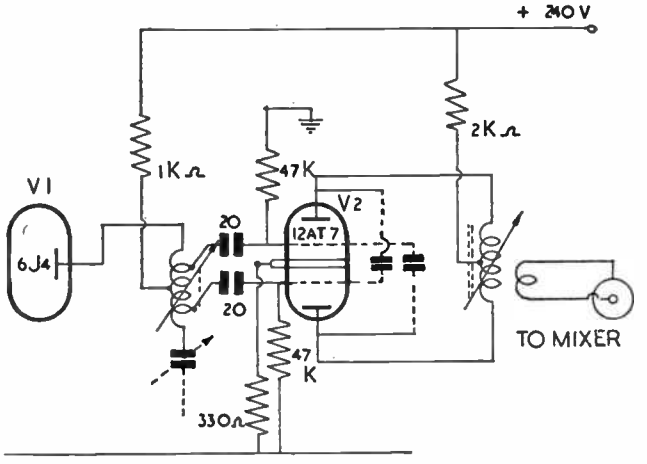


FIG. 2.

RA139

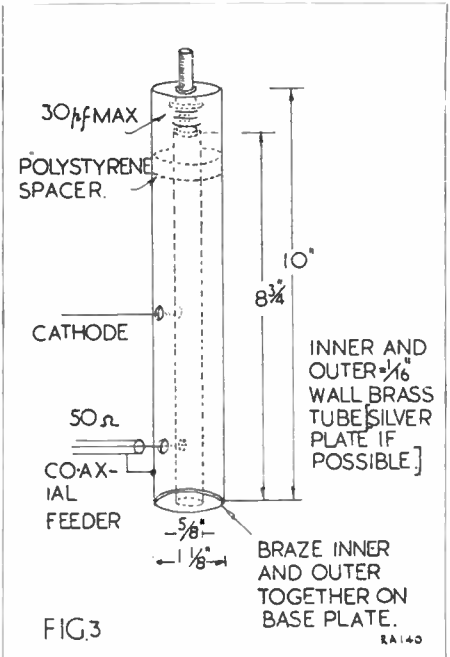
6J4/12AT7 pre-amplifier. Aerial input as in Fig 1.

imparing the noise figure of 5 db. (This figure was obtained on a diode noise generator, and no extravagant claim is made for its accuracy, but it will serve as a guide and as a comparison for the further figures given later on).

A 6J6 twin triode, wired as a neutralised push-pull amplifier was tried in place of V2, and figures taken as follows : Overall stage gain 25 db, noise figure 7 db. The relatively high noise figure of the 6J6 was obviously causing this. As any increase over the original noise figure was inadmissable, no further tests were made on this arrangement. Next, as per Fig 2, a 12AT7 was coupled to the 6J4, again as a push-pull neutralised stage. This was found to give marked improvement all round. Overall gain 30 db's plus, and no measurable change in the noise figure of 5 db. Extreme care was found to be necessary in neutralising, and screening the input and output of the 12AT7 because the slightest regeneration caused a large increase in noise. Another tricky point was trying to obtain an equal balance on the two grip taps from the anode coil of V1. As the anode to grid capacitance of the 6J4 is only 0.2 pf or thereabouts, the balancing capacitor finally consisted of a short length of wire soldered to the end of the coil and bent down to within approximately $\frac{1}{8}$" from the chassis. It was decided to investigate this circuit more thoroughly from the point of view of the input circuit. Using the conventional four-turn coil on a $\frac{3}{8}$" former it is seldom possible to obtain any indication of resonance from the aerial circuit due to the very wide bandwidth. A co-axial tuner was constructed, using brass tubing and a 50 pf air-spaced trimmer (Polar) for tuning it to resonance. Details of this are shown in Fig. 3. When mounted on the chassis, the valve should be positioned so that the cathode lead does not exceed two inches in length. Using this high "Q" circuit it was possible to swing the input right through resonance, even with the 50-ohm feeder coupled direct to the cathode, and when exactly on tune, the measured noise figure was 4.2 db, and the overall gain in excess of 33 db. Although further improvements may have been effected by using co-axial tuners throughout, this was not proceeded with for the following reason. Although the co-axial tuner provided a worthwhile gain and a better noise figure, it was too selective and required re-tuning for almost every signal logged. This arrangement would be ideal for band searching but of little use after putting out a CQ call. Two handed tuning is not to be recommended anyway !

Having had a measure of success with the 12AT7, we decided to try it out as a push-pull G.G. amplifier in the input stage.

This application was orginally described to the writer by G3HZK (Hayes) who is using a similar arrangement with great success at the present time. We have found this circuit to be more successful if balanced feeders are used, and the output fed into a 6AK5 wired as a neutralised triode. The circuit is given in

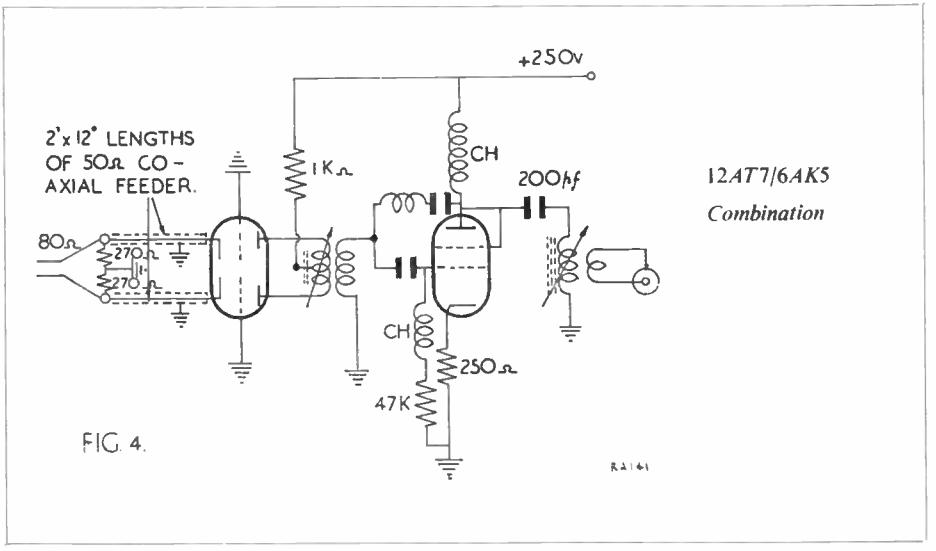


Co-axial Tuner for 144 Mc

Fig. 4, and the gain figure was found to be 28 db with a noise figure of 4.1 db (we did not really believe this noise figure, because owing to the rather unorthodox input arrangement it was not possible to obtain a true reading. Although is was made by the substitution method, and everytihng seemed to agree, the actual results did not justify the readings obtained. In fact, this arrangement, by reading the signal against noise, and noise with and without aerial connected, was slightly inferior to the 6J4 plus 12AT7 previously described).

It may have been noticed that we have not been very enthusiastic over the 6J6 twin triode. This valve, although used by many amateurs in VHF converters as a push-pull RF amplifier, is not a particularly good valve for the purpose. We are quite prepared to be taken up on this point by many who are obtaining (or who claim to be obtaining) excellent results from them, but one good reason for their not being " so hot " for VHF work is that the equivalent noise resistance is in the order of 600 ohms per section, thus giving a total noise resistance of 1,200 ohms for push-pull operation. A second reason, and the best one, is that this valve was never designed for use at VHF. On 28 Mcs, however, it will give quite a good performance.

The most interesting results of all were obtained by using a 446A (GL-2C40) followed by an EC91. The co-axial tuner previously described was used for the input circuit, with a capacitive potentiometer feeding the cathode of the EC91. This unit was fed into a 12AT7 push-pull mixer. The oscillator consisted of a push-pull 6J6, and two Philips 3-8 pf trimmers were cut down to give an approximate variation of 1-4 pf. These were used as the oscillator injection capacitors to each of the mixer grids, coupled to each of the oscillator grids. The oscillator injection voltage was then adjusted to cause grid current to flow in the mixer, and then reduced to a point where it was barely possible to observe any current. This is the optimum amount of oscillator voltage for efficient mixing on 145 Mcs. Several readings of noise were taken and in each case the reading hovered around the 3.5 db mark. Not having a pair of the Lighthouse triodes to hand, it was not possible to carry out further tests by using two of these valves in the circuit, but there is no reason to suppose that an even better noise figure could be obtained if this were done. General Electric claim a noise figure of 4.5 db at 200 Mcs for a two stage 2C40 grounded grid amplifier, plus a 2C40 mixer, and we do not doubt for one moment that this claim is perfectly correct. If only these valves were more easily obtainable in this country, at a reasonable price ! To revert to this last test, the conditions prevailing during the period of test were not good, but several interesting things were noticed. First, it was found possible to resolve weak telephony signals in a manner which had not been experienced before. Secondly, weak CW signals seemed to ride over the noise, and although the local noise level, (which is always high) was increased, the signal strength was up by a far greater percentage, a sure sign that the noise figure had been much improved. Many hours were spent in attempting to identify solar noise, and although no positive indications were obtained, due to excessive continuous local noise, it is almost certain that this converter comes very near to the ultimate in converter design as we know it to-day. The only trouble in having a good converter is that you will hear far more stations than can hear you. It is hoped that this discourse will not unsettle those who are obtaining good results from their RF27 unit, or who are using 6J6's as RF amplifiers, because if your QTH is a good one, no *great* improvement will result from building a more ambitious type.



Those in poor locations, however, would do well to concentrate on obtaining the maximum efficiency from the converter, because unless those weak signals can be " dug up " out of the noise, satisfactory results will never be achieved.

MODIFICATIONS TO 1155

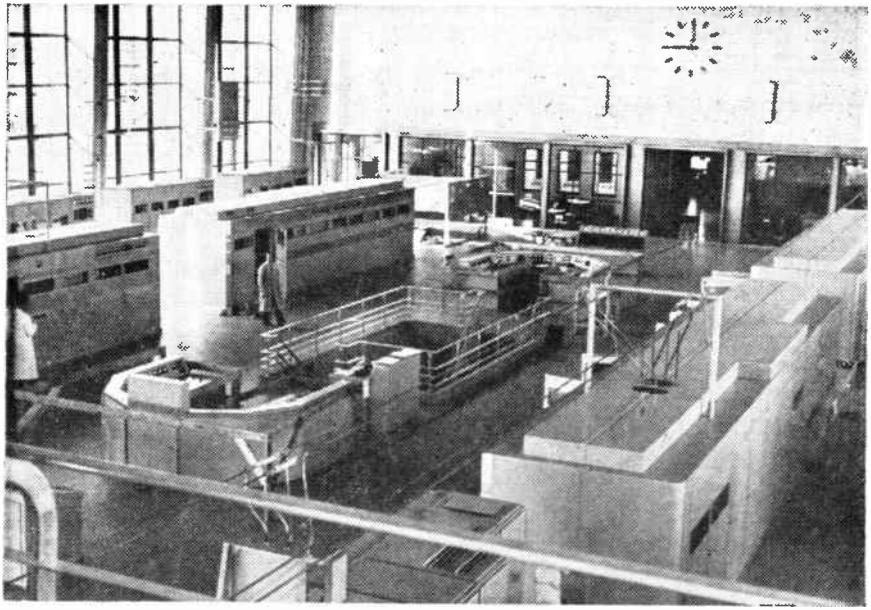
This series of articles has proved to be so popular, that we are asking their author to continue them. A crystal filter will follow next month, and a further article on noise limiters after that. In this connection, the author has asked us to say that the circuit given for the noise limiter modification recently shown does not appear to work satisfactorily in all cases, due apparently to slight differences in some 1155's. Refering to figure 8, p. 92 of the March number he says :—

" There appears to be an error in that the cathode of the ' S ' meter diode is shown directly earthed. Intending constructors should check that pins 7 and 8 on V6 valve holder are earthed directly, then remove the connection from pin 8 to pin 7 and earth the latter directly. Pin 8 (together with supressor grid) should be connected to earth via a 250 ohm. 1 watt resistor. The connection from the ' S ' meter diode then goes to the cathode pin 8 of V6 as described."

OTC to ORU

A Story of Goodwill

by Roy Savill



View of the transmitting hall

When a few months ago the Belgian National Broadcasting Service opened up the broadcasts from the new ORU transmitters at Wavre they were making history with the first international shortwave transmissions in the country. For despite the fact that OTC, Leopoldville, in the Belgian Congo, had, as the official world-wide voice of Belguim, become one of the most popular of the international shortwave stations, no such transmissions had hitherto emanated from the mother country itself.

It is worthy of reflection, too, that this latest service has sprung from seeds actually sown here in Britain in the early war years. When Belgium was overrun, one of the two transmitters of the INR was voluntarily destroyed, the other was dismantled for use elsewhere. The only Belgian shortwave transmitter, situated at Ruisselede, was also destroyed. When France and Belgium capitulated, nobody could tell when or where the Belgian radio would start again. The BBC, however, made room in its European Service for Radio-Belgique and Radio-Belgé, which rapidly became very popular.

Then came OTC. It had been felt that free Belgium should have a world voice of its own—a voice with which to broadcast to its own occupied peoples, to its servicemen, then scattered in war theatres all round the world, and to every country with ears to listen. The Belgian Congo, in darkest Africa, had everything to commend it. Not only was it far away from the threat of bombs and invasion, but it was also an ideal spot for siting a world broadcasting station. There on the Equator it was possible to send out signals which, as we all know, would be heard at utmost strength and consistency in practically every country.

The task of building up this new Belgian broadcasting service was given to one of the directors of Radiodiffusion Nationale Belge, who had escaped to London, and who was joined by Mr. Frans Zoete, now Director of the Overseas Service of RNB.

As I have said, the primary object was to provide a voice for free Belgium ; but very soon the Goodwill idea set in, and OTC became a voice of friendship. In addition to the broadcasts in French and Flemish (actually these were and still are in non-dialect Dutch),

English programmes were instituted, to be followed by Portugese and Spanish. More recently, Swedish has also been added to the list.

OTC had its own staff and was a self-contained station in every way. From the end of the war an English staff, including ex-BBC man Bill Ashley as announcer, was established there, and from that time most of the programme material, other than news and music, was tape-recorded in Brussels and flown to Leopoldville. Anything else could be taken from agency reports or transmitted from Brussels and monitored by OTC.

As the years passed, however, work was going on at Wavre, about 15 miles from Brussels, on new and powerful transmitters to carry both the two medium wave home services and the world shortwave service. In Brussels itself there was already one of the finest broadcasting houses in Europe, in the Place Eugene Flagey. This had been built just before the war, and as the latest of any on the Continent it incorporated all the best features of the others.

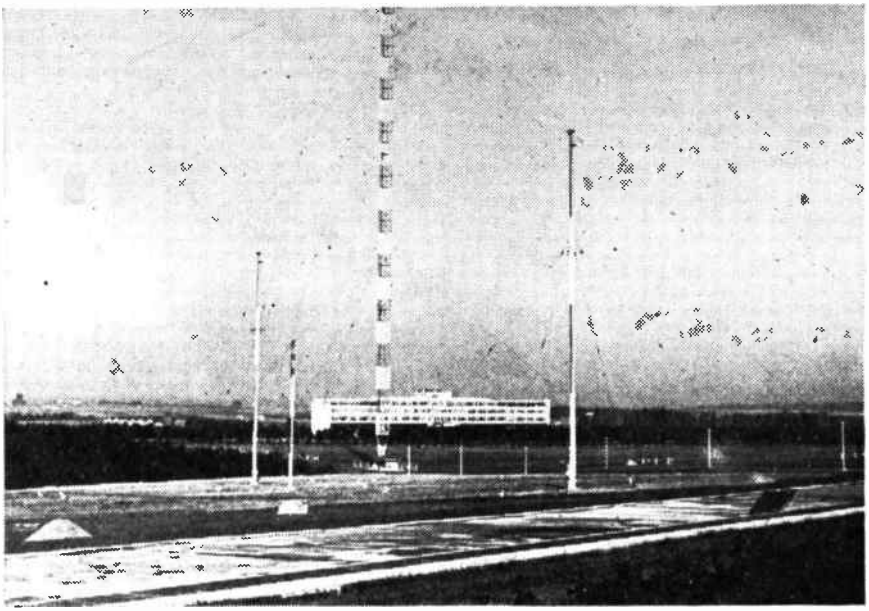
It was into this building that I walked one Saturday afternoon. I was greeted by one of the English editors, John Johnson, formerly of commercial radio and the Forces Broadcasting service. He told me all about the new set-up and showed me round the studios, including the great concert hall, where I sat for a short time during a broadcast by a French girls' choir.

So far as the shortwave transmissions are concerned they are split into two parts, John explained : the International service and the Colonial service ; the latter including the broadcasts to men at sea, missionaries and Belgians abroad. OTC is still in use, as a relay station from 2315 GMT, when the beam is mainly to North America. The power there is 50 kW, compared with ORU's 100 kW and 20 kW.

Apart from the French and Flemish home-service studios, there is a separate studio for both the International and Colonial services, each with its own control room. In the International studio are two American " Presto " tape-recorders and three German " Magnetophone " recorders ; also three play-back turntables equipped with normal and slow-speed mechanism, The Colonial studio is very much the same, but smaller.

Each studio can, by means of a telephone-type dial, bring in any other studio in Broadcasting House, putting the programme over on its own circuit or recording it for future transmission. The Colonial service quite frequently relays a home programme completely ; the International service, on the other hand, usually records the programme then

(*Contd. on p.* 183)



General view of station buildings and aerial masts

BROADCAST BANDS REVIEW

by JACK FAIRS

All Times G.M.T. " Nf "—New Frequency.

We have received a large number of reports listing Medium Wave Dx these past few months, and admit that such reception has been quite outstanding this " season "; our only regret is that the line has had to be drawn somewhere, as it would have virtually required another article to include all items mentioned ! Please accept our apologies for apparently ignoring all this MW Dx, but coverage of the higher frequencies has priority demand on the available space, and another interesting month is now behind us. Let's see what we have this time.

EUROPE

Belguim. Our indefatigable reporter Sidney Pearce starts us off with the Belgian National Broadcasting Service, heard as follows. ORU3, 17860 kcs, from sign-on at 1000 in Dutch and English for the Far East ; at 1100 a transmission in French and Dutch for the Belgian Congo commences over ORU3, 17860 kcs, and ORU4, 21510 kcs, which are joined by ORU5, 11850 kcs at 1200-1300.

Monaco. The call-signs for " Radio Monte Carlo " are 3AM2 on 1466 kcs MW (120 kW), 3AM3 on 6035 kcs (30 kW), and 3AM4 on 7349 kcs (30 kW), according to QSL's received by Roy Patrick of Oldham and Ian Hardwick of Thames Line, New Zealand.

England. Latest BBC frequencies are Mcs 7110 kcs, MCP 9735 kcs and MCR 9760 kcs. (BBC via New Zealand Dx Times.)

Republic of Ireland. Ian Hardwick has got a verification from " Radio Eireann," for reception on 9595 kcs, which is very nice going indeed ! This part of the world always seemed to be well within the " skip zone " as far as the SW transmissions were concerned, and now we learn that it will be some considerable time before they are resumed.

AFRICA

Cape Verde Islands. CR4AA " Radio Clube de Cabo Verde," Praia, has been heard on the 7132 kcs channel (ex-7112) in the evenings to close with " A Portuguesa " at 2200 ; there is bad QRM from MCM on the announced 42.05 m, Moscow and at times, Russian jamming noise-spread. (Pearce.)

Seychelles. A 100-watt station located at the capital of the Islands, Victoria, is operated on 5770 kcs by the Education Department under the technical control of Cable and Wireless Ltd. Programmes are in English and French at 1400-1500 on Sundays, and 1500-1600 on Wednesdays. (NZ Dx Times.)

Angola. CR6RL of the " Radio Clube de Angloa " at Luanda has moved down 4 kcs, and is now near 7138, just on the HF side of " Radio Merida " (7142 kcs), and heard well around 2000. (Sidney Pearce.)

CR6AA " Radiodifusora do Lobito," Lobito, is now reported on 7042 kcs (Nf) at 0515-0600, 1800-2130.

Gold Coast. The 4780 kcs channel of ZOY Accra, mentioned in the March " Review " was probably occasional or experimental and Robert Mercier, Juvisy-sur-Orge, France, hears them at present on the old 4915 kcs frequency to sign-off at 1830.

Egypt. Four 100-kW SW transmitters have been under construction for the purposes of beaming programmes to Asia, North and South America and Europe. One of these is already on the air on 9750 kcs (as mentioned last month), and 6085 kcs (Nf), according to *World Radio Handbook*.

Nigeria. Sidney Pearce sends along the current schedule of the Nigerian Broadcasting System, Lagos. This is the same as that included in our March issue, with the exception of the 1600-2000 period on 4 Mcs, which is now broadcast on 4800 kcs instead of 4975. Sidney hears this 4800 kcs channel at quite good level from 1800, at which time they have the BBC news relay.

Belgian Congo. OQ2AC " Radio College," Elisabethville, has verified an Australian Dxer's report, including the schedule as 0700-0900 and 1630-1730 on 3390, 4980 and 7200 kcs ; all transmitters are of 250 watts output. English identification is given when signing-off by one of the schoolboys.

NEAR EAST

Iran. EQC " Radio Teheran " on 9680 kcs is reported by V. Crump, Birmingham, with good signals but severe QRM. English news was noted at 2000, Russian at 2015 ,and close-down at 2030. (Watch out for the usual return to EPB, 15100 kcs, by the time this appears in print. Scribe.)

ASIA

Japan. Bill Griffith, Ashtead, Surrey, has been logging the Far East network with AFRS programmes to close at 0830, over JK16 on 11825 kcs ; on Sundays there is QRM from ZYK32 Recife, on the same frequency.

Portuguese India. Sidney Pearce is hearing " Radio Goa," 9610 kcs, to sign-off at 1730, despite sending him their schedule which states the Commercial Service ends at 1630. During this extra hour they present varied light music with vocals, and announcements are in some Indian dialect. (Perhaps this last hour is actually the " non-Commercial " service ! Scribe.)

North Borneo. " Radio Sabah " at Jesselton is on the air with a 250-watt transmitter at 0400-0445 on weekdays, using 7237 kcs.

(W.R.H.) As a matter of interest, we were rather surprised to find that an old station list quotes this frequency for Jesselton, and gives the call-sign as VS4S.

Sarawak. This British colony is expected to have a radio station of its own by the end of the year. (W.R.H.)

India. " All India Radio," New Delhi has replaced the English service to Europe at 1945-2045 by a new broadcast at 0730-0830 daily. At first, 15160 and 17705 kcs were used, the former being replaced later by 15380 kcs. (" Sweden Calling Dxers.") We were wondering what had become of this transmission, and had vainly searched the bands for it around 1945 ! Sidney Pearce hears this programme on 17740 kcs, and adds that they also announce 15380 ; the broadcast for South east Asia in English at 1330-1445 is now on 11850 and 15380 kcs, while the Arabic programme is now heard on 4860 kcs to close at 1900.

VUB2 Bombay on 7240 kcs is audible with weak signals in New Zealand, when carrying the AIR Home service to close at 1730. (Ian Hardwick.)

Ceylon. We had another " look " for " Radio Ceylon " on 15230 kcs, and found them this time ! This frequency is used for relaying " Voice of America " programmes at 1230-1330 to India and Pakistan.

Roy Patrick has discovered Colombo on 9570 kcs (Nf) at 1645 with light music, call at 1700 : " This is Colombo," and another VOA relay to close at 1730 without any further announcements.

Indonesia. " The Voice of Indonesia," Djakarta, has a good signal on 9710 kcs with the English broadcast for Europe at 1900-2000; they say 11785 kcs is in parallel, but is actually heard on 11770 kcs. (Pearce.)

Indo-China (Vietnam.) Although still announced as 9750 kcs, the French transmission of " Radio France-Asie," Saigon, was heard during March on 9735 kcs, (probably to avoid Cairo), to close at 1530 after a French news bulletin. The channel re-opens at 1535 with " La Marseillaise " and continues in French to 1600, then in English for Europe until eventually signing-off at 1630. (Pearce.) In a " late flash," Sidney reports another move, and Saigon is now nearer 9745 kcs.

Pakistan. The English news at 1515-1530 from " Radio Pakistan " is a strong signal on 9484 kcs ; the dictation-speed news at 1710-1730 is still on 6235 and 7010 kcs. The Indonesian programme at 1130-1215 is unchanged on 15270 kcs, but 11674 has been dropped in favour of 17770 kcs. (Pearce.)

PACIFIC

Fiji Islands. " Radio Suva," Suva, has been testing on 5995, 6005, 6130, 7195 and 9535 kcs ; the schedule is now known to be 0000-0200 and 0530-1000 daily, these being relays of ZJV on 930 kcs MW. Additional broadcasts at 1900-2100 are also reported this month, and frequencies to watch for include 11895 and 15160 kcs, as these were used during the tests of 1942 by VPD2. The output is, however, only 500 watts. (" Sweden Calling Dxers," W.R.H. and N.Z. Dx Times.)

Ian Hardwick has heard them on the first three frequencies mentioned above, 6130 kcs being the best channel in New Zealand, as Noumea on 6000 kcs caused some QRM to the others. (We wish *we* could hear some QRM from Noumea ! Scribe.)

Australia. The latest schedule of " Radio Australia " includes the following alterations. Programmes to the British Isles and Europe are over VLB11 (11760 kcs, which is taken by VLA11 on Saturdays) at 0645-0815 ; VLA9 (9580 kcs) at 0659-0815 weekdays ; VLA15 (15320 kcs) at 0650-0815 Sundays for the Forces in Malta ; VLA7 (7220 kcs) at 1800-2000 Sundays to Thursdays ; VLC11 (11760 kcs) at 1800-2300 ; and VLA11 (11740 kcs) at 2000-2300. " Australian Dxers Calling " is now on Sundays at 0745 on 11760, 15320 and 17840 kcs, and at 1330 on 11840 kcs to the East coast of North America. (" Radio Australia," Sidney Pearce and W.R.H.)

NORTH AND CENTRAL AMERICA

United States. A new call-sign for the " Voice of America " programmes is WDSI, announcing as at Brentwood, N.Y. ; it appears to have replaced WABC, as it is, in most cases, working on the old WABC frequencies. WDSI is officially listed on 6120, 6170, 6175, 9530, 9615, 9650, 11790, 11870 (testing), 15270, 17830 and 21570 kcs. Alex Mackenzie is now located at Carlisle, and was the first reporter to mention WDSI, but we cannot find any mention of frequency, OM ! Hope you have now settled down at your new QTH, Alex.

" Radio Boston, The Voice of Freedom " now uses 11740 (WRUL4) and 15280 kcs (WRUL1) at 2015-2115 for the European programme, which, incidentally, includes a very interesting feature " Hawaii Calls " at 2015 Wednesdays. (Pearce and Patrick.)

The VOA Floating Relay Base *Courier* is now using 11805 kcs (Nf) at 1330-1515, and 9685 kcs (Nf) at 1330-1615 daily, in addition to 6015 kcs (1630-2215, 2230-0345) and 7200 kcs (1530-2215, 2230-0345). Ian Hardwick asks about the *Courier* for country-scoring. Well, the *Courier* is a U.S. Coast Guard cutter flying the U.S. flag, and the ruling must surely be that it counts as the United States, no matter what its location may be ; sorry Ian ! See the " Review " for June 1952. Other floating relay stations are planned by the VOA, and the chances are, that at certain times, their exact locations may not be disclosed, and then where are we ? Hi.

Mexico. A new station, located in Ciudad

General Aleman in the state of Vera Cruz, has the call-sign XEQ14A and operates on 6750 kcs ; sign-off is about 0300. (W.R.H.) XEBR " Radiodifusora de Sonora," Hermosillo, 11820 kcs, has been heard in the U.S.A. with good signals around 1610, according to *Universalite*, bulletin of the Universal Radio Dx Club of California.

Jamaica. John Simpson and Roy Patrick have dug up " Radio Jamaica " out of the CW on 3305 kcs (Nf), instead of the previous 3360 channel ; the times were 2245 to around 2330. The BBC news is relayed at 2300.

Honduras Republic. HRA " La Voz de Lempira," Tegucigalpa, is now heard on a measured 9047 kcs. (URDXC.)

Cuba. COCY " Radio Habana Cuba, Cadena Azul," Havana, on 6450 and 11740 kcs, has a Latin-American musical programme in English at 0530-0700 daily. Comments on the broadcasts and musical requests should be sent to RHC Box 770, Havana. (Ian Hardwick.)

Haiti. We take much pleasure in accepting Robert Mercier of Juvisy-sur-Orge, France, as our specialist observer for this country ! Robert comes up with an entirely new one this month : Station 4VGF " Radio Indepen-dance " at Les Gonaives. Note : " Indepen-dance " is correct—they spell it with an " a " in French, and Les Gonaives is pronounced " lay-go-nah-iv." This station is heard by Robert until close at 0115 on the announced frequency of 6340 kcs. 4VGF was noted for the first time on March 13th, but auto-CW QRM was very troublesome, and identity was estab-lished on the 21st and 22nd of that month. All programmes are in French, with news at 0000-0015, and the musical items are mainly of Latin-American origin.

Robert also lists 4VWA " Radio Citadelle," Cap Haitien, on 6301 kcs, and heard regularly from as early as 2200 with fair and clear signals but subject to some spasmodic and heavy CW QRM. The complete identification is " Ici Radio Citadelle, Poste 4VWA, à Cap Haitien, capitale touristique de la Republique d'Haiti, Grandes Antilles." All transmissions are again in the French language, with news at 2300. (U.S. Dxers reported 4VWA on a varying 6238 kcs during February, Robert, with very bad modulation on that channel, so that ties up with your theories. They must have improved their quality when they moved.) We had a try for 4VWA, and even your Scribe can hear this one ! The call was noted at 2400 and the level about S4-5.

Station 4VEH, Cap Haitien, is still testing various frequencies in the 31-mb. These have been 9655, 9686 and 9710 kcs, and other chan-nels will be tried until a satisfactory one is found. (W.R.H.) Sidney Pearce has just got their QSL card for 9667 kcs. (Don't forget the IRC when reporting to 4VEH. Scribe.)

4VPL at Petionville is now heard on 5902 kcs (Nf) in Indianapolis. (Marvin E. Robbins.) 4VHW " Radio Haiti," Port-au-Prince, is noted on a varying 5842 kcs, with stronger signals than 4VPL. (Robbins.) The other outlet of " Radio Haiti," 4VRW on 10070 kcs, is very strong around 2000 (Pearce) and has been Q5 S8 at 2215 (Griffith.)

4VCP " La Voix du Nord," Cap Haitien, has now moved up 5 kcs and is on 6388 (Nf). The modulation is still very poor. (Robbins.) Bill Griffith has logged this one at 2230 when he listened to Schubert's " Unfinished," followed by the news in French at 2245-2255. And that's just about enough news from Haiti for this month !

Guatemala. TGZA " Radio Oriental de Zacapa," Zacapa, has been found on 6675 kcs (Nf), only audible after HROW (Tegucigalpa) signs-off. (URDXC.) TGAZ " Radio Contin-nental " in Guatemala City on 6150 kcs has been logged in New Jersey around 0300. (URDXC.)

TG2 Guatemala City, 6620 kcs, was heard to announce as " Radio Morse, TG1 y TG2 en Guatemala ;" best reception is around 0300. (Marvin Robbins.)

Costa Rica. A new station has appeared on 6008 kcs in the shape of " Radio Cristal " at San José. Strength is good, but the xtal is necessary, and it has been heard around 0130-0300. The announcement is " Emisoras de Radio Cristal en San José," and the call-letters *seem* to be TIHV for MW and TIHVC for SW, with the address given as Apartado 349. North and Latin-American music is featured with sponsored items for Hallicrafters, RCA Victor and others. (Robert Mercier.)

Another new Costa Rican at San José has been discovered on 6502 kcs between 0100 and 0430 ; the call sounds like " Radio Excelsior en San José, Costa Rica, Centroamerica." (Robbins.) Any further news about these two stations, from either side of the Atlantic, would be welcome.

SOUTH AMERICA

French Guiana. " Radio Cayenne " is still on 6198 kcs, but is now on the air at 2230-2330 daily. (Mercier.) Has been logged by Ivor J. Street, Worcester, to sign-off at 2330.

Peru. OAX4B " Radio Azul," Cerro de Pasco, is reported by URDXC to have moved from 6526 to 6560 kcs ; this is listed by WRH on 6170 kcs—see the March " Review." Query : we thought OAX4C at Callao was the station on 6560 kcs, as mentioned in our January issue !

OAX6E " Radio Continental " at Arequipa has returned to the old 6335 kcs frequency from 6305 ; had " Diaro de Radio Continental " —news in Spanish—at 0115. (Mercier.)

Chile. Station CEZ7C " Radio Yungay," Santiago on 7660 kcs has been heard in New

Zealand featuring dance music until as late as 0700 (0300 local time) on Sundays. CE1173 " Radio Sociedad Nacional de Mineria," Santiago, is now on 11945 kcs (Nf) and held to sign-off at 0400, or, on occasions, 0440. CE1190 " Radio La Cooperativa Vitalicia " at Valparaiso has moved again, and was last noted on 11925 kcs (Nf). These three items come from Arthur Cushen of Invercargill.

CE1174 " Radio Nuevo Mundo," Santiago, 11740 kcs : S7-8 with news at 2300-2315. (Bill Griffith.) CE960 " Radio La Americana," Santiago, 9595 kcs : good signals around 2300. (Sidney Pearce.)

Colombia. HJEQ " La Voz de Cauca " at Papayan on 4915 kcs, and HJFR " Ondas de Ibague " at Ibague on 4935 kcs, are both new stations listed by URDXC.

Paraguay. " ZP3 y ZPA3 Radio Teleco en Asuncoin, Republica del Paraguay " is the call heard on 11853 kcs, when ZPA3 opens at 2200 ; strength is fair and the channel clear. (Mercier.) ZPA5 " Radio Encarnacion," Encarnacion, 11950 kcs : Q4-5 S7 at 2230 with a news relay from " Radio Belgarno," Buenos Aires. (Scribe.)

Ecuador. A new station in Quito has been found on 6830 kcs by Marvin Robbins, with fairly good signals around 0100 ; the slogan appears to be " Radio Comerical." HC4EB " Radio Manta " at Manta on 6870 kcs is audible around 0315 at fair level but bad QRM at times ; another Ecuadorean on a varying 7254-58 kcs announces as " Radiodifusora Cenit, Manta," and is heard around 0030-0100 at S7-8 level but severe distortion. This one seems to close at about 0400, and may be HC4DC, listed on 7300 kcs. (Robbins.)

HC1AC " La Voz de la Democracia," Quito, has verified Robert Mercier's report on the 9557 kcs channel, and say that this frequency was only " occasional." HC1AC is now back in the 49-mb, but 6210 kcs has been abandoned, and they should now be on 6060 kcs, though Robert has found them several times after 2300 on a varying 6070 kcs (Nf.)

Brazil. Bill Griffith reports a Brazilian station on 11735 kcs, heard around 2200, when the call " Emissora Continental " was noted. Bill says this is presumeably PRD22 at Rio de Janeiro, as mentioned in the March issue, but the call was then quoted as "Radio Cruzeiro do Sul," PRD21 on 6195 kcs being " Emissora Continental " at Niteroi. The latter station is reported by Sidney Pearce with quite strong signals from 2300 as a background to BBC station GRN, and its identity is also confirmed by reports from the U.S.A.

CONCLUSION

The Honour Roll of countries verified will appear next month. This is for SW broadcast stations only and is open to anyone and everyone who has 30 or more countries verified. We humbly make only one stipulation, which is that claims for inclusion will not be accepted unless accompanied (at least occasionally) by a few items of listening interest. It has been decided that this little " regulation " is really necessary and, it must be admitted, is not much to ask . . . an SWL who has 30 or more countries verified to his credit has done quite a lot of listening, and must surely be able to include at least one or two items that would be of interest and assistance to those who have not yet reached our " starting figure." (We have yet to discover any such helpful information in a report of the type that reads : " Hav'nt heard anything worth mentioning this month, OM. Please increase my HR score by nine . . . " etc., etc. !)

Several listeners regularly ask us for news about particular stations they wish to hear, and we certainly have no objections to this whatsoever, provided an SAE is included, as this saves a lot of time at this end. We always try to reply (if we know the answer !) within a few days at the most. Everyone likes a little co-operation in return, but unhappily, in a few instances, it has regularly been " one way traffic " for some considerable time. We respectfully request our constant and willing " supporters," whose names regularly appear in these pages, to ignore the above comments, as they do not, for obvious reasons, apply !

The editor and your Scribe thank all readers and Dx editors overseas who sent along items included in these pages, and all contributions are duly acknowledged. Re-publication of any information should be credited to " The Radio Amateur." Material for the July issue should be addressed to : J. Fairs, 2a Durham Road, Redcar, Yorkshire, and must arrive before May 27th.

The very best of DX to everyone, and 73 until next month.

USEFUL FOR FIELD DAYS

Multicore Solders Ltd., have recently produced a very useful type of solder, viz., their Tape Solder. This is unique in that it melts with the heat from a match. No soldering iron is necessary and it contains its own flux ; this type of solder being therefore, most useful for including in one's kit when going portable. To solder two wires together, they are first of all of course, cleaned, then twisted together and then wrapped round with the solder tape. A match flame is then held so that the heat melts the solder and completes the joint. Sheet metal can be similarly soldered. It can be obtained through your usual dealers in 1s. packs.

AMATEUR BANDS COMMENTARY

by
STANLEY HERBERT,
G3ATU

DU7SV, Cebu City, Philippines

Last month, we commented on a slight improvement in Twenty Metre DX conditions. This month, we are happy to be able to report a further livening up of DX doings, not only on Twenty but on the higher frequency bands. Even Ten has hiccuped on the odd occasion, after being completely dead for long enough. However, we won't get wildly excited about that band yet awhile. More interesting is 21 Mcs, which has actually been producing signals in the middle of the week ! We were particularly impressed by the extremely strong Phone coming from The Middle East—OD5 in particular—at all sorts of odd times from early morning onwards. With a little more *real* activity, the band could be very interesting. It may be that some people are reluctant to do the necessary trebling to put them on the band, although why this should be so, we can't imagine.

Twenty, then, remains *the* band, both for the listener and for the poor chap with a transmitter and a complete absence in his log of all prefixes starting with " U " ! !

Most of the mail concerns that band and we shall start with it right away. Take all reports as being on *Phone* unless otherwise indicated.

Twenty Metres

P. M. Crawford (Darlington) starts the ball rolling. Martin is a very busy man these days. Apart from earning his daily bread, he is redecorating his new house, but still he finds time for an odd moment on the air. A new receiver (S 750, it is) netted him AP2K, 2R, CP1AM, 2YN, CR7LU, HR1BG, PK2AK (14125) and XZ2OM and some good CW from PJ2CA, VK1JC, VP8AA and KH6WU.

A puzzler was AN1NMC, heard on voice. This would be NE1NMC, we imagine. More of him later.

W. H. Clansey (West Bromwich) is one of several new reporters welcomed this month. He uses an 1155 with an 80 ft. inverted Vee aerial. Three weeks evening listening pulled in OQ5FV, KV4AZ, LU9FP, FQ8AJ and ST2AC as his best.

E. P. Parry (S. Harrow), reporting for the first time, uses a much modified AR77 and a long wire. The combination seems to be doing fine, the pick of a comprehensive bunch being JY1XY, VS7FG, PJ2AK, VP2GH, CX1AX, VP5DX, H16D(?), ZC4DW, VE7ZM, VP7NS, CR4AD, CR6AW, KA3AN, VU2JN and DU1RS. E.P.P. queries PI4JG and CL7IT. We can't help with the PI, but the other seems like CR7IT.

J. P. Curtis (Birmingham), another newcomer, has been at the game for a month or so. His aerial was erected by throwing several

earth-filled cans over the roof. " The cans," says J.P.C., " carried with them yards of wire and part of the bedroom window. The resultant QRM produced several reports—all verbal ! "

The receiver is an 1155 and results include PY's 1AMJ, 2EQ, 6EN (all new ones), EA6AT, 8BI, MD5EB (who is SU5EB in disguise), HC1FG and K1FBH/VC2.

N. C. Smith (Petts Wood) is trying out an HRO. This pulled in AP2TL, CE2FD, CR4AP, CX1AX, DU1RS, 1FC, EL1OA, KL7, VE7ZM, VP5BF (Turks Is.), VS1EG and KF3AA, who is ex-W5AGB/FM and is still on Fletcher's Ice Island and does not count as a country.

On CW, Norman picked out CR7CH, 7LU, EL2P, KH6IJ, 6WU (1830), KR6ID, 6IG, UN1, UH8, UM8, UAØFR (Sakhalin Is.) and Aden's VS9AP and 9AS.

V. Doidge (Callington) nabbed three new ones—DU1RS, ST2NW and YK1AH, which bring the 1953 Phone score to 109C. Other DX audible in Cornwall was CT2AD, CR6, 7, EL2P, KZ5AF, OQØBZ (Ruanda Urundi), VS1EU, YI3WH and VE8MB (Cornwallis Is.). Three AJ's—MARS—were also on.

P. Hunt (Ellistown) is delighted with conditions, which are the best he has met since starting up last August. He logged CO2AB, OX3BI, HR1KS, YV, KL7AIR, CR4AD, OQØBG, FP8AR, HP1AP, HH3FL and that rare bird VP1AB.

P. D. Lucas (Redhill) found March 13th a lucky day. It saw an opening to VE8. VE8OP and 8MB were heard, as were old-timer VQ4AA, PQ5FT, YV5AY (1230), HZ1AB and KG6AAY (1150-14237).

D. E. Nunn (Hove) has found the past month good, especially around 1800-2300. He added two new ones, C3LL (U.S. military Mission in Formosa) and ZP5CF (2145), plus KL7AIR (0830), VQ2DT, OX3BN, VP4AM, CO2, SU1MR, VP9AV and a three-way consisting of ZD4's BK, BF and 5A2CA.

Donald queries FM7WD, remarking that Martinique appears in his Countries list as FM8. The numeral actually is unimportant.

FM8AD was very active, post-war, but the current activity is apparently entirely FM7. 'WD may be heard most evenings, calling French stations on CW and getting replies from all over Europe !

J. Whittington (Worthing) spends odd moments with G3FXB in neighbouring Hove and can thus compare his results with " FXB's " as, far as reception goes at any rate.

John gives most bands a going-over and on Twenty he got CR7IT (1630), DU1AP, 1RS, 7SV, HH3L, KF3AA, KG6GX, VE7, 8ML, VS1EG, 2BS and VU2JM. NE1NMC, MP4BHK and ZS9G got away. The last two do it every time, says J.W. Just as HI6EC and ZS7C do with G3ATU. We can hear 'em all right, but can we heck make them talk !

On CW, John had KH6WU (1900), VQ5AU, W1JNE/VO6, W7RFI/VE8, ZS and ZE3JP.

R. Moore (Clacton-on-Sea) has overcome receiver trouble and is making hay once more to the tune of AC4EG (giving a QTH of N. Tibet !), CO5LF, KB6??, MP4KAM, ST2NW, TG8BC, VP4GJ, 9BF, 9BDA, XE1LM and NE1NMC.

This latter puzzles R.M. and others a little, so here is the story as we have it. The operator is W6NMC, who was active some years ago on Ten as " 11 No More Cash." Apparently he commenced operations as NEP1NMC, but soon changed to the shorter NE1 call. He was active for a few days only, from Nepal. At the time of writing, he is in Kenya and rumour has it that he plans activity from both VQ1 and 9. The only other station to operate from Nepal was VU7AF, who was on in late '48 and early '49, so anyone snagging the NE1 got himself a rare one.

B. J. C. Brown (Derby) found the band somewhat brighter, but grouses at the still poor early morning conditions. They *have* been stinko for too long, but we'll risk our reputation as a soothsayer and forecast that the Pacific (and sometimes S. American) DX will start breaking through any time now and will be with us all Summer.

Bernard has been hearing CE2CC, CR4AM, DU1AL, 1RS (1530), FQ8AD (0715), KG6 AER, 6AEX, 6AFR (1130), numerous KP4, VE7RR, VK4RT and ZP5CF.

On CW, he nabbed a nifty VP8AP (2000), CE4DX, SU1TQ, and, helped by a WSEM contest, UC, UR, UQ, UA9KOG (Novosibirsk) and UA9KYB (Altai-0800). UF, UL, UM and UI were being called, but nothing doing !

D. Wilson (West Hartlepool) didn't fare too well, but he did hear HH3L, 3FL, VS1EG and 4X4AE. CW netted him a new one-VP8AP at 2030, calling " CQ G."

C. L. Bradbrook (Alton, Hants.), due to matters more pressing, has done little except Top Band listening of late, but he makes a good point when he says that listeners who cover all bands, Phone and CW, can always find something of interest and they have a distinct advantage over the one or two band

" types." He doesn't mean that one should try to cover all six or more bands each and every month, necessarily, but, as he rightly points out, the operator who is equipped for the lot will get more enjoyment from the game than will the one band man.

C.L.B. added to his score with the long-awaited TG9RB, plus CR6AI, EA9AI, EL2P, 2Z, FF8CN, ZD4BK and YK1AJ.

On the CW side, Zone 18 popped up for a new one, leaving C.L.B. stuck at 39. No prizes for guessing the missing one ! UA9KOG 9KYB, UB, UC, UG, UM, UN, UP and UR were all heard, as were CE3BX, CT3AA, FQ8AR, OA4AD and VP9HH.

R. J. Holliman (Cambridge) has heard 72 C in a year, which isn't bad going as he is still at school and has little time for listening. Recent DX is M13JV, 4X4BC, EL9A, PJ2, OQ5 and KL7ZG. Raymond mentions a Cambridge Top Band net, 1100-1300 on Sunday mornings, with G's2DT, 3ERV, GWE, GWY and HQI.

H. J. Hill (Whitley Bay) reports for the first time, with a good assortment of DX. Some new ones this month bring the total score, all Phone, to 34Z-154C since 1951.

Recent catches are AP2L, CR4AD, 6A1, 7IT, HR1TS, 1KS, HI6EC, HP1CC, KL7AON, OQØDZ, VP1BT, VP2FL, VP3YQ, 7NS, ZC6UNJ, ZP5CT, I5SG, ET1FI.

H.J.H. reports CR8AB active on CW and says VR6AC is around, believed to be on Phone. We can imagine one or two people needing both of those two. Anyone heard a pile-up lately ?

He heard a most peculiar TV4VV, working a W1 (where on earth ?) and queries the 5A1, 2, 3 set-up. They are all one country—Libya —which is the same as the old MD1, 2, MT, MC gang.

VS9 Maldives, Aden and Oman are all separate and the old VT1 is now MP4K for Kuwait.

D. L. McLean (Yeovil) finds 1700-1900 is still the best time for DX, with Asia, Africa and The West Indies coming through. He mentions CR6AI, 6CB, EL2P, FF8, KV4AZ, eight OQ's, including 'ØDZ, ST2NW (14178-.950), VQ5CB, WØNGM (S. Dak), ZD1SW (14150-1900), ZD4 and ZS9G (14104).

Don wonders about the SU/MD5 position, having heard Andy of SU5EB using MD5EB. We understand that MD5 operation is still under cover, but we believe the boys out there are hopeful that proper authority will shortly be given.

The Eritrea situation also comes in for comment. Now that it is part of Ethiopia, do the MI3's count as ET's ? At the moment, no !

Don passes along the news that the Yeovil Amateur Radio Club station, G3CMH, is now testing a new 150 watt transmitter on 3.5 and 14 Mcs CW and Phone. Operating times are Wednesdays—1900 onwards ; Sundays—1000-1330. SWL reports are welcome and will be QSL'd.

R. G. Poppi (Beckenham) sends us his first report. Dick is a keen CW listener and prefers Twenty, which band he has dealt with successfully for a considerable time. He is all for a SLP on the band (we shall certainly organise one, before long) and suggests a HAZ effort later on. This might be interesting, coupled with a WAZ for the transmitters.

Dick remarks on the recent good conditions to the Far East, with DU and VS signals blocking the AR77 at times. Bedlam—beautiful bedlam, just like 1946-47 !

CW accounted for most of the following. CE4BX, CR4AB, CR5AA, 9AE, eight DU's, OA4AK, six UA9's, ØKKB, ØSK, UH, UI, VP8AJ, VS1, 2DF, 6CG, 9AP and five VU's. The aerial is 100 ft., N-S long wire.

H. Lee (Oslo) who lost his outdoor aerial in a gale, is still using a tiny indoor wire, which picked up DU1RS, JA2IM and YI3WH.

Henry has received some QSL's with prefixes of interest. Details are: LC8J (Norwegian Army stn.), LK2K (Norwegian Tech.), OI2KK (Finnish Tech.), P11E (Dutch Tech.), SHF1 (Swedish Tech.) and SL3AJ (Swedish Army). We add another, SH1 (Royal Swedish Signals Regiment).

J. L. Hall (E. Croydon) sends us details of DX picked up on six bands. Good stuff was heard on all of them, with activity helped by the ARRL, BERRU and Russian contests.

Twenty Phone was good for DU, KL7, VS6CG and on CW. John singles out CR9AH, FI8AD, KH6ES, IJ, YL, KL7AQH/KL7, VS6CG and a welcome VR2CG (579 at 0850).

P. M. White (Williton) is battling with local QRN, which makes a mess of Twenty, but he managed some new ones. SVØWB and SU1AS made it 3OZ-94C on Phone in just one year. Best DX this month was ZS6ZU/P (due to leave Marion Is. shortly), ZS6, ZP5DC and W7CRV.

P.M.W. wonders about CN2, which is Tangier, all the same as EK and KT1.

R. Balister (Croxley Green) writes from Versailles, where the lucky chap is on holiday. Before leaving, he got hold of VO3L (Labrador-Zone 2), UA9KYB, UG6, G3AAT/OX (1500), W7GUV, FI8AD, ZS5BS, OD5, 4X4 and MP4BBD.

Incidentally, P. M. White tells us that Roger is the younger brother of G3IQB. We foresee another " G " coming up one of these days !

Bill Hardie (Hawick) is still nursing that poisoned finger and snagged CX1DX, DU, EL6A, FF8, KL7, VS7FG, VU2EJ and ZD2RRW. He now has 90 ft. of wire up and one morning was copying KL7 until 1200.

R. Goodman (Edgeware) singles out DU1RS and a doubtful FI8AV as his best. They are his very first Far East stations and he had doubted if his O-V-O was good enough to pick up such DX, so he should be quite pleased with things. What really counts in picking up long-distance DX is aerial characteristics and directivity, especially when conditions are poor.

Ron picked up the fluttery KF3AA already mentioned, still floating around the N. Pole, CE2CC, KA3VA, OQØDZ, PI1LC (600 miles W. of Spain), VP9, VQ2, 4, 5, ZD2RRW, Z53W and choice ones CR4AD, W4DOZ/VP4, VQ3EI, ZD1SW and YN4CB.

He has never heard a Russian and wonders about times, etc. The trouble is, most of the activity is on CW. Twenty on the two contest mornings was bursting with every Russian prefix. This, when the band was in an otherwise sorry state. The " U's " are also very audible on Forty, most evenings and may be heard on the other bands when conditions permit.

R. Winters (Melton Mowbray) succeeded in erecting his 40 ft. mast, which now supports a 90 ft. wire. However, due to extreme business pressure, he has had little time as yet to try it out, but results *do* appear promising.

AG2AB, DU1RS, G3AAT/OX, IS1EHM, M1MO(!), MD5EB, MI3, MP4KAC, ST, VQ2FC, 4RF, VS7RF, WØNGM, W2JAB/VO2, ZD1SW and ZD4BF bear witness.

G6VG (South Shields), testing a little 5 watt rig, was delighted to get a 579 report from VE3KE.

G3ATU (Roker) succumbed to the DX bug once more and worked FI8AD, W7HAH (Idaho), WØBBS (Nebr), KØWBB (Colo), W5MPG (Ark), W7AH (Ariz), SVØWG and SC2AD ! The latter aroused our curiosity and turned out to be working under cover, afloat. SVØWG gave us a new one. Despite the call, he is on the island of Rhodes and is the " Courier " Radio Club station. Look for him and the others on CW.

Forty Metres

Our usual comments still apply. The DX is there if you can find it !

Bill Hope (St. Boswells, Rox.) writes to assure us he is still alive. He is having a little R.A.F. leave and now possesses an S 640. He didn't find Phone DX too good, but on the key he pulled in CR4AC (quite genuine), FF8AR *and* W6RW.

Bill is " genning up " on his Code, preparatory to taking a " GM " ticket and has a 7 valve TVI-proof exciter ready to go.

Good show, we look forward to hearing it in action.

P. M. Crawford found early morning CW worth getting up for. He logged ZL1MP, 2HA, HR1BC, CO3YV, KH6QY *and* YJ1AT, so we guess he's right, at that.

He heard a queer one—SR4TZ, 589 and working a " W. " The only suggestion we can offer is that he may have some connection with the SC2 chappie we worked, but we wouldn't really know.

B. J. C. Brown was flabbergasted by K. J. Gurney's Phone DX last month : says he wouldn't mind hearing a KC6 on *any* band !

On CW, Bernard got CT2DS, HH2LD (0030), YI2AM (2145), K2CBQ and some PY's.

N. C. Smith heard W6ZZ on *Phone*. On CW. he picked up three of 'em, plus W5LP (Tex), 5RRR, CR4, MI3AT, KZ5, UA9, UI, UJ, VK's 2, 3 and 4, VP4LZ, VP5BH, 5SC, YV and the choice VP8's AP and AW.

J. L. Hall also picked up the VP8's, plus 8AJ ; other highlights—CE3AG, CR5AE, PZ1WX, ST2AR, VP9BF, 9BDA, 9BF, VQ4AQ, VS7XG, VS9AP, VQ2GW, ZS3E. On Phone, John mentions KG4AF, KV4BB and PY6FG.

J. Whitington heard VP8AW on CW *and* Phone, with CO8CC, 8LS, HP3GV and, on CW, CT2BO and HH2LD (0000).

R. Balister's CW efforts got him ZL3LL, UQ, UC, UG, UF, EA6AU, VP7ND, CN1D(?) and Norwegian LJ2F.

Top Band DX Doings

Certainly has been a whale of a season for DX and although with the shortened hours of darkness, DX is scarce, one or two " W's " are still coming through. We have some interesting summaries of DX results on the band, which we give below.

G. C. Allen (Thornton Heath) heard his first DX of the season on Dec. 28th and was still hearing it on March 22nd, last.

The peak day was Jan. 11th, which produced 32 " W's," VE, KV4, ZC4, VP9BF, 9BDA and KP4KD were all heard in the course of the season.

G.C.A. puts us right on the KP4 question. The first Top Band KP4 reception over here was in Dec., 1951 when G5VB, working KP4

on Eighty, Got him to QSY to One Sixty and heard him there. Unfortunately the KP could not hear '5VB at the time.

J. L. Hall had a successful season and in March, was still pulling the stuff in. He, mentions HA5BT, HB9CM, KG4AF, KP4KD KV4AQ and 4BB, UA2KAW, 3KWA, UB5KAD, UQ2AN, YO4CR, VP9 and lots of W/VE, all heard recently and says UG6KAA is active. There is some interesting material there, and it looks as if next year may provide some fun.

N. C. Smith had a good morning on March 8th. His letter unfortunately was too late for last month's " ABC." He heard Phone from W1LYV, 8GDQ, the latter getting replies from both WØAPF (Iowa) and KV4BB ! Fourteen W's were heard on CW, as were ZC4XP, VP9BF, 9BDA and KP4KD.

J. Whitington was delighted to make the DX at last. He did it in style, getting Phone from W1LYV, 8GDQ, several W/VE and OH, VP9BF, 9BDA and KP4KD on the key.

B. J. C. Brown made it, too, and snapped up W1LYV, 2GGL and VE1EA on April 5th. Good going.

C. L. Bradbrook was also hearing W/VE on April 5th. Earlier sessions netted him numbers of both, KV4BB on Phone, VP9BDA and KP4KD (a brand new one) on the key.

C.L.B. finds interest also in European *daylight* DX on the band. He has a card from OK1LM, heard at 1030 a.m. and has actually heard ZC4 on Eighty in mid morning. Top Band score has reached the fat total of nineteen countries.

Bill Hope seems to have stolen a march on the rest of us. Quite casually, he reports hearing Phone from W1LYV, W8GDQ *and ZS3K* ! Blimey ! Having dropped that bomb shell, he discusses his own County—Roxburghshire—which boasts but two Amateurs until Bill himself qualifies for his ticket. Both GM3IPU and GM3BNX are active and are in great demand by the county chasers.

The Eighty Metre Band

Despite the nefarious activities of dozens of non-amateur stations, Eighty continues as a good producer of choice night-time DX for those able to take advantage thereof.

N. C. Smith, for instance, heard CT2BO, all manner of KP4's, KZ5DE, EA9AP, PY5EK, UQ2AN, YV5DE, ZB1IF, VP9BDA and eight ZL's on CW.

Norman's friend and neighbour **J. L. Hall** went to town with CE3AG, CO2PY, KG4, KT1UX, LU1EP, PJ2AA, TI2EG, UF6KAF, UG6KAA, UA9WC (a pleasant surprise—569 at 2200), VP8AP, 9BF, 9BDA, VQ4HJP, VSOAP, W5CKY, 5ENE, 5MPG, 6AM, YN1AA, YV5, ZE3JP, ZS2, 6 and no less than eleven ZL's. Why bother with Twenty ! This was CW, by the way.

John heard the ZS's—four of them—during the BERU contest. The time—0230-0445 and not a single " G " to work them !

John Whitington got in amongst a Phone net and emerged with KP4's EE, ES, AL, ID, UB, TV, TZ, DV, GN and BZ. Quite a party !

P. M. White at 1915 on about 3610 kcs was intrigued to hear the call-sign FK8AA given phonetically in French. This was on 25/3/53 and P.M.W. wonders if anyone else was there and can throw some additional light on the murky scene.

R. Goodman weighs in with " SSB " YN1WC (0300), EA9BC, FA, KP4 and W5BSC.

Other Bands

We are getting a trifle short of space and so will cover 21 and 28 Mcs in the form of a current activity list.

Ten opened briefly on two occasions and threw up CX, LU and CT signals in the afternoon period. Seems to have folded again, now.

Twenty-one has livened noticeably and the following are currently active. Phone: CE3CZ, CR4AI, HP3FL, KG4, MD5, TI2RC, VP9, VQ2, 5, 5, ZD1SW, ZD9AA, ZS7C, 4X4, FF8, FQ8, PY, W, AP, VK, KZ5, 5A2.

CW: KP4, VS9AP, ST2GL, VP7NM, VK9GW, UG6, ZD2DCP, ZE, VQ3BM, ZS3K and much of lesser interest. The band is getting interesting at last.

News has just reached us that the Easter Island CEØ jaunt is due to sail on April 10th and should be on the air by April 20th. We hope he is still there when you read this. Watch the low end of Twenty for his CW and may we wish you all success in snagging him.

Other DX news is of MI3ZZ, who is rumoured to have ideas about some FL8 operation and of 9A1AI, now active from San M arino.

The 21 Mcs CW SLP foundered on the rocks of poor conditions. Not one log was received ! May you have better luck with the Phone session.

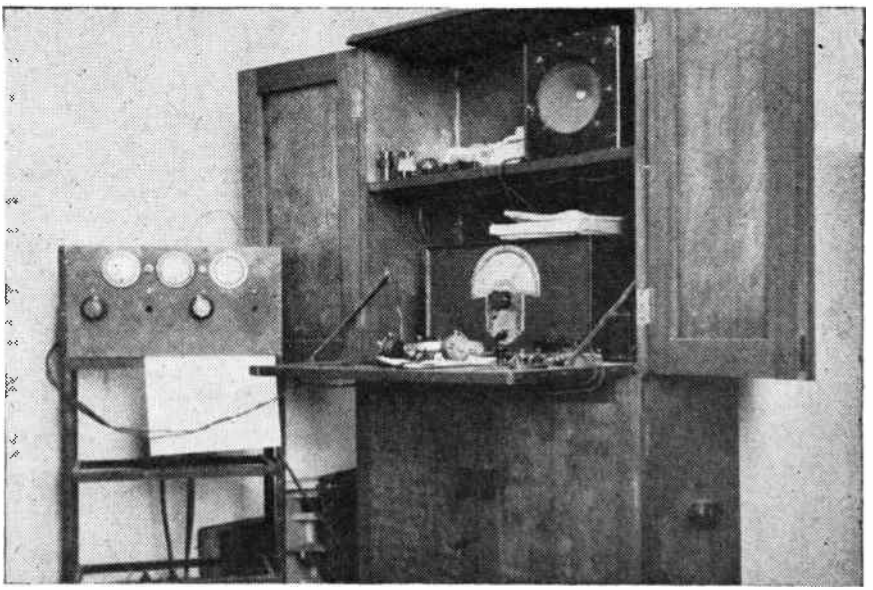
With that hope, we wind up this month's effort.

Reports for the next issue, please, by May 8th and by June 8th for the following month, to Roker House, South Cliff, Roker, Sunderland.

Good hunting and 73.

AROUND THE SHACKS G8UA

Operator : Harry Tee, of 406 Higher Brunshaw, Burnley, Lancs.



The station has been designed to be as simple as possible, and results have been most satisfactory. WAC and WBE have been made, and 42 of the 48 States of U.S.A. have been contacted. At the time of writing, 127 different W6 (California) stations have been worked, some of them many times. A total of 93 countries has been worked.

The transmitter runs 75 watts input, and consists of a 6L6 Tritet oscillator driving a T20 in the PA. Crystals are used for frequency control, war surplus crystals having been obtained and ground down by the operator to amateur frequencies. The power supply for the transmitter consists of two power packs, one using a type 80 rectifier and the other a pair of 836 rectifiers, the packs supplying 415 volts and 800 volts respectively, as well as the heater voltages.

The transmitter will operate on 3, 5, 7, 14 and 28 Mcs, but operation is mainly confined to 14 Mcs CW with a dipole aerial.

The receiver is a pre-war Tobe amateur bands superhet, and is still giving good results.

OTC to ORU (*Contd. from p.* 173)

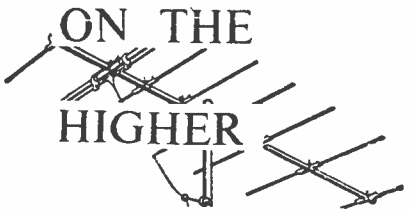
edits out the announcements in French or Flemish and substitutes any other language required.

So far as news is concerned, the source is the normal agency services—including Reuter from our own Fleet Street.

There is a staff of four on the English service, including Bill Ashley and John Johnson. The other two are Andre Charlier, formerly with the BBC Belgian Service, and Joseph Kadijk, a Belgian educated in England.

Most popular programme for a long time has been "Amongst Friends," broadcast in English, French and Dutch. The very title of this programme is an expression of the nature of that which was OTC and which now is ORU. This programme is associated with the ORU Club (formerly OTC Club), which acts as an international friendship club, fostering such things as stamp collecting and amateur photography. It also exchanges correspondence between pen-pals.

This is a story of Goodwill. As with OTC, the newer ORU has nothing to do with propaganda as it is generally understood. It seeks to give news—unbiassed news—entertainment and an idea of the cultural, social and economic life of Belgium. It is a great supporter of international tourism and understanding—in short, of international Goodwill.



Monthly Notes and News

by H. E. SMITH, G6UH

The month of March came in with some of the best conditions ever known on the VHF bands. Many reporters say that the conditions were better than the best of the openings on the old 5 metre band. In many parts of the country, the good conditions extended nearly to the end of the month. Most of the DX reports were received in time for, and included in our April issue, and many stations have taken a new interest in VHF because the openings gave them the opportunity to work their first DX. At the time of writing these notes (April 8th), it looks as though the weather is going to settle for another spate of good conditions. On 70 cms too, the conditions have been amazing. As will be seen from the reports sent in by Gw2ADZ, he worked G2XV and G6YP, both over 150 miles, with an RF output of only 500 *milliwatts* !

New World 70 cms Phone Record

By working ON4UV on 70 cms, phone each way, Gw2ADZ sets up a new World Record for this band. We extend our heartiest congratulations to both stations for this fine effort which brings yet another laurel to Europe in the VHF field.

Our QRG List

Another short list of frequencies will be found farther on in these pages, and we are indebted to G3HBW, G3GBO, and several others, for the help they are giving in assisting us to compile these lists. Gw2ADZ has also provided a list of some of the 70 cms QRG's, and we are including these in this month's issue. May we once again ask all those readers who have not sent us a note of their operating frequency, to make an effort and drop a postcard. Just state call-sign, QTH, and frequency. It will assist you in obtaining QSO's, and be of great help to the beginner and the listener in obtaining a quick method of calibrating the converter.

Why No VHF Contest This Year ?

We have been asked by many stations why we are not running a VHF Contest this year. The main reason is that we are concentrating all our energies on our Listener Scheme and there is a limit to the spare time we have at our disposal. Secondly, we are of the opinion that the majority are not in favour of our Contest Rules regarding the height A.S.L.

As we firmly believe that a Contest on these lines is the only worthwhile method, and that a " points per mile " system is sheer waste of time, and produces no useful result, we decided to abandon the idea. There is another point about contests. They produce one week-end of great activity, and a dead band for the following 3 or 4 weeks. So there is an explanation, but it does not mean that we will refuse to run a contest if you particularly want one. We will do anything you ask, within reason. If you want a contest in the autumn, write and say so, and it shall be arranged. We'll go the whole hog, awards as well, but we do not feel like promoting one unless there is a general wish for it.

Transmitter Notes and News

Before starting on the reports for the month, we should like to make an appeal to all those who have worked G3CFK (Great Yarmouth). As stated in these columns in our March issue, G3CFK lost much of his gear in the January floods. In addition to this, he had the whole of his QSL card collection badly damaged and spoilt, and asks for a duplicate card from all the stations worked. *Please* drop another card along to G3CFK if you have worked him. It will be very much appreciated. (Make a note of it *now*, before you read any more. Tnx.).

Ireland

A newsy report from **Ei2W** heads our list this month. He tells us that owing to the large number of G and Continental stations joining the VHF Research Society of Ireland, it is expected that the title will shortly be changed to The International VHF Society and that Representatives in all countries with VHF Members will be appointed. Many well known G stations have already joined the Society, and any Member in Great Britain or the Channel Islands is qualified to compete for the Irish VHF Silver Trophy. The subscription rate is 10s. per year, and entitles you to a quarterly copy of the *Upper Spectrum* the Society's own journal, full of interesting technical articles, Station descriptions, and International VHF News.

(In the activity reports which follow, we are rather surprised to note that the Zone Plan seems to have broken down in Ireland, and many of the Stations seem to be operating on the LF end. It would be interesting to hear from Ei2W the reason for this).

Ei3S (Dublin) has been a regular signal on the band since early February and several G and Gw stations were logged during the March openings. A 5 over 5 Yagi is now in use. QRG—145.272 Mcs.

Ei6A (Wicklow) is on most nights after 2300.

Situated at sea level, 30 miles south of Dublin, Ei6A has worked G5YV among others. QRG is 144.309 Mcs.

Ei2B (Dublin) has been active most nights from his home QTH at Foxrock and has made several G, Gi, and Gw contacts. Using a 5 over 5 close spaced Yagi, he has been heard in Denmark and Norway. Active from 2300 onwards, QRG—144.180 Mcs.

Ei2W (Dublin) the second call of Ei2B, will be operating from the 1st of May from his Sandyford (Co. Dublin) QTH. A 7 over 7 Yagi is being constructed to replace the one with which he broke the European record last August. QRG's will be 144.180, 144.200, and 145.810 Mcs, the latter being mainly for local contacts.

Ei9N (Dublin) is active. Operates mostly about 1930 GMT on 144.136 Mcs.

Ei3L (Dublin) operates at approximately the same time and frequency as Ei9N.

Ei9C (Dublin) is operating on 2 metres and 70 cms. QRG's are 145.890 Mcs and 437.670 Mcs.

Ei4R (Listowel, Co. Kerry) hopes to be active early in May with a 3 element Yagi and a much modified BC625. QRG not stated.

Ei3W (Ballyshannon, Co. Donegal) is at present listening on the band, and his 12 element Stack will soon be connected to the Tx which is under construction. QRG will be 145-908 Mcs.

Ei8C (Drogheda) and **Ei6D (Naas, Co. Kildare)** both hope to be active in July or August. **Ei9U** has been operating for some time, and has had contacts with Ei4N (Ennis, Co. Clare) from his QTH in Limerick.

Gi3AXD (Belfast) has increased his aerial height. QRG—145.877 Mcs.

Gi3ILK (Lisburn) is reported active on 145.873 Mcs.

Gi6YW (Belfast), Gi2DZG (Belfast), Gi2BZV (Nr. Belfast) and Gi3ML (Bangor) all hope to be active by the summer.

Gi3HNM (Belfast) will be on by the time these notes appear, and would be pleased to receive reports of his signals. QRG—145.260 Mcs.

70 cms

Ei2W is now ready to carry out any tests on 70 cms. He will be glad to hear from any station willing to carry out a test from Snowdon, as he believes a first Ei/Gw contact can easily be made.

(There certainly seems to be no lack of activity in Ireland, and we thank Ei2W for the trouble he has taken in compiling all the interesting information).

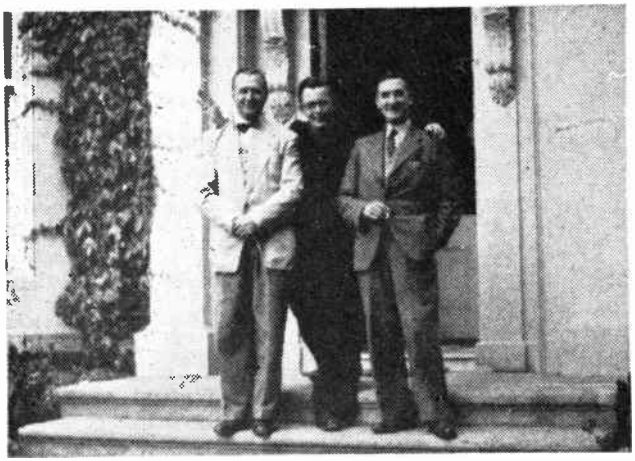
G3IIT (Trumpington, Cambridge) is welcomed as a new reporter to these columns. Bernard has been active on VHF since he was first licensed in June 1952, and has made some outstanding contacts with only 15 to 20 watts input. Over 70 stations had been worked up to March 1st, and by the time this appears, he may well have reached the century. The receiver at G3IIT is a crystal controlled converter working into a BC454 (3.6-5.6 Mcs), 6AK5 RF, 6AK5 Mixer, 6C4 CO, and I2AT7 Multi. Bernard finds the CC converter quite easy to get going, and recommends the newcomer to start straight off with one. (Circuit please OM, for publication). QRG of G3IIT is 144.804 Mcs.

G5LK (Reigate, Surrey) added 14 new counties and 2 new countries to his score during March. Some of the best of the new contacts made were PAØFP and FC, ON4HN, HC, KP, and UD, F9NX, F3CJ (on phone using only 5 watts, DL6EP and DL9LT. Leslie found great joy in working his first Gw station (Gw2ADZ) and a second contact was made a few days later. Old friends worked during the month included G2UN, 2MV, 2DTO, 3GBO, 3HZK, 3HBW, 3ZI, and G6UH. OZ2FR was heard at fair strength during the opening but nothing was heard of the SM stations. G5LK tells us that G6FS of Oxted, Surrey will shortly be appearing on the band. (Its a long time since "Old Fergy" operated on VHF. It was round about 1931 on 5 metres that we used to QSO over a distance of about 1 mile. If we remember rightly, his microphone consisted of a few carbon granules floating about in a cocoa tin. Hi).

G3MI (Chesham, Bucks) added 5 new counties to his score during the opening, and one new country. While the conditions were good, Bob tried desperately to get the 70 cms gear working but could not manage it. The drift on 70 cms has now been overcome, and the present arrangement is a 955 S.E.Osc. on 136 Mcs with 9002 tripler to 406 Mcs, with CVIO2 mixer and Lecher lines. A new transmitter is being constructed for 70 cms with the minimum of stages, 6J6, EF9I, QVO4/7, and 832A (Power tripler).

Gw2ADZ (Llanymynech, Mont.) reports on the amazing conditions during early March. Bill only just missed another record for 70 cms. He heard DL3FM, but when he called and changed over, the German station was blotted out by ignition interference and other QRM. Attempts to raise him later on failed. This distance almost certainly exceeds that of the FA8IH/F9BG record. Gw2ADZ sends us a useful list of 70 cms frequencies, and we will give them here so that there will be no confusion with our 2 metre list.

	Mcs
G2FKZ	436
G2XV	435
Gw2ADZ	432.9
G6YU	434.020
PE1PL	435



Our photo shows Harry Wilson, EI2W, (left) with DL3QA and Basil King, EI5Y. EI2W is founder of the VHF Research Society of Ireland and editor of the Society's journal "The Upper Spectrum". The second edition of this quarterly will appear this month.

G3BKQ	..	433.400 and 434
G3HAZ	..	433.570 and 435
G2FNW	.. ..	433.200
ON4UV	.. ..	434.700
DL3FM	.. ..	434.200
G3GZM	.. ..	433.08
G6NF	.. ..	435.500
G6CW	.. ..	433.720
PAØWAR	.. ..	434.560

(Thanks Bill, and we hope they may be useful to 70 cms operators).

G3AJP (Fritton, Suffolk, Nr. **Great Yarmouth,** Norfolk) has been kicking himself because he has not yet erected the beam, but he says that he has enjoyed hearing many stations on his Windom aerial. On 70 cms, G4PV has made what is thought to be the first QSO out of Suffolk on this band by working PE1PL, and has heard PAØNL. Local listener Bill Hindes has his aerial up to 30 feet and is turning his thoughts to 70 cms. Some of the calls heard by G3AJP are included in our Calls Heard section.

G3ANB (Brightlingsea, Essex) turns in a complete copy of his log dating from March 1st to April 5th. Its just amazing, and we only wish we had the space to print the whole of it. Here is an extract covering the 22nd and 23rd of March: Heard G3HVO (Dorset), Worked G3CFK, Worked Gc3EBK, Worked G8LN, Heard G3AUS (Torquay), Heard ON4BZ, Worked G5YV, Heard ON4HN, Worked PAØWO, Worked G8LN, Worked ON4XB, Heard PAØWI, Worked OZ2FR, Worked DL1LB (Emden), Worked PAØWI, Heard OZ3EP, Worked G2AVR, Worked G3GBO. This is just two days operation. All but five were over 150 miles and five were over 200 miles. Bill points out that the copy of the log does not include many happy chinwags with local and semi locals such as G4DT (Nr. Maldon, Essex), G4AC (Chelmsford), and G2BCB (Colchester). G3ANB values these local QSO's as much, if not more, than any DX contacts. Bill is also greatly interested in working chaps who have difficulty in making contacts and will be glad to arrange schedules with anyone who cares to drop him a line at 36, Church Road, Brightlingsea, Essex. The best times are between 7 p.m. and 9.30 p.m. for a maximum of 15 mins. duration. (Several schedules are already being run with various stations, and these must be maintained, so please do not ask for protracted tests).

G3SM (North Harrow, Middx.) found March to be the best month for him so far. Many new stations were worked. Some of the best being G5ML, G8SY, G3HVO, F8JR and F8AA. Some of the stations heard and called without result appear in the Calls Heard section.

G3HZK (Hayes, Middx.) is still confined to the use of an indoor aerial but in spite of this he has now passed the 100 station mark. The best DX worked during March was F8LO (Nr. Paris). DL6EP was heard and called without result. The counties score now stands at 16, but John cannot raise anyone in Cambs. or Hants. so far. G3HZK is logging stations heard and says " I am still acting as a SWL to try and boost up enthusiasm."

G3GBO (Denham, Bucks.) is still in circulation waiting for his call up. Many DX stations were worked during the opening in early March. The all time score now stands at 364 stations worked in 31 counties and 7 countries. Don sends a very useful list of

(*Contd. on p.* 188)

TALKS ABOUT VHF

THE FIRST OF A NEW SERIES

by H. E. SMITH, G6UH.

For the newcomer to the VHF bands and the listener.

Introduction

In response to many requests we are presenting this series each month to replace the " VHF Newcomer Section " in our regular VHF notes. This section became so popular that we found it impossible to find suitable space, in view of the increase in the number of VHF contributors. We shall be more than pleased to hear from any reader if there is any particular topic he would like us to discuss. Listeners in particular are invited to send in their problems.

How " Effective " is your VHF aerial ?

Unlike any aerial used for reception on the Low Frequency Bands, the VHF aerial must be an efficient collector of extremely low angle signals. It is in fact, always best to try and visualise the VHF signals as travelling on a line parallel to the earth, as having no vertical angle at all. Normal VHF conditions produce this effect, and it is only rarely that signals arrive from angles greater than 10 degrees or so. With this fact in mind, we must now remember that the effectiveness of any aerial used for VHF reception is almost directly proportional to the *area* that it presents to the wave-front and not to the number of elements alone. Let us see an example of this " area " business and observe how a change of frequency affects the amount of signal received. We will try and make this as simple as possible and leave out all the worrysome db's. Two stations situated five miles apart are operating on 28 Mcs. Station " A " is transmitting, and station " B " is receiving, both using three-element Yagi Beams. With 10 watts of RF, station " A " puts 100 microvolts of signal into the aerial of " B ". Both stations now QSY to 144 Mcs. " A " still has 10 watts of RF, and both are using three-element Yagi Beams. If " B " wishes to obtain 100 microvolts of signal as before, he must increase his aerial " area " by *five times*. In actual fact, five three-element Yagis stacked one above the other, at half wavelength spacing, would just about provide the required figure. Before elaborating further on this, it might be as well to point out some of the less widely known facts regarding aerial " Gain." The " Forward gain over a dipole " figure of any aerial of the Yagi or stacked array is always computed from measurements made on it as a *transmitting aerial*, and it does not follow that if G6ABC is using a 10-element Yagi and putting signals all over the country, that this will be the best type of aerial for George the listener to use, over there in Woodford or down in Reigate. If our listener has a good location of course, the aerial would be a good one, but how many *are* situated in really good locations ? Why will the Yagi prove perhaps, to be a disappointing aerial ? In Fig. 1 we have tried to show the wave-front of a signal, and how the aerial looks to *it* as it approaches. The aerial collects a tiny portion of the signal, takes a little " bite " of it, and the parasitic elements of the beam do their stuff with the phasing and provide some gain, and thus the signal is heard.

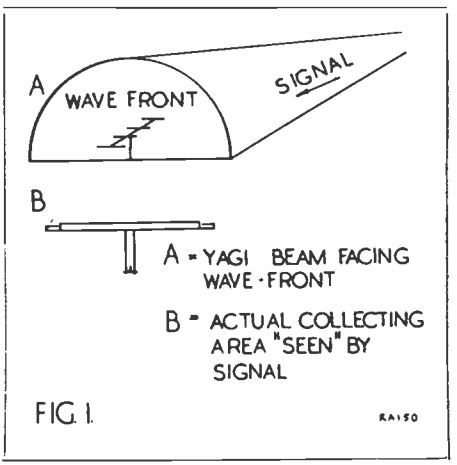


FIG. 1.

Supposing though there is a steel-framed building within a mile or so from the QTH ? Is the Yagi still effective in making the most of all signals coming from this direction ? The answer is yes, *provided* that the aerial is not in the shadow area cast by the building. On 144 Mcs and still more on 430 Mcs, the shadow effect of a building may well be as sharp as a shadow cast by the sun, and a move of a *few feet* across the wave-front can cause a rise of several S points. (From a transmitting viewpoint, this building will not be such a serious obstacle. The transmitted power is of such a relatively high order that some may well penetrate the building and continue at a lower intensity. It is the very weak Dx signals which are usually entirely absorbed by metal framed buildings.) Fig. 2 shows the same wave-front as in Fig. 1, with the shadow of a nearby building causing an area of no, or in any case

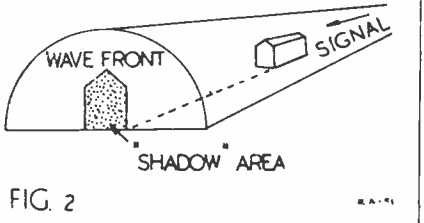


FIG. 2

How a steel framed building or similar obstacle can cause a "shadow" or "no signal area" in the wave-front.

very low, signal. Stacking another Yagi on top of the first would do very little to improve things in this case, but by stacking we have doubled the area of our aerial, which puts us on the right road to better reception from other directions. The answer to the problem is to stack aerials both vertically and *horizontally*. This can be done with Yagi Beams on 430 Mcs, but becomes an almost impossible task on 144 Mcs, that is if one wishes to rotate the array. We suggest then, that the complete answer for the man in the difficult QTH is the stacked array. A six element array will provide six times the area of the Yagi. It will also be far more receptive to low angle signals. It will give a coverage of at least 50 degrees back and front without rotation, making it much easier to search for stations. For the transmitter, it will save many CQ calls, for it will put a signal over a much wider area than any Yagi-type Beam. The standing wave ratio can be kept to a very low level, because of the simplicity of matching, and the overall efficiency is very high.

In the next edition, we hope to discuss Stacked Arrays from several angles and see how they provide discrimination against noise, improve the signal to noise ratio, and assist in " holding " a fading signal.

(To be continued.)

On the Higher Frequencies. *Contd from p.*186

frequencies from which we shall extract those already published and reproduce in our next issue.

Several of our regular reporters have failed to show up this month, due probably to Easter clashing with the date line for reports. Suggestions have been made that we run a Monthly Counties Table. We are quite agreeable to run anything of this nature provided we get the necessary *support*. There seems little point in running tables of any kind unless we are assured of *regular contributors*. However, if all reporters for next month's issue will set out their Counties Worked for the month of April we will start a Table and see how it goes.

NEWS FROM AUSTRALIA

Some of the disposals gear advertised in English magazines makes the VKs green with envy. Here Command TXs, so popular for VFOs, cost around £7 10s. 0d. while an R1155 RX anything from £30 to £60 depending on condition.

English commercial communication receivers are pricy because of a 100% protective tariff and also because the Australian £ is only equivalent to 16/- stg.

Conditions generally have been patchy. 3.5 Mcs is full of QRN and 7 Mcs is well populated with intruders in the form of overseas SW stations. Some Ws in the evenings and Europeans in the early mornings can be heard and worked but not as numerous as they were a few months back.

14 Mcs is still favourite with opportunities for QSOs with Central and South Americans during late afternoons and evenings. Local Ionospheric Predictions show 1200-1600 GMT as most favourable for G/VK contacts in this band at the moment. 21 Mcs, after early disappointments is showing promise of opening up for Europe. 28 Mcs has been fairly dead for some time. 50 Mcs opens up for short periods to allow interstate and ZL contacts but rather spasmodically. 144 Mcs shows considerable activity due mainly to the general falling off in conditions on the lower frequencies, and also to the efforts on the VHF group of the W.I.A. to popularise it. One good feature is that this band has passed out of the stage of being a happy hunting ground for the Mod. Osc. types and the Super-Regen hounds. 200 miles is regularly being worked on CW and Phone.

The recent disastrous floods in G land have doubtless inspired an amateur emergency network idea along the lines of the scheme in operation here for bushfire and flood dangers.

North coast VK2s in flood danger areas operate in conjunction with police radio stations on special frequencies close to the 3.5 and 7 Mcs bands. The Army and Air Force authorities also operate on these frequencies for directing "ducks" and aircraft to the scene.

The delayed arrival of TV in this country has given the VKs time to learn of the experiences of fellow Ws and Gs on TVI problems.

At the moment a Royal Commission is taking evidence before making recommendations to the Government prior to the institution of TV. It appears that a service of probably 625 lines will be operating within a couple of years.

The sixteenth BERU Contest is almost with us here but it seems we'll have to burn plenty of midnight oil to put up a score under present conditions on the bands here.

73s from Don Gilder VK3AHG.

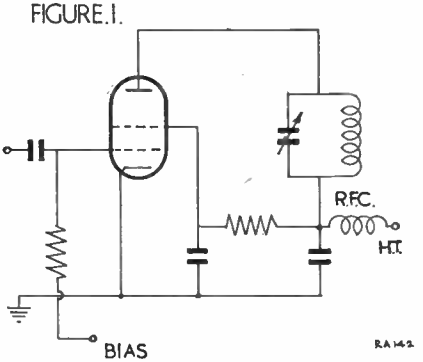
STRICTLY FOR THE BEGINNER

by O. J. RUSSELL, B.Sc., A.Inst.P., G3BHJ

Part 6—BUFFERS and DOUBLERS

Buffer and doubler stages serve a number of purposes in more elaborate transmitters. The buffer stage may serve mainly as a buffer, that is to isolate the oscillator stage from loading effects of the PA or following stages, or indeed may be a means of amplifying the low level output of the oscillator to a power level adequate to drive the PA. In this last case the buffer can well be termed a " subamplifier." The doubler stage serves to multiply the oscillator or drive frequency so that a higher frequency band may be covered. Indeed with the arrival of the 21 Mcs band, the frequency multiplier stage may be required to triple, a function hitherto only required upon certain UHF amateur bands. Furthermore, of course, depending on the desired frequency of operation, a stage may operate either as a " straight through " buffer amplifier, or as a doubler or tripler, so that there is no hard division of transmitter stages into purely " buffer " amplifiers and into doubler stages.

FIGURE.1.



Basically the same circuit may serve for an output amplifier, a buffer amplifier or a frequency multiplier stage.

For this reason, the circuit (Fig. 1) of a typical intermediate stage may serve either for a buffer amplifier, or as a multiplier stage. Going further, a " band switched " stage as in Fig. 2, may be a straight through amplifier

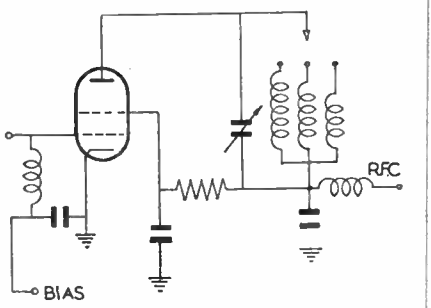


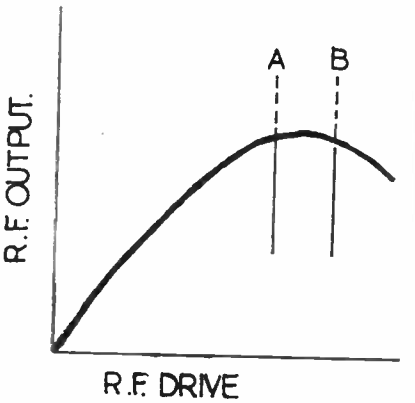
FIGURE 2.

Simple bandswitching enables the "buffer" to function as an amplifier or multiplier stage according to the frequency required.

on the lowest frequencies and a double on the other frequencies. This immediately poses the question of the " correct " operation of the stage for efficient operation as both a buffer amplifier and as a frequency multiplier. In this respect the modern amateur is in a very fortunate position as compared with the past. Modern pentode and tetrode valves have such a high sensitivity, that a high power PA requires only a few watts of RF drive, and the intermediate drive stages can operate at a low power level. Even in the case of triode final stages, a single 807 driver will provide ample driving power for the full 150 watts permitted for the PA input. It can hardly be stressed enough that operation of the buffer and particularly the doubler stages at low inputs is a potent factor in ameliorating TVI. Hard driving whether of buffer or final stages is certain to be the cause of prolific harmonic radiation creating TVI unless elaborate measures are taken.

The question of drive requirements finally rests with the PA valves selected, and nowadays only a watt or so is required to drive a 150 watt input PA stage using tetrodes or pentodes. In the past of course each stage of the drive chain was progressively of higher power in

FIGURE 3.



"Overdrive" with a tetrode or pentode stage is a very real possibility. Overdrive decreases output, increases unwanted harmonic output, and may overload the screen.

A—Full drive

B—Overdrive

order to build the final drive output to the high value needed by the old type PA stages. This obsession with " high drive " is still found to a certain extent, and is an obsession that should rapidly disappear. It does not still seem to be fully appreciated that the multigrid sensitive HF valves can readily be OVER-driven with a consequent LOSS of output caused by the screen drawing excessive power. Anyone who doubts this can rig up an 807 PA with a grid current meter, and observe the RF output obtained (with the correct bias value) at progressively greater grid current values. At less than 1 mA almost full output will be obtained, and increasing drive to the full rated 3 mA grid current for CW operation will produce a slight increase in RF output. Applying the 5 mA grid current drive which is the rated maximum for anode modulation produces a slight fall in output, and above this value of grid current RF output actually drops (Fig. 3.) to an appreciable extent. However, TVI causing harmonics have increased greatly with the increase in drive, although output of fundamental has dropped. This feature of tetrode and pentode stages . . . the possibility of overdrive coupled with good output with a " smell of RF at the grid " can be illustrated by a true story. A fellow amateur having rebuilt his original haywire rig into a new compact band switched transmitter found that while the PA stage (two 807s in push-pull) could be run up in fine style on 1.7, 3.5 and 7 Mcs, output was disappointing on higher bands. The rig was nearly torn down to replace the 6L6 driver by an 807 driver, when it was found that due to faulty switch wiring that ALL the drive that had been obtained was actually coupled on all bands across a few pfs of between wires of stray capacity and not through a coupling condenser. Despite this, drive and output on the lower bands were quite adequate. The opposite side of the picture was given by a 150-watt Tx in which it was found that the violent TVI experienced with the PA switched off, was created in the drive stages where two 6L6s had an actual grid bias somewhat higher than their ANODE voltages ! It is clear from these cautionary tales, that sound operating practice lies somewhat between these two extremes.

Despite the truth of the statement that doubler and multiplier efficiency is higher with high bias values coupled with high drive, in practice the higher efficiency is obtained at the expense of greatly exaggerated output of the higher still harmonics responsible for TVI. Sacrificing the somewhat higher efficiency, enables a low level doubler stage to become very much less of a TVI hazard. As less than a watt of RF is adequate to drive say an 807 to full 75 watt input level, there seems no point in striving for the last ounce of efficiency at the price of TVI when levels of the order of a few watts of drive are involved. However further aspects of these problems can be left till later.

CORONATION QSL CARDS

G6MN is too well known as a printer of quality QSL cards to need any introducing to our readers. He specialises in cards for special occasions and the attractive card he designed for the Festival of Britain will be well remembered.

He has now produced a selection of cards for Coronation Year, a specimen of one being shown above. In red and blue on a white background, it is a very attractive card. Prices are very reasonable from 12/6 per 100 for a two-colour card. More elaborate designs are available if required.

We always feel that a "special" card commemorating historic occasions goes down well, and we recommend these cards for use during this Coronation Year.

NEWS FROM FAR AND WIDE

Compiled by ROY PATRICK.

Nigeria. A new Broadcasting house in Lagos at a cost of £75,000 is under construction. Before the end of 1953 a new national transmitter should be operating. It will operate on SW with the power of 20 kW, which should ensure good reception for the whole of Nigeria. The Northern Region transmitter is situated at Kaduna and at present only using 300 watts will later be increased to 7 kW. The Eastern Region transmitter at Enugu also consists of a 300 watt pilot transmitter, will increase to 2 kW.

There are to be four large mobile recording units based respectively at Lagos, Ibadon, Kaduna and Enugu. The main purpose of these units is to collect programme material from the remote parts of the country. It is hoped the service will do much to improve educational and cultural standards in Nigeria.

Liberia. According to a recent letter from Station ELBC, they hope to have a new 15 kW short wave transmitter on the air very shortly and they have made a request to the International Communication Committee for a frequency on each of the SW bands. The present SW outlet operates on 49.83 m, 6022 kcs with the power of 1 kW. Unfortunately this transmitter is seldom heard in the British Isles owing to other stations operating on and near its wavelength. ElBC is a commercially operated station, selling radio time to advertisers in all parts of the world. If you are interested to learn more about Liberia, an interesting quarterly journal, *Liberia To-day* can be obtained free on application to Arthur H. Thrower, Public Relation Officer, Liberian Government, 20 Hereford Road, Ealing, London, W.5. Return postage or I.R.C. should be enclosed.

Denmark. The sale of television sets in Denmark has been very small (approx. 400) due chiefly to the high prices, around £195 and serious consideration is being given as to whether the project will be continued.

(*Concluded at foot of next page.*)

BIAS SUPPLY for the 807

C. B. RAITHBY, G8GI

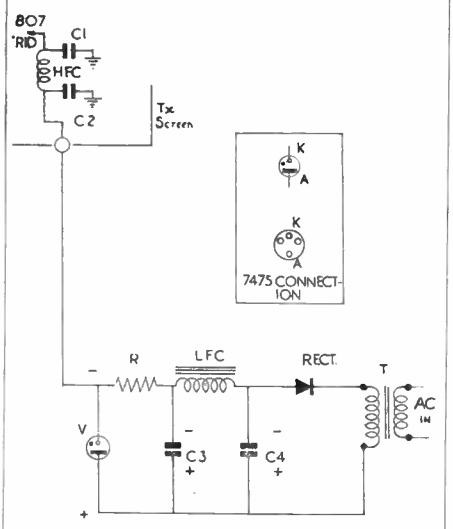


FIG. 1. THEORETICAL CIRCUIT OF THE BIAS SUPPLY

R, see text.

LCF 1OH or more, 10 mA or more.

Rectifier, 10 mA, 150 v. or more depending on TT, transformer secondary 150 v. or more C_3 C_4 8 × pf cardboard or insulated can electrolytic.

V, 7475.

C_1, C_2, HFC, form a TVI filter for the PA grid circuit.

The advent of TVI has seen the disappearance of many of the old " brute force " PAs using triodes. Many of these PAs have been replaced by the 807 in a pi-tank circuit.

Many of these circuits use a clamper valve in some form or another to control the valve current " no drive " conditions, the bias being entirely automatic. Numerous difficulties can appear with the clamper valve system, especially when the 807 PA is being operated at very high voltage, 750 or more. With high tension batteries costing nearly £1 a time, a mains operated bias supply is very desirable.

The circuit of a bias supply suitable for operating an 807 at up to 800 volts is shown in Fig. 1. This uses a Mullard 7475 (VS70) stabiliser and satisfactorily fulfils all the requirements. The bias voltage is approximately 90, it is independent of grid current and fully smoothed. The supply will handle the maximum amount of grid current likely to be encountered in a single 807 viz. 5 mA. Almost any mains transformer giving 150 volts AC upwards may be used. All or half the secondary may be utilised. The actual transformer used had a 250-0-250 secondary winding, only half being used. RI should be adjusted (used several resistors in series if necessary) so that, without grid current flowing, the current through the stabiliser valve is 3 mA.

Details of the VS70 (7475) are as follows and the base connections are shown in Fig. 2

Burning voltage 90-110 v.

Minimum burning current 1 mA.

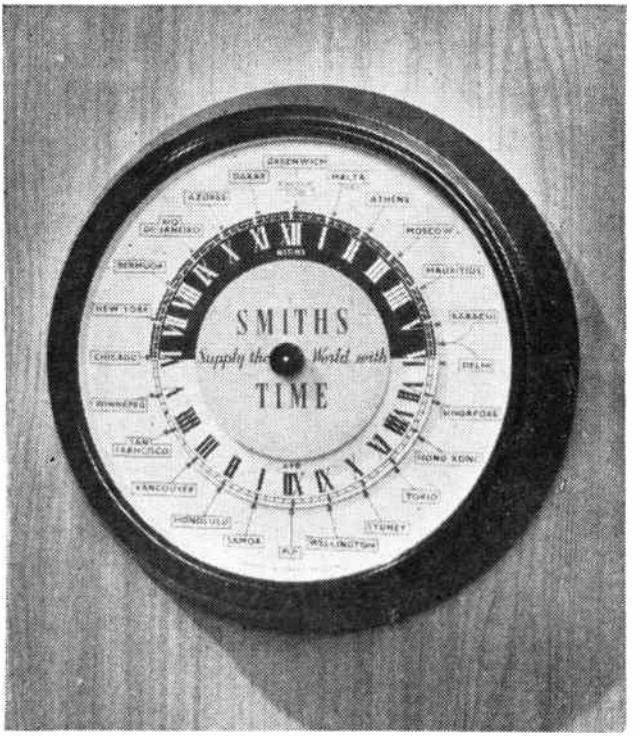
Maximum „ „ 8 „

It is available both new and on the surplus market.

Greece. According to the *Good News Broadcaster*, the official organ of the " Back to the Bible " broadcast, the Greek Government have granted the Far Eastern Broadcasting Company the opportunity to set up a transmitter somewhere in Greece with the aim to reach Iron Curtain countries with Christian messages from two directions.

U.S.A. All stamp collectors are welcome to membership in the Voice of America stamp club. The wide scope of stamp collecting makes the radio club meeting interesting both to listeners who are veteran collectors as well as to those who are interested in the historical events commemorated by the stamp issue. Stamp club meetings includes interviews with prominent persons in the stamp world.

Luxembourg. Radio Luxembourg is giving away £1,000 a month throughout the summer in a series of Quiz programmes. For full details of how to enter this competition, listen on Sundays at 2000 and you may be one of the lucky ones. A new 50 kW SW transmitter should be on the air very shortly. The present frequency is 6090 kcs with the power of 6 kW relaying Luxembourg 1439 kcs from 1800 until 2300 GMT.



THE NEW WORLD CLOCK

showing the time all over the world

Radio amateurs, throughout the country will be especially interested in a new clock which has just come onto the market.

Made by Smiths English Clocks Ltd., it shows the time in 23 principal towns all over the world. Encased in a brown moulded plastic case, the clock is no larger than the conventional office clock. There is an inner dial which revolves slowly and is divided into night and day segments with the 24 hours divided into quarters. The outer circle has the towns outlined in red with an arrow pointing to the time. This is an electric model, price £5 9s. 11d. and is obtainable from all leading electric shops, etc.

Our companion journal the RADIO CONSTRUCTOR presents this month the following articles :—

Suggested Circuits : An Accurate Null Indicator, by G. A. French.

In Your Workshop, by J. R. D.

Valves and Their Power Supplies, Part 7, by F. L. Bayliss, A.M.I.E.T.

Magnetic Recording Equalisation—With Some Amplifier Modifications, by L. F. Sinfield, A.M.I.P.R.E.

Book Review.

"Bass-Lift Four" for AC Mains, by A. Carpenter.

Trade Review.

Radio Control Equipment, Part 4, by Raymond F. Stock.

Radio Miscellany, by Centre Tap.

The "Universal" Large Screen AC/DC Televisor, described by A. S. Torrance, A.M.I.P.R.E., A.M.T.S.

Astigmatism in Electrostatic Cathode Ray Tubes, by C. R. Drayton.

Audio Pre-Amplifiers, Part 3, by D. Nappin.

A Simple AC/DC Amplifier, by James S. Kendall, Assoc. Brit. I.R.E., M.I.P.R.E.

Let's Get Started—(2) Quart from a Pint Pot, by A. Blackburn.

Query Corner—A Radio Constructor Service for Readers.

Radio Components Exhibition, 1953, visited by L. A. Chinnery, G3IIZ.

CRYSTAL GRINDING

By HARRY TEE, G8UA

GRINDING WAR SURPLUS CRYSTALS TO AMATEUR FREQUENCIES

In spite of the obvious advantages of a good VFO the writer has always been partial to crystal control in his transmitters, and certainly for ease of operation, coupled with simplicity of circuit design, crystals are by no means a back number, but as regards financial outlay, a collection of crystals already ground to amateur frequencies represents a considerable item. However, it was noticed from advertisements that war surplus crystals ground to frequencies outside the amateur bands could be purchased very cheaply, and this fired the writer with the idea of grinding these himself to suitable frequencies.

Two methods were tried, both giving excellent results, and with plenty of patience a good supply of crystals may be obtained at no great outlay.

The first method used was to grind the crystal on a piece of plate glass, actually a broken and discarded " oval " scrounged from a local shop, of the type used in window displays for showing merchandise.

Smear a section of the glass with a mixture of water and No. 600 carborundum powder, just enough water to give a nice paste. Mark one side of the crystal lightly with a soft pencil, place the *other* side of the crystal down on the paste, the unmarked side is the one which is always ground, then you know that one side is perfectly true. On top of the crystal place an ordinary rubber eraser of a size that will nicely cover the crystal area, and bearing lightly down grind with a figure eight motion—if the eraser is slightly damp the crystal will adhere to it. First of all give about twenty figure eights, then remove the crystal, wash in tepid water, and dry with a clean soft cloth. Place the crystal in the holder and test in an oscillator, noting on the receiver the amount of frequency shift that has been obtained. Crystals vary widely, some grind very easily, whilst others appear to be much harder and the frequency shift will be much less. Carry on in this manner, giving about twenty figure eights, and testing for shift until the desired frequency is approached, then proceed very carefully—sad is the ham who grinds his rock past the band !

If you find that the crystal stops oscillating don't panic ! Oscillations can usually be restarted by lightly grinding the edge of the crystal.

Two tips when grinding, firstly change the path of the figure eight from time to time as the glass will also grind away, secondly after every four or five figure eights turn the crystal round so that you grind to a different corner of the crystal. Always handle the crystal when clean by the edges.

The second method used, also successfully, was to grind on a silicon carbide sharpening stone, instead of plate glass. These may be obtained for about 4s. from any good ironmonger, they measure 6 in. by 2 in. by 1 in., the grade to obtain is No. 121 " Fine." Proceed exactly as with the glass, that is mix a paste of No. 600 carborundum powder with water, and grind with a figure eight motion.

With both methods it will be found that after a time a grey sludge is obtained formed by a mixture of water, carborundum powder, and minute particles of quartz from the crystal, this should not be washed off as the particles of quartz in the sludge assist in the abrasive action.

When the desired frequency has been reached, wash the crystal carefully in tepid water, or better still in carbon tetrachloride, place in the holder and away you go !

When purchasing surplus crystals try to obtain frequencies as near to the amateur bands as possible, but after practice it will be found quite easy to obtain a frequency shift of up to about 500 kcs. However take it easy at first, and do not attempt too large a frequency shift, until practice has been obtained.

The best crystals for grinding are the British type in three-quarter inch pin-spaced holders, these are usually round with bevelled edges, or square—the round ones are the simplest to grind in the writer's experience. Avoid, if possible, the American crystals in FT243 holders, until more skill has been obtained, and *never* attempt to grind crystals coated with a metallic compound, usually gold in colour.

All this may sound on paper to be a laborious process, but in practice it will be found extremely interesting, and what a glow of pride you will have when you receive a T9x report when using one of your home-ground rocks !

CLUB NEWS

Club Secretaries are invited to submit notes for this feature by 11th May, for inclusion in next month's issue.

Stockport Radio Society. Hon. Sec.: G. R. Phillips, G3FYE, 7, Germans Bldgs., Buxton Road, Stockport.

Meetings continue to be well attended and new members are being enrolled.

Future lectures :—

May 12th. " Power Supplies " by G3EJZ.

May 26th. " Operating Techniques " by G3AOO.

June 9th. " Field Day Working " by G3LX.

There will be two stations working in the Stockport District on NFD—G3AOO/P and G3LX/P.

Meetings held fortnightly at 8 p.m. in the Blossoms Hotel, Buxton Road, Stockport.

South West Essex Radio Club. Hon. Sec. : B. W. Le Grys, G3GOT, 75, Shaftesbury Road, Romford, Essex.

The Club continues to meet on Tuesdays at 8 p.m. at 367, Rush Green Road, Romford, Essex for informal talks and discussions. A cordial welcome is extended to all new members.

Cambridge and District Amateur Radio Club. Hon. Sec.: T. A. T. Davies, " Meadow Side," Comberton, Cambridge. The next meeting of the above Club will be held at the Jolly Waterman, Cambridge at 8 p.m. on the 8th May. The subject for the evening will be a Junk Sale which, if the last one is any indication, will be a very interesting evening.

York Amateur Radio Society. G3HWW. Hon. Sec. : G. F. Nottingham, G3DTA, 51, Carr Lane, Acomb, York.

The club rooms are in Fetter Lane, York (facing rear of Queens Hotel), and are open Tuesday and Thursday nights 7.30 p.m.—10 p.m. The club station is on the air each night on 160 and 80 CW, but will soon be on " fone." Lectures and demonstrations are a monthly feature and are very popular with the members. The last one on Tape Recorders by G3GCX was a great success.

The RSGB members are busy with NFD gear and two stations will be put on the air for that event ; G3DSA/P on 1.7 Mcs and 7 Mcs and G6XM/P on 3.5 and 14 Mcs.

With 17 licensed members there is no lack of local activity on the air although home constructed television sets seem to keep several members QRT between 8 p.m. and 11 p.m. This is not owing to TVI—they are viewing ! Model control seems to be the latest interest and G3GDE and G3GJY are both experimenting on these lines.

Slade Radio Society. Hon. Sec. : C. N. Smart, 110, Woolmore Road, Erdington, Birmingham 23.

A visit to a local firm manufacturing transformers was held at the beginning of April. This was well attended and proved to be very interesting. A similar visit to the Dunlop Rubber Company's Research Dept. is planned for May 29th. Full details of this and other events may be obtained from the Hon. Sec. On May 15th there will be a lecture on receiver selectivity which will be given by Mr. G. Nicholson, G3HKC (member). Following this, on May 17th is the first of the society's direction finding events. Lectures are held at the Society Headquarters, Church House, Erdington, Birmingham, commencing at 7.45 p.m. and proceeded by the morse instruction class, which commences at 7 p.m. Visitors are always welcome.

Portsmouth and District Radio Society. Hon. Sec. : L. Rooms, G8BU, 51, Locksway Road, Milton, Portsmouth.

Meetings continue to be held every Tuesday at the Royal Marine Signal Club, R.M. Barracks, Eastney, Portsmouth , at 7.30 p.m. New Members and visitors are very welcome. During the next month, the club is giving a lot of time to NFD discussions and on 12th May films will be shown on many interesting subjects by G2MN and G3GHQ.

The club has also taken a stand at the City of Portsmouth Coronation Ideal Home Exhibition in the Connaught Drill Hall from 9th May to 23rd May, a complete station will be working during the afternoons and evenings on 20, 40, 80 and 160 metres with the call of the Club, G3DIT/A. Special QSL cards will be sent out.

Television Society. Hon. Lecture Sec. : Mr. G. T. Clack, 43, Mandeville House, Notre Dame Estate, S.W.4.

Lectures for May : 7th, A Delayed Trigger Oscillograph by R. Anderson and J. R. Smith of the Plessey Company. 29th, A Directly-driven Line Scan Circuit by Emlyn Jones and K. Martin of Mullard Laboratories. Meetings are held at the Cinematograph Exhibitors' Association, 164, Shaftesbury Avenue, W.C.2 and commence at 7 p.m. Non members may obtain tickets from the Hon. Lecture Sec.

Barnsley and District Amateur Radio Club. Hon. Sec.: P. Carbutt, G2AFV, 33, Woodstock Road, Barnsley, Yorks.

On Friday, 10th April, a very interesting and useful lecture entitled : " A General Survey of Television Receiver Interference " was given by D. Westwood, B.Sc.

Tops CW Club. Hon. Sec.: J. P. Evans, GW8WJ, 2 Ffordd Ty Newydd, Meliden, Flintshire.

Unfortunately, these notes have to be in before our Midlands Topsfest so the report of that Meeting will have to appear in the next issue of *Radio Amateur*. We hope that a photograph will be available for publication.

With the possibility of Members winning our Hester Trophy on three occasions it has been decided to award a

"Miniature" to any Member who wins this Contest three times, but not necessarily consecutive.

Our Member Bob Eldridge G3AGQ will probably be in VE7 by the time these Notes appear and he hopes to obtain a VE7 call in due course. Another Member has also "gone abroad" . . . G3GUH, Maurice Fitzgerald, our Old Salts Section "Skipper." Maurice has gone to Malta for a tour of duty and hopes to be active with a ZB1 call on 160 and 80 metres. He also hopes to bump into our other Tops Member on the Island . . . ZB1KA . . . ex-G5KA who used to be the Call-Book rep in pre-WW2 days.

Member John Velamo OH2YV reports that the SRAL are hoping to introduce a new OH district . . . OH9 . . . covering those who live inside the Arctic Circle. It appears that SRAL also hope to introduce a Certificate but no details available as yet. OH2 MA features amongst this month's long list of nominees for Membership.

September 12th has been suggested as the date of our North-Western Topsfest at Chester but the final decision and details will appear in a later issue of *Radio Amateur*.

A movement is afoot to allow Associate Membership of Tops to be granted to SWL's. If this should materialise . . . the full details will be published in the June issue of Club Notes. To ensure that Associates are really keen on CW it is suggested that their applications be accompanied by 6 QSL's from Tops Members acknowledging reports on CW QSO's (NOT straight CQ's). The main reason is to foster a liking for CW amongst future Hams, since quite a number of newcomers merely learn CW as a means to an end and then forget it . . . going 100 per cent. phone at first opportunity. Our membership has nil against Phone, in fact a large number operate 50-50 Phone/CW, but we do feel that a reasonable standard of CW should be maintained by all Hams in this country.

Six Members have now qualified for WABC . . . G2NJ, G3ESY, GM3JDR, G5LH, G6ZN and G8KP. Latest recruits to membership are: GM3GUS, G3GZJ, G3HCX, G3IMV and G4XC.

G2FT, G2HKU and G3CFK have sent letters of appreciation for our assistance after their trouble with the floods.

In conclusion this month . . . we should be pleased to hear from any Club or Society who may wish to combine a local meeting and Topsfest in their area.

Hastings and District Amateur Radio Club. Hon. Sec.: W. E. Thompson, 8 Coventry Road, St. Leonards-on-Sea, Sussex.

Interest shows no sign of flagging; indeed, attendance at all meetings has been more than encouraging. New members continue to join, Club strength now standing at 31. The last meeting was attended by 26 members.

John Heys, G3BDQ, gave an interesting talk on Oscillators. Dealing mainly with TPTG and Xtal drive, he gave a tangible demonstration of how a chirpy note is produced; better still, he showed how simple it is NOT to splash all over the band with those horrid birdies.

The recent surprise sprung on a meeting when they were asked to break into two teams, and then design and construct within an hour a simple Rx to tune to the 80 m. band, showed that they were not to be caught napping. From the handful of bits available, two sets evolved, one of which produced genuine signals, the other a signal of its own which the makers failed to tame! However, a good time was had by all, and not a little was learned in the process.

One meeting was devoted to a showing and discussion of receivers made by some members, using the recently available CR.100 tuning units. Oddly enough, the finest piece of workmanship, by general agreement, was the receiver made by a member who had never made a radio set before!

The Club will be exhibiting at the Hobbies Exhibition, July 4th to 11th inclusive, to be held in the Indoor Bowls Pavilion, Falais Road, Hastings, during Carnival Week. The organisation is in the hands of a Sub-Committee set up for the purpose, and they are already in close liaison with the Exhibition Committee. Plans are fairly well advanced, and we look forward to a good show. We hope to work a Tx there, QRM permitting!

Next meeting will be a visit to the new automatic telephone exchange at Baldslow, by kind permission of the Area Engineer, Tunbridge Wells. Meetings for May will be on the 5th and 19th, at the Saxon Cafe, 7.30 p.m.

Acton, Brentford and Chiswick Radio Club.

The Club had a record attendance at a meeting and exhibition held for the benefit of the local press, when many photographs were taken. Photos are also being taken by the press of the stations of several members. Club TX is on Top Band on Tuesday evenings each week when the club meets at the A.E.U. Rooms, 66 High Road, Chiswick. Field Day arrangements are well advanced by the R.S.G.B. Group.

Yeovil Amateur Radio Club (G3CMH). Hon. Sec.: D. L. McLean, 9 Cedar Grove, Yeovil, Somerset.

Meetings are held every Wednesday in the Clubroom, British Legion, Preston Road, Yeovil, at 7.30 p.m. Visitors are always welcome. The club station G3CMH closed down last September for a complete rebuild and overhaul. Meetings since then have been spent mostly on constructional work. Two transmitters have been completed and are now on the air for tests. Both are VFO controlled on cw and phone. The first is complete in a TU5B case, including modulator and power supplies. A TT-11 is used in the Pa, and it runs 10 watts on 1.7 Mcs and 5 watts on 3.5 Mcs, anode choke modulation is used. On Top Band several QSO's have been made with good reports. The second transmitter is for the 3.5-28 Mcs bands with a 813 Pa 150 watts input, using screen modulation for phone working. It has only been in use for a week on 3.5 and 14 Mcs bands only at present. No DX has yet been worked, S9 plus reports have been received from HB on 3.5, and similar reports from North Africa on 14. The next tests will be on the 21 Mcs band. A wooden console has been made for the operating table. This contains the first transmitter, receiver, speaker. frequency meter, and VFO for the 150 watts transmitter,

Home on leave from Egypt is M. G. H. Hitchcock formerly ZE3JQ/SU3JQ, a club member whom we were glad to see again. We were very pleased to see the description in the "Around the Shacks" of G3BEC. One fact was not given, this is that G3BEG is a very active supporter of this Club and is one of its founder members.

QRP Research Society. Hon. Sec. and Editor "QRP": J. Whitehead, 92 Rydens Avenue, Walton-on-Thames, Surrey.

A new contest is announced this month for SWL's and transmitting members, this being a monthly "Set Band" contest with points being scored for countries heard or worked. The band for the month of May is 7 Mcs.

Details of the above appear in "QRP," the Society's monthly duplicated journal. Other contests are to be announced later.

Any clubs with a QRP section attached are invited to submit notes to Hon. Sec. for inclusion in "QRP"—or why not start a QRP section in your own local club?

Chester and District Amateur Radio Society. Hon. Sec.: E. Yates, G3ITY, 38 Durham Road, Blacon, Chester.

The Annual Dinner of the Society was held at the Bars Hotel, Chester on the 17th April when members of North Western Radio Societies attended, a good time being had by all. Plans for NFD are well ahead with "A" and "B" station operators hard at CW practice. Seldom heard is G3GIZ, the Club Tx—why? The Club Transmitter has only been heard on the air twice and then only in contact with G3ITY during the past six months. G3ITY has a very active pirate on 160 metres on fone. During the past 18 months, 23 fone QSL's have been returned to senders and clubs who have been in contact with him. Will Southern Societies please note.

Club Programme for May, 1953:—May 5th—Oscilloscope demonstration. 12th—Light Beam transmission, by F. Withall.' 19th—Radio Exam papers 1953. 26th—Final discussion for NFD.

New members continue to join but we have room for more. NFD plans are well advanced and equipment is under construction, but the Society would appreciate the loan of any car batteries from local residents on June 13th-14th. Details to Hon. Sec. please. Collection can be arranged. Future lectures will deal with TVI by a GPO official; VHF by Chippy Carpenter and a description by

(*Contd. on p.*198)

VHF LISTENER REPORTS . . .

compiled by H. E. SMITH, G6UH

Listener reports nearly beat the Transmitters this month. This is very encouraging and we heartily thank all those who took the trouble to make up the many neat Logs received. It has been quite a job to sort out the two best reports for the Awards, and we hope those who have not quite " made it " this time will continue to send along their logs.

Reg. Russell (Southampton) sends a very detailed report on the March conditions. He gives a day to day observation on the changing conditions thus: " Apart from the fact that the band was open in all directions at once, the most noticeable effect was to the North, where from evening to evening I noticed a definite' "skip" distance. March 1st gave stations between 150 and 200 miles (10 over 150 to 1. at 120). On the 2nd I listened for the Continentals and did not look North. The 3rd was a mixture between 120 and 160 miles, but no Yorks. or Lancs. stations were heard. The 4th was Warwick and Leics. night, with G6CW as the only exception. On the 5th, the "skip" changed at 2230, with G5ML breaking up from S8 as were the other stations in that area. By 2300 G2FO at S6 was the only Northern station audible. Finally on the 6th the path to the North was closed, and the band was open only to the North-east and South-east." Reg goes on to say " Of course this is not ' skip ' as known on the LF bands. It is quite common in the United States where anti-cyclonic conditions are more persistent and extensive than in this country. It is that the change of dielectric constant (or refractive index) is so great at the roof of the duct that the nearer signals are bent more than the curvature of the earth and so never reach the receiver. On distant signals, only the very low angle portion of the signal is refracted to you. When you observe a ' skip,' change over to a stacked array for DX ! " We should like to include much more of this extremely interesting report but space will not allow. Reg Russell submits an interesting list of calls heard which appear in the appropriate section. (This reporter is awarded a Grounded Grid triode with Holder and screen, for his painstaking work).

Len Whitmill (Harrow Weald) submits his usual regular report, and like others, found the opening early in March to be one of the best ever. The Calls Heard list submitted dates from 4th March to 5th April and does not contain many of the DX calls heard during the first 3 days of March. The total of stations heard now stands at 486, not far short of the 500 mark ! Len listens regularly on both 2 metres and 70 cms and is one of the most consistent operators in the London area. (Len Whitmill is awarded a Grounded Grid triode with Holder and screen, for consistency of operation and the neat layout of his report).

D. E. Purchese (Barnet, Herts.) was in on the DX on March 1st to 3rd but was prevented by business QRM from putting in much time after this, although he heard F8BY and DL3VJP on the 22nd. Derek has great difficulty in copying the Northern stations because of a hill between his shack and the North. A very fine Calls Heard list is turned in considering that only six days of operation are involved. Good work OM.

M. McBrayne (Westcliff-on-Sea) logged 28 calls from across the North Sea between March 1st and 23rd using his 6J6 converter with no RF stage. The good conditions seemed to favour Eastward and Northward reception and very few DX signals were heard from the West or South-west. Even when G3ANB (local) was working Gc3EBK, this latter station was not audible to Mac. He has heard a report that LX1AS will shorly be on the band but no details are given as to QRG. Mac also includes a few QRG's for our list and these will be sorted out for our next issue. 71 new stations have been heard since the last report, bringing the total score to 181. (Thanks for a nice clear and precise report OM).

A. W. Blandford (Mitcham, Surrey) is a new reporter for us, but he has entered our Contests in the past and won an award. A.W.B. was a VHF listener in the pre-war 5 metre days and his interest has not flagged. Regular listening is done, both on 2 metres and 70 cms, all phone. A.W.B. has never got down to CW, but in spite of this fact, his total of 2 metre stations heard is 494 in 39 counties, and on 70 cms the total is 40, in seven counties. The 2 metre beam is a 4 element C/S Yagi at 30 ft., and for 70 cms an 11 element Yagi at 28 ft. (Keep it up OM, and keep the reports rolling).

Jim Symes (Streetly, Staffs.) is now listening regularly. Situated some 520 feet above sea level, Jim is in a good QTH for VHF, as can be seen from the list of DX stations heard between March 12th and 26th. A six element stack at 25 feet, and a 68 ft. two band Windom at 30 ft. are used for reception. D1 and PA's were heard on the Windom at strengths only slightly below that of the beam. (Other listeners might like to note that the Windom aerial seems to give quite good results on VHF. This is also evidenced by the reports from G3AJP). Jim says the palm for consistency must go to Gw2ADZ. Regardless of conditions, he always seems to be there, always ready to QSY to 70 cms to test new equipment for someone or to give them a new contact.

Calls Heard Section

J. C. Symes (Streetly, Staffs.) 6AK5/EC91 Cascode, 6J6 Mxr X Osc.

Over 100 miles:—G2iaw, avr, fcl, fts, hdz, mv, uj, G3blp, fan, ghi, hbg, hcu, isa, my/a, G4fa, G5lk, G6ag, nf, ta, G8ou.

ON4bz, fc, hc, uv, xb. PAØfc, fp, ldg, nel, wa, PE1pl, F8nh. DL/fm, qa, vj/p, 6ep.

M. McBrayne (Westcliff-on-Sea.) 6J6 Mxr, 6J6 Osc. (4 El. Yagi in loft).

Over 100 miles:—G2dsw, fcl, fnw, fzu, hop, G3apy, aus, bkq, fan, gvl, iei, itt, ioo, my/p. G4ap, G5ml, rw, yv, G6cw, G8mw, il. DL3fm, qa, vj/p, 6ep. F8aa, db, gh, kf. ON4bz, hc, hn, pj, uv, xe, OZ2fr, PAØalo, dok, fb, fc, fm, fp, hak, ldg, mel, nl, op, wi, PE1pl.

A. W. Blandford (Mitcham, Surrey.) 6AK5/6J4 Cascode, 6J6 Mxr/Osc.

DX Calls heard:—G2aok/a, atk, bty, cyn, fcl, fjr, fnw, fts, fzu, hcg, G3ba, bkz, bkq, fan, gbw, do, gdl, iai, ioo, my/p, G4mw, G5ml, lj, mw, yu, G6cw, yu, G8dm, Gw2adz, ON4bz, hn, PAØfc, wi, hk, PE1pl.

R. W. Russell (Southampton.) G5JU Converter.

100-150 miles:—F8aa, nw, G2xv, G3anb, avo, bkq, do, haz, ww, G4mw, G5ju, ml, mr, G6cw, yu, G8sy, Gc3ebk.

150-200 miles:—G2cbr, hq/p, G3aga, apy, cch, ioo, my/p, G8mw, Gw2adz.

Over 200 miles:—G2fo, G5yv, F3jn, xy, F8by, gh, lo, nh, pl, OZ2fr, OZ2iz, ON4bz, hn, xb, DL3fm, qa, vj/p, 6ep.

L. A. Whitmill (Harrow Weald.) Mod RF27 ? G2ahp, bmz, bty, buj, ddd, dsp, mv, wj, xv, G3bi, bkq, bnc, cgq, div, do, fan, fou, fsd, gho, hcu, hsc, sm, ww, G4ap, ot, G5ds, ma, nf, ro, tp, G6cw, xh, yp, G8ao/mm, dm, il, ln, ON4hc, PAØfp, wo, DL6ep, F3jn, xy.

D. E. Purchese (Barnet, Herts.) Mod. RF27 (4 El. Yagi in shack).

G2bm, cn, kf, mq, mv, wa, wj, xv, yc, aih, aiw, ant, aok/a, brr, bty, dto, duv, hcg, G3bk, fd, my/p, sm, ww, anb, blp, cat, cgq, djx, dkz, dqy, eni, eoh, eyv, fan, fex, fou, fqs, fuh, fzl, gbo, gdr, ghi, gse, hak, hbw, hcu, hsc, hwj, hzk, iai, iei, iex, ioo, isa, G4au, hq, ht, mw, ot, G5bc, ds, lk, nf, rw, um, yv, G6ag, cw, fo, gg. gr, ll, lr, pg, sg, wu, yp, G8ck, dv/a, ou, sk, tb, vr, DL3fm, vj/p, F8by, OZ2fr, PAØbn, fb, fc, fp, hak, job, ON4bz, hc, hn, uv.

G3SM (North Harrow).

Heard:—G2apy, fcl, uq, G3doy, do, G4ap, G5rw, G8va, dm, F3jn, ON4bz, hn, uv, PAØwi, fp, wo, fb.

G3HZK (Hayes, Middx.)

Heard:—G2atk, bty, ddd, dsw, fnw, fzu, G3do, fan, gdr, gse, hbw, hwj, iai, iit, isa, mr, ww, G4au, gt, mw, sa, F8nw, ON4bz.

G3AJP (Fritton, Nr. Great Yarmouth.) (On 68 ft. Windom).

Heard:—G2avr, fjz, djv, gho, gdr, G5yv, ml, bd, tp, G6rh, G8mw, vr, ON4bz, uv, F8gh, nw, ol, PAØfb, fc, DL3fm, Gw2adz.

That seems to be all the reports for the month. We were very pleased to hear from the new contributors, and we only wish a few more would take the trouble to drop us a line. We welcome *any* report, even if it only contains a few calls heard. Many listeners still do not realise the importance and usefulness of their reports to the Transmitting man.

Important Note to Listeners

We should like to receive Listener Reports by the **2nd** of each month as this will enable us to devote more time to an impartial assessment for our Listener Award Scheme. Would everyone please remember the date as we shall not be sending reminders out after this month. All reports direct to your conductor at 176, Station Road, Hayes, Middx., please, and mark the envelope " VHF Listener Report."

So until next month, a hearty cheerio and 73 to you all. G6UH (145.000).

Club Notes. (*Contd. from p.*196)

John Swinnerton, G2YS of his contest winning " Top Band Tx."

It is hoped in the near future to organise a DF group which should help to rid the district slightly north of here of a few of the " pirates." Work is still in progress on the club Tx. QSL's from BC listeners say we put a VFB signal on the medium wave—hi ! Some form of QRM seems to have hit some of our members and when they do manage to get down to a meeting they have us guessing as to who they are ! So chaps, roll up a bit more often please.

G3IEG is at present in hospital with a nervous disorder. A small Rx has been smuggled to him ! Hurry up and get well Reg. It is reported by local amateurs that one of our licenced members can send with his feet—others say he uses an electronic key and a CY unit ! Two stations will be in operation for NFD, G2YS/P at Christleton and G3HPM/P at Pulton Hall.

Torbay Amateur Radio Society. Hon. Sec. L. H. Webber, G3GDW, 43 Lime Tree Walk, Milber, Newton Abbot, Devon.

The main proceedings at the Annual General Meeting were as follows :

The Secretary reported on the year's progress, said that 1952 was on the whole very successful, during which the Society again won the Area Quiz Cup at Exeter.

The Experimental Manager, (G3AVF), in his report, regretted that those members who assisted with the RSGB Two-Meter Field Day met with poor results, mainly attributed to the bad weather and other conditions. With regard to the other Field Days of the RSGB, in which various members co-operated, G3AVF remarked on the 3.5 Mcs band, which has been a poor band in the South West for some years.

Voting then took place for the officers of the Society and all the 1952 officers were re-elected.

Examinations of claims for the Constructors' Cup for 1953 must be decided at the May meeting ; and claims in respect of apparatus too bulky to bring to the next meeting, must be submitted in writing before May 16th, next.

With respect to the VHF Cup, now held by G2BMZ, it was decided that in view of his consistently good work in the VHF Field during the past year, that he should retain the Cup for 1953.

G5SY, the President, then addressed the Society, and appealed for members to introduce " new blood " into the Society by introducing young men interested in amateur radio.

G5SY regretted lack of interest in technical matters amongst young men to-day ; aggrevated, he thought, by so many local counter-attractions in this area, especially during the holiday season.

The meeting concluded with a Junk Raffle, which resulted in a useful sum for Society funds.

Next Meeting : May 16th, 1953. 7.30 p.m. Y.M.C.A. Torquay.

NEW TOP BAND FREQUENCY ALLOCATION

LATE FLASH RECEIVED FROM THE RADIO SOCIETY OF GREAT BRITAIN AND FROM THE POSTMASTER GENERAL

During the currency of the Cairo radio regulations, the band 1715-2000 kcs has been available, (shared with other services) for use by radio amateurs throughout the world. United Kingdom amateurs have been permitted to use the band subject to a power limitation of 10 watts.

Under the Atlantic City Radio Regulations there is no allocation in Region I (Europe and Africa) to the amateur service but a footnote to the Frequency Allocation Table reads "In the band 1715-2000 kcs, Austria, Ireland, the Netherlands, Northern Rhodesia, Southern Rhodesia, Switzerland, the Union of South Africa and the United Kingdom may assign up to 200 kcs for the amateur service provided that the mean power of any amateur station does not exceed 10 watts and that no harmful interference is caused to the authorised services of other countries."

This part of the Allocation Table, and the frequency assignment plan based on it and agreed to at the Geneva Conference in 1951, came into force on May 1st, 1953.

The Post Office has given careful consideration to the question as to how far it will be practicable for U.K. amateurs to continue to use the band under the new arrangements without causing harmful interference to the authorised services of other countries ; but it does not seem sufficiently certain to justify exclusion of U.K. amateurs from the band at this stage.

The Post Office has, therefore, decided to assign to U.K. amateurs a band 200 kcs wide in this part of the spectrum subject to strict non-interference with other services (United Kingdom and foreign).

The Post Office points out that, for some time, conditions in the band will be particularly difficult as stations settle down to their new assignments. With this in mind the Post Office asks that U.K. amateurs should use the band sparingly during the next few weeks.

Following a meeting between representatives of the Post Office and the RSGB it was announced that the 200 kcs band is to fall between 1800 kcs and 2000 kcs. The Society has been asked to stress the importance of licenced power not being exceeded under any circumstances.

The Post Office has issued a list of assignments which are likely to be particularly vulnerable to interference. In the list which follows centre frequencies are quoted but all the assignments are for A3 working and normally occupy a bandwidth of 6 kcs.

(kcs).	*Assignments*
1827	Wick and Folkestone
1834	Niton
1841	Cullercoats and Land's End
1848	North Foreland and Oban
1855	Burnham, Stonehaven and Newhaven
1869	Humber
1883	Portpatrick
1911	Land's End, Niton and Seaforth
1925	Land's End, Niton and Seaforth
1953	British Ships
1960	French Ships
1974	Dutch Ships
1981	British Ships
1988	Danish Ships
1995	Dutch Ships

In the interests of all concerned U.K. amateurs would do well to avoid the vulnerable frequencies which are in use by the marine services in their own particular locality.

Owing to the importance of this Late Flash the Broadcast Station List continuation has been held over till next month.

SMALL ADVERTISEMENTS

Readers' small advertisements will be accepted at 2d. per word, minimum charge 2s. Trade advertisements will be accepted at 6d. per word, minimum charge 6s. If a Box number is required, an additional charge of 1/- will be made. Terms: Cash with order. All copy must be in hand by the 12th of the month for insertion in the following month's issue.

PRIVATE

WANTED to buy or loan, Service Manual for Invicta T.103 TV.. Box No. C 119.

WANTED. Volume one, two and three of Radio Constructor's complete with indexes. Good price paid. Yates, Linwood Lodge, Knowle, Birmingham.

WANTED. Metal case for CR100, front panel immaterial. A. Thornton, 110, Waterford Road, Ipswich, Suffolk.

WANTED. 12 in. static CRT type VCR131, NC20 or VCR511A. Must be OK. Price, etc., to Hill, 1, Hardwen Avenue, Lea, Preston, Lancs.

WANTED. Information on ex-Gov. Receiver Identification Unit RDF No. 1, ZC13312. Henshaw, 23, Culver Road, St. Albans, Herts.

WANTED. Service sheet for Romac TV189. G. Caunt, 11, Crescent Green, Kendal, Westmoreland.

WANTED. Two stage Preselector, built in Power Pack, 20 to 80 meters. T. Smith, 42, Wormholt Road, London, W.12.

WHAT OFFERS. Globe King kit, new Xmas. Jenner, 53, Clifford Road, Hounslow, Middx.

WANTED. HRO dial and S Meter. Your price for new or perfect condition. Haworth, 15, Regent Street, Haslingden, Lancs.

FOR SALE. H.M.V. Television, Model 1804, 10-inch tube, aging, what offers. Killick, 194, Lyham Road, London, S.W.2.

FOR SALE. Peto-Scott " Trophy-8 " Communication Receiver, 5 bands, 520 kc. to 43 Mcs., complete with speaker, good condition. £10 carriage paid. Box No. C 121.

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