

# Cray Valley Radio Society



**G1RCV, G3RCV and M8C**

[www.cvrs.org](http://www.cvrs.org)



<http://groups.yahoo.com/group/CV-RS/>

10m Sunday morning net @ **10:00 local**: 28.570 MHz +- QRM

4m net – Fridays in weeks where there is no club meeting @ 20:30 local: 70.450MHz, then QSY to 70.425 or 70.475MHz

# QUA

## April 2016

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Editor: Bob Treacher M0MCV

### DIARY DATES

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#### **This month**

- 7 April 2016 - i) A25UK, Botswana 2016 – Nobby G0VJG and Giles M0TGV
- 7 April 2016 - ii) Working the British Counties on 160M: 1960s style – Fred G3SVK
- 13 – 18 April 2016 - A25UK: Botswana DXpedition – Nobby G0VJG and Giles M0TGV
- 8, 15, 22, 29 April 2016 - G3RCV shack open to members – Trevor M1TAD
- 21 April 2016 - Annual General Meeting
- 22/23 April 2016 - Volunteering to paint the outside of the Scout Hall – Trevor M1TAD

#### **Looking further forward**

- 5 May 2016 - This is YOUR shack – Trevor M1TAD and Rich G7GLW
- 14/15 May 2016 - GB6MW: Meopham Windmill – Kevin M0KSJ
- 19 May 2016 - Tim Peake and the ISS – Mick G4EFO

## HONORARY OFFICERS, 2015/16 COMMITTEE AND CO-OPTED MEMBERS

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|                       |                       |                          |
|-----------------------|-----------------------|--------------------------|
| <b>President</b>      | Bob Treacher M0MCV    | bobrcv@ntlworld.com      |
| <b>Vice-President</b> | Chris Whitmarsh G0FDZ | chris@g0fdz.com          |
| <b>Vice-President</b> | Owen Cross G4DFI      | closehaul@btinternet.com |

### 2015/16 Committee

|                          |                      |                            |
|--------------------------|----------------------|----------------------------|
| <b>Chairman</b>          | Dave Lawley G4BUO    | dave@g4buo.com             |
| <b>Vice Chairman</b>     | Richard Cains G7GLW  | rcains@btinternet.com      |
| <b>Minutes Secretary</b> | Karen Crowder G8JNZ  |                            |
| <b>Treasurer</b>         | Martin Rast M0MDR    | mrast@gmx.net              |
| <b>Members</b>           | Cliff Ayling G4HSU   | cliffayling@btinternet.com |
|                          | Dave Chapman M6FDG   | DavChpmn@aol.com           |
|                          | Giles Cooke M0TGV    | Giles.G.Cooke@gmail.com    |
|                          | Nigel Cornwell G1BUO |                            |

### Co-opted members:

|                                   |                       |                             |
|-----------------------------------|-----------------------|-----------------------------|
| <b>Examinations secretary</b>     | Frank Parradine G0FDP | francisparradm@aol.com      |
| <b>Trophies manager</b>           | Guy Roberts G0UKN     | guy@g0ukn.com               |
| <b>Acting Programme secretary</b> | Martin Rast M0MDR     | mrast@gmx.net               |
|                                   | Bob Treacher M0MCV    | bobrcv@ntlworld.com         |
| <b>Equipment secretary</b>        |                       |                             |
| <b>Shack manager</b>              | Trevor Denby M1TAD    | trevordenby@virginmedia.com |

## EDITORIAL

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It is great to see the G3RCV shack open to members on Fridays. The committee hopes this will be a popular addition to Society membership. As part of the arrangement to use the shack free of charge on a Friday (and Saturday morning) is an arrangement with the Scouts to paint the outside of the building. You will see from the calendar that 22 and 23 April have been set aside. Volunteers are required – please e-mail Trevor if you are available for a few hours. G3RCV will also be on the air for those who want a break from painting!

Our 'Backyard EME' lecture by Paul G4DCV certainly brought out the crowds – well over 30 members were in attendance and heard how it was possible to make 2m EME contacts from a small backyard in Aldershot. This month we have a 'double header' for our first meeting, with Nobby G0VJG and Giles M0TGV talking up their upcoming DXpedition to Botswana as A25UK. This will be followed by a presentation by Fred G3SVK on his 1969 trip around the British Isles to activate British counties on 160m. The month's second meeting is our only business meeting of the year: the Annual General Meeting.

Looking forward, GB6MW and GB2CM are scheduled for May and June and the committee is hopeful that G3RCV/P can be active in the three different field day contests during the year.

## ANNUAL GENERAL MEETING

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*This year's Annual General Meeting will be held at 8pm on **Thursday 21 April 2016** at the 1<sup>st</sup> Royal Eltham Scouts HQ, Rear of 61 – 71 Southend Crescent, Eltham, London SE9 2SD.*

*All the papers needed for the meeting will be e-mailed (or posted, if that is how you receive QUA) within the next 24 hours. Please bring the papers to the meeting as no spares will be available on the night.*

*If you have a matter to raise under Any other Business, please consider letting the Chairman know in advance at [dave@g4buo.com](mailto:dave@g4buo.com) so the matter can be satisfactorily dealt with on the night.*

**Richard Cains G7GLW**  
**Secretary**  
**31 March 2016**

## SUBSCRIPTIONS FOR 2016: MARTIN M0MDR

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Unfortunately several decided not to renew their subscriptions for our 70<sup>th</sup> anniversary year, however, membership still stands at 96. We welcome three new SWLs - George Bryant, Mark Horn and John Mallard and hope their stay with us will be informative and successful.

## NEW CRAY VALLEY CALLSIGNS

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Following the advanced exam resit a few weeks ago, both Dorn and Steve were successful. Dorn is now M0IAO and Steve is M0OSY. All nine of our candidates for the 2016 Advanced exam course therefore passed. Congratulations to all nine and we look forward to hearing them on the air.

## QRZ.COM

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Our nine new licencees (and indeed, perhaps, even some of our more longer-standing members) might want to consider adding their details (and even a short 'profile') to [www.qrz.com](http://www.qrz.com).

This site is now the 'go to' location on the web if you want to look up someone that you have heard or worked, and it has largely replaced the old 'Callbook'.

You can add just your name and address, or include more information and photographs. It's entirely up to you. A number of members have interesting entries - Kevin M0KSJ and Fred G3SVK are good examples. The Society also maintains entries for several club callsigns, including G3RCV, GB6MW and 2O12L.

## SHACK NEWS: TREVOR M1TAD

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For those members who have not been along to a meeting lately, our shack is now up and running. The minor noise issue seems to have ceased so the shack is now fully active.

### Equipment installed is as follows:

Icom 7400 Transceiver

Acom 1000 Linear Amplifier

Alinco switch mode power supply

Yaesu 450 Rotator

### Antennas:

**Mast:** Tennamast 3 section 10.5m telescopic steel mast



**HF Antenna:** Cushcraft A3S 10-15-20m 3 element yagi

**HF wire Antenna:** Double halyard to hoist wire dipoles as required - currently 40m dipole on site.

**VHF Antenna:** Tonna 11 element 2m Yagi.

As shack manager, I have been opening the shack on Friday mornings recently for our new licencees to enable them to get some QSO practice before purchasing their own equipment. As these sessions were after the publication of the last QUA, only Remus MOUKL took advantage of the shack opening [Ed: but last Friday Nobby GOVJG and Giles MOTGV took advantage of the facility to try to contact the VKOEK and FT4JA DXpeditions].

The morning was spent going through general practice and equipment set up. Unfortunately, 40m band conditions were quite poor with no inter-G skip, and it was Guy GOUKN who came to the rescue to give Remus his first QSO.

Friday 25 March was a better day, and Remus had a couple of contacts, one with an ON5 (Belgium) which made his day. Kevin MOKSJ and Frank GOFDP were also present.

### Contesting

I am very keen to get some contest practice in with the help of some more experienced club members, Richard G7GLW and Martin M0MDR to name but a few. If there are any new members wishing to take part, please e-mail me and I will make the necessary arrangements. Also any existing members willing to give a hand are welcome.

## **A25UK DXpedition (13-19 April)**

Two of our club members (Nobby GOVJG and Giles MOTGV) are off again on another quest, this time to Botswana. So for those members who might not be able to work into southern Africa from their home stations, the club shack will be open for any member wishing to make a contact, either as a 'New One' or just to say 'Hi' to Nobby/Giles. It is thought the best time to make a contact will be during afternoon hours, so the plan is to open the shack on Friday 15 April. Exact details are still to be confirmed with Nobby, so further details will be available by e-mail.

If any members would like further details, please drop me an e- at [trevordenby@virginmedia.com](mailto:trevordenby@virginmedia.com). I plan to make myself available for all the above days/night subject to committee and Scouts approval.

Until next month...

## **FIELD DAYS 2016: DAVE G4BUO**

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Your committee has decided that we would like Cray Valley to participate in all three field days in 2016. For those who are new to things, field day started way back in the 1930s and still has an element of emergency preparedness - field days are contests, but the rules say that you may not use a pre-existing shack or aerials, and all equipment must be installed no more than 24 hours before the event.

Another crucial field day rule is that a permanent mains supply may not be used, and this was the reason several years ago for the purchase of a Honda EU26i generator. This is a superb unit, not cheap but the best in its class. It was bought with a mixture of club money and donations from several members. The idea was that it might need to be used occasionally for Special Event Stations, but the main purpose was to ensure we had a reliable source of power for field day.

There are three field day contests organised by the RSGB each year, which have taken place on the same fixed weekends for many years. They are summarised later but all can be approached as a serious contest, or an opportunity to have some fun and make a few contacts, or anything in between. Members who have antenna restrictions (that's all of us, it's just a question of degree!) or face local QRM, have the opportunity to get out 'in the field' and put up larger antennas than are possible at home and experiment with quieter band conditions.

Field day can also be an opportunity for a social event, with perhaps an informal barbeque, and one of the field day sites we used a few years ago was next to a pub which increased the possibilities for socialising!

With kind help from Lawrie G4FAA, we have secured a superb location at Detling, high up on the North Downs which we will use for VHF Field Day in July. This site was formerly used by the Clifton club and once they disbanded, Lawrie managed to secure it for our use. Cray Valley owns a lot of equipment for VHF including beams, masts and rotators. Following the less than successful attempt to combine with the Maidstone club for this one last year, I'm especially keen that Cray Valley should use the Detling site this year for VHF Field Day.

As for all club events, as well as the operating period itself help is needed from early on Saturday morning to help set up, and after the event people need to be prepared to stay on to get everything down safely, packed into cars and in the case of club gear, returned to the lockup in Belvedere.

At this stage, we would like to hear from members who would be interested in taking part in field day as operators, or helpers, or visitors, or whatever. The dates and a summary are given below. We'd also like to hear any ideas for locations for the two HF field days - while Detling is up high and well suited for VHF propagation, it is some way out of the core Cray Valley area. Does anyone know of a possible site closer to our home patch? Please get in touch with me [dave@g4buo.com](mailto:dave@g4buo.com) if you're interested in participating in one or more field days this year, and also with any ideas for HF sites.

CW Field Day is the first weekend of June, 4-5 June in 2016, 4pm Saturday to 4pm Sunday. We do not have many CW contest operators in the club, sadly, but I will be operating with Mark M0DXR and it would be good to have a code reader on-site so that those who are not familiar with the code can follow what's going on. This weekend also hosts the UK Six Metre Group contest and in the past we have put on a station for this contest as well, from the same site, using the Club's mast, rotator and beam.

VHF Field Day is the first weekend of July, 2-3 July in 2016, 3pm Saturday to 3pm Sunday. Set-up may start Friday afternoon, or early Saturday. If you can only attend one field day this year, please make it this one!

SSB Field Day is the first weekend of September, 3-4 September in 2016, 2pm Saturday to 2pm Sunday. Last year this was organised by Nobby G0VJG from the confined grass area at the Dartford Scout Hall but this is no longer available for the full weekend and we need a proper field day site for 2016, which might well be the same one we use for CW. Cray Valley did well in 2015, coming 3rd in the Open Section with nine operators, including two M6s. Again there is a VHF contest taking place at the same time, this time on 2m, which gives more operators a chance to get involved.

I really hope that the Club can be active in all three field days this year, apart from anything else we need to get some use out of our generator! Please email me [dave@g4buo.com](mailto:dave@g4buo.com) if you'd like to take part in one or more of these events.

## GENERATOR SERVICE: GILES M0TGV

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Last week the club generator was inspected and a service carried out. Colin G3SPJ had previously used the generator to help dry out the club lock up and needless to say the unit performed flawlessly. With this in mind, Cliff raised the issue that the generator was due a service. A vote was taken by the committee and a decision made to service the unit. I volunteered to carry out this duty with help from Colin and Cliff.



My findings were as follows:

The unit's oil was drained and re-stocked with new fresh oil (10/40 semi synthetic oil). The Spark plug gap was gauged and found to be within tolerance.



The spark plug itself was also in a good state of repair. The high tension ignition leads to the spark plug were also inspected. These were found to be in a good serviceable state. The air filters were removed and inspected. The main filter element was in an as new condition with no signs of any dirt on either sides of the element. The air pre-filter was also removed and cleaned. Then both filters were fitted back to the unit. The petrol tank fuel sediment gauze was inspected and no sediment was found in the cup. The main rubber fuel line was inspected and no signs of perishing were present. The unit was filled with fresh fuel, and a fuel additive was applied to prolong the life of the fuel. The generator was again run up and left running for about 20 minutes. A record of this and future inspections will be kept with the unit. I have to say the club generator is a very nice unit and am sure it will give the club many happy years of use.

## CONSTRUCTION CONTEST

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As announced in the previous QUA, there were four sections to this year's construction contest. John M0JHB, Harry M0VMF and Julia G4YMF entered the **Novice** section. Harry's crystal set won the section. There were two entries to the **General** section – Richard G8ITB (interface converters for his Icom transceiver) and Guy G0UKN (Nixie tube clock – as described in the last QUA). Richard G8ITB was adjudged the winner. There were no entries in the **Professional** category. Malcolm G8MCA (70cm solid state amplifier) and Chris G0FDZ (10GHz TWT amplifier and p.s.u boxed) entered the **Not Judged** section.



L to R: Harry M0VMF with his winning exhibit; Richard collecting the Reigate Cup from Frank G4WNF; the judges – Frank G4WNF, Colin G3SPJ and Dave G8ZZK.

The exhibits were judged by Colin G3SPJ, Frank G4WNF and Dave G8ZZK. They awarded the Reigate Cup to Richard G8ITB for his interfaces. They were boxed and engraved custom made kits from Germany.

## NATIONAL MILLS WEEKEND 14/15 MAY 2015 – GB6MW: KEVIN M0KSJ

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Now into our ninth consecutive year of operation, Cray Valley's special event station GB6MW is back supporting National Mills Weekend from Meopham Windmill beside the village green in Meopham, Kent DA13 0QA. As our first special event of the year GB6MW has become a firm favourite for radio fun and a great social occasion for members, family and friends. For our new M6, 2E0 and M0 members, the event also offers a great opportunity to get involved with the set up and operating of a special event station on HF and VHF. Further details will follow in May's QUA, but for now here's a provisional timetable and some background links with information about the event:

**13.00 Friday 13 May:** move equipment from club lock-up to the mill to make a start on setting up the station and assembling antennas, etc.

**08.30 Saturday 14 May (public access to mill grounds only):** Complete station set up to be on air around 10.00 till 16.30 when antennas will be lowered and made safe for the night.

**08.30 Sunday 15 May (public open day with guided tours of the mill throughout the day):** Complete install of public display materials/bunting, etc and raise antennas to be on air around 10.00 till final closedown and station pack up around 16.30.

**Further event information:**

- GB6MW QRZ.com entry at: <http://www.qrz.com/db/GB6MW/>
- National Mills Weekend 2016 <http://www.nationalmillsweekend.co.uk/>
- The growing 2016 list of mills taking part with special event stations: <http://www.mills-on-the-air.net/?PAGE=current>
- Dutch mills amateur radio award <http://www.pd6mill.com/>

If you fancy helping with the set up and/or operating please let me know, either at a club meeting or drop me an e-mail at [kevin@m0ksj.org.uk](mailto:kevin@m0ksj.org.uk) as this really helps with planning – otherwise please drop by whenever you can or give us a call on the air.



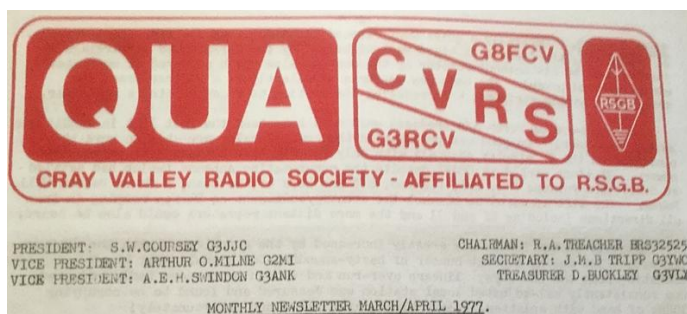
Meopham Windmill

## 'PROJECT 70'

One month nearer to our anniversary month, work is progressing on the invite list for the 70<sup>th</sup> anniversary party. It currently includes approximately 170 members, ex-members and guests. Reserve the date in your diary now – Thursday 20 October 2016. Formal invitations will be issued nearer the event.

We have also moved forward on obtaining a special-special event callsign for the month, and on a number of 70<sup>th</sup> anniversary merchandise items. Chris G0FDZ's archive continues to grow, and my history book of 70 years of Cray Valley has reached the noughties.

## CRAY VALLEY ARCHIVES: APRIL 1977



QUA in the 70's was issued at the mid-monthly meeting, thus the 'March/April' heading. It was edited by Stan G3JJC and duplicated by Derek G3XMD. This issue looked forward to the Annual General Meeting, commenting on a thriving



membership (an all time peak of 149), excellent programme, the facilities offered (we met at the Eltham United Reformed Church Hall, 1 Court Road, Eltham in those days), and the friendly social atmosphere. The CVRS 8<sup>th</sup> SWL contest results were released, with 14 entries. The GB3NK 70cm repeater at Chelsfield was fully operational. Deryck G3VLX was recommended to be one of the Area Representatives of RSGB Region 7.

Peter Clark obtained his new callsign, G4FUG. The Church authorities had asked members not to park on the grass area within the Church precinct and to use the entrance and exit as signposted! The issue included 'The year in retrospect' – a look back at the year's meetings (17), contest activity (6), expeditions (2), special event stations (3), and social gatherings (4). It also attached the April 1976 AGM minutes with the Agenda for the 1977 meeting appended at the bottom. In those days, the AGM was held on the first Thursday in April, with a 'Natter Nite' held on the third Thursday. Meetings ran from 8pm to 10.30pm.

## BACKYARD EME

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Paul G4DCV came back to his roots for the March meeting to give us a presentation about 'Backyard EME'. Paul had used various small antennas and many of his QSOs had been made with just a single 9-element Tonna which was hand steered for azimuth and elevation, but in April 2014 he bayed a second 9-element Tonna and has made further improvements since.

For more detail, Paul has provided this link  
<https://www.dropbox.com/s/ueyh92ac0nq0ej3/CVRS-Backyard%20EME.pptx?dl=0>



Paul G4DCV giving his 'Backyard EME' talk

## INVITATION TO HELP PLAN AND OPERATE GB90ER

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Mike M1CCF from the Coulsdon club is organising a special-special event station - GB90ER - from the grounds of Southwark Cathedral for the Queen's official birthday on 10 - 12 June 2016. He asked for the Society's help, but the committee, wary of the closeness of GB2CM the following weekend, turned down the opportunity to get involved in planning and organising this major event. However, this does not preclude any member getting involved as individuals if they so wish.

Some members may recall that Mike organised a special-special call for the 400th Anniversary of the printing of the King James Bible also based in the grounds of Southwark Cathedral in 2011. Mike has the callsign GB90ER largely for the special celebration weekend of 10 - 12 June 2016, but it can be used from 5 - 20 June 2016. HF and VHF operation is planned.

If any member is interested in helping to plan the event, or wishes to operate or visit the station, please e-mail Mike direct at [m1ccf@talktalk.net](mailto:m1ccf@talktalk.net). The Coulsdon club is also planning to air GB2ER over the Official Birthday Weekend, from their Coulsdon HQ.

## THE 60M STORY SO FAR: PHIL G4EGU

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To perhaps encourage members to take a look at the 5MHz band, this is the story of the band so far.

60m (5MHz) bandlets were first made available to class "A" licences a few years ago upon applying for the appropriate Notice of Variation (NOV) to their licence. There are limitations on the 60m band - limited antenna height; 100w maximum power; no mobile operation, and you needed to justify why you wanted to be on the experimental band. That was in 2006. Frequencies were: 5258.5, 5278.5, 5288.5, 5366.5, 5371.5, 5398.5 and 5403.5 kHz (all USB Dial Frequencies), with bandwidth limited to 3kHz. The channels were given "Foxtrot" designators FA-FB-FC-FE-FM. Since this time, the original bandlets have been increased, and the usage by Class "B" licences has been added, but still with limitations.

Segments of frequencies at 5MHz are allocated on a secondary basis to holders of a UK Full Amateur Licence. The maximum permitted output power on 5MHz is 100 Watts from the transmitter and 200 Watts eirp from the antenna. Mobile operation is not allowed. Here is a bandplan.

|        |        |   |
|--------|--------|---|
| 5258.5 | 5264.0 | CW activity, 5262kHz QRP. 5258.5kHz international use                     |
| 5276.0 | 5284.0 | 5278.5kHz international use. EMCOMM Centre of Activity                    |
| 5288.5 | 5292.0 | Beacons on 5290kHz. WSPR  |
| 5298.0 | 5307.0 | All modes. Highest USB frequency 5304kHz                                  |
| 5313.0 | 5323.0 | All modes. AM 5317kHz. Highest USB frequency 5320kHz                      |
| 5333.0 | 5338.0 | Highest USB frequency 5335kHz   |
| 5354.0 | 5358.0 | Highest USB frequency 5355kHz   |
| 5362.0 | 5374.5 | Digital modes activity. Highest USB frequency 5371.5kHz international use |
| 5378.0 | 5382.0 | Highest USB frequency 5379kHz   |
| 5395.0 | 5401.5 | Highest USB frequency 5398.5kHz   |
| 5403.5 | 5406.5 | Highest USB frequency 5403.5kHz international use                         |

Useful links are - <http://rsgb.org/main/operating/band-plans/hf/5mhz/>; <http://hfink.com/5mhz/>. And other countries added: [https://en.wikipedia.org/wiki/60-meter\\_band](https://en.wikipedia.org/wiki/60-meter_band).

Simple Dipoles are recommended. I use a quarter-wave from my rear chimney to my Pergola, which created a sloper for 60m. A typical dipole is 13.4m (44 ft) per leg, total just short of 27m 26.8m (88 ft). Although, I use my Trap Dipole, which is quite a good RX antenna on the band, it's not so good on TX, as the 7MHz traps affect its performance. It is much better to make a dipole for the band. I have even used my Butternut vertical with the coils adjusted for 5MHz:

<http://www.ad5x.com/images/Presentations/Butternut60m.pdf>

There are quite a few beacons on the band now, apart from the UK based ones - GB3ORK, GB3WES, GB3RAL on 5290 kHz CW. The RSGB's GB2RS is also on the band at 16.00 clock time on 5398.5 kHz on Sundays, with quite a few stations calling in. SOTA stations are often on the band as well, again on 5398.5 kHz - or wherever they want to operate: <http://rsgb.org/main/operating/band->

[plans/hf/5mhz/uk-5-mhz-beacon-chain/](#). Others are “out of bandlet” or in international allocations: DARC beacon on 5195.00 kHz CW; HG7BXB 5253.500 kHz CW; Shannon Volmet on 5505 kHz USB. What was RAF Volmet (Military 1 information) is on 5450 kHz USB.

Looking to the future, at the closing meeting of the 2015 ITU World Radiocommunications Conference (WRC 15) on 27 November 2015, amongst the Final Acts signed into the International Radio Regulations was one approving **A Worldwide Frequency Allocation of 5351.5–5366.5 kHz to the Amateur Service on a secondary basis**. This band really is worth looking at, and does come up with some gems.

Drop me an e-mail at [philegu@tiscali.co.uk](mailto:philegu@tiscali.co.uk) if you would like any further information on 5MHz.

## USING OLDER TRANSCEIVERS AND TRANSMITTERS - PART I: GUY G0UKN

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After the recent article on the KW2000B, a few people asked more and one member (no names, no pack drill) has gone out and bought a large amount of KW kit. A couple of others including a G4 have said something like ‘yes but I can’t do load and plate’. In this first article I am going to talk about the extra controls you may not be used to and how to tune up a Valve PA transmitter or transceiver.

First thing to say is tuning a valve output stage is not a quick or instant process and it is therefore essential if you want to be a good neighbour to others on the band to own a dummy load and at least a two way switch between your antenna or ATU and your SWR/Power meter (preferably PEP reading, more of which later).

The majority of controls on an older radio will be instantly familiar - AF gain, RF gain, Band change, etc. However, there are a number of controls that will be less familiar and it is important to understand what they do and how to adjust them to put out an acceptable signal, and more importantly, not break anything. It was not without reason that most radio manufacturers guaranteed the output valves for virtually no time at all and then caveated to the hilt any guarantee they did give.

As well as the knobs to tweak, another key thing to get to grips with is metering. It is much more important in an old radio to understand what the meter can tell over and above an S reading on receive.



The picture shows the S-Meter from my FT101E but all are similar. The additional scale which you need to understand is IC (the bottom scale) which shows the cathode current being drawn by the PA stage. When you first key up the transmitter, this meter should move up slightly indicating the bias current is being applied to the PA. What that sits at is individual to the radio or amp in question but typically it will be in the order of

50ma so about half a division on the above meter. The bias is set to the correct level by a pot somewhere on the radio or PSU. If the meter pings over much further or does not move at all, take some time to find out why. If it is pinging over it could be you are injecting lots of carrier without tuning the PA or some other fault could be present. If it is not moving at all it may be the heaters have not

warmed up fully or are switched off or some fault is present. On SSB, once tuned, the meter will kick with speech and will sit at a constant level if inserting carrier for other modes such as FM or kick in line with keying in the case of CW. The manual will tell you levels to be avoided. The ALC functions and Po functions are broadly similar to a transistor rig, so I will not explain more here.

## Controls



This picture shows the key controls which you will not be used to on a valve PA transceiver compared to a modern rig. There will also possibly be a tune position on the mode control which allows you to insert carrier with reduced PA voltages, however you can just as easily insert carrier using a CW, AM or FM position. Important thing is to be able to insert a controlled level of constant drive.

### Preselect

The pre-select knob tunes the driver stage of amplification and also normally tunes the receive RF amps as well. The initial tuning of this control will be on receive for maximum white noise. That point should, if the radio is well aligned, also be the peak point for transmit too but often there is a slight difference after all these years, but it should not be great as if it is, your peak output power will not coincide with a sensitive receiver.

### Load and Plate

Load and plate (anode). These two interdependent controls are used to bring the PA into resonance and to couple via a tuned circuit called a PI network the output from the PA (high impedance) to the antenna (low impedance). You can think of these in the same way you would an ATU. The controls and method of working are broadly similar

### Carrier control (might also be called carrier insertion or drive)

This control adjusts the amount of constant carrier you are inserting in the tune position and constant carrier modes.

### Basic tune up

This procedure should be treated as an outline and should not replace reading the manual!!! Pre-set the preselect for maximum noise and the plate for the mid point of the band you want to work, set the load control at mid point. Set the band switch correctly and VFO correctly for where you want to transmit. Set the carrier control fully counter-clockwise. Route the radio to the dummy load.

Set the radio to tune or a constant carrier mode such as AM, press the PTT and observe the bias current, advance the carrier so you have doubled the idle current.

Peak the preselect to increase the current on the meter, back off the carrier control so you are back to around 100 to 150ma. Adjust the plate control for a dip on the meter (decrease with an increase either side). The dip is the point where the plate tuned circuit is resonant. You should now see output on the meter. Peak the output on the load control. Re-peak load and plate for maximum output.

When you carry out these steps, do it in stages of five seconds tune, 10 seconds cool down period. That way you will not overheat the PA.

You should now be able to adjust the carrier control to show everywhere between zero and maximum output of the radio on your power meter.

Return the carrier control to zero (except on Trio/Kenwood) and return the radio to SSB. Use the mic gain to adjust the output to the required level and switch to the antenna and off you go.

I normally run with the meter in the ALC position and turn the mic gain up until it just kicks. It is good advice to learn how the ALC works on your particular radio and it will mean your signal is cleaner and the valves last a whole lot longer than if you drive with all knobs to the right.

### **Valves**

Contrary to popular belief valves properly used are long-lasting and unlike transistors, unless there is a catastrophic fault elsewhere, tend to die slowly and gracefully as emission drops off. There are many (if not the majority) of older rigs out there that are still on their original bottles 40+ years later. Typically, 100w transceivers use a pair of valves in the PA driven by a single smaller driver valve. The majority use the 6146 range, which are still widely available and are not expensive. Beware, however, that the FT101 series up to and including the E model use the 6JS6C TV line output valves. These are now commanding quite high prices, and add to that, the FT101 can get grumpy with some makes of valve so if you buy a radio make sure in advance of parting with money that it has a good set.

### **Output**

Typically you can expect on a reasonable set of valves, greater than 100W on the lower bands and around 80W to 90W on 10m. Anything much less and the valves are probably past their best.

### **PEP meters**

I should at this point say a little about PEP power measurement vs. average power measurements. If your power meter is average reading with no PEP function without a processor on, do not expect to see more than 30 to 40% of the full output displaying on the meter. If you insert a processor and wind up the processor setting so you see the average rise to near your expected 100w or whatever, you have not increased the PEP, only the average power level and you are probably as distorted as hell annoying everyone on the band and are putting your finals through a tough time. (This applies to ANY radio not just vintage radios). Do yourself a favour and invest in a decent PEP reading meter and you will see a much better reflection of your true output power.

In the next part, I will talk about using separate transmitters and receivers and how they are interlinked. It is not as complicated as it sounds and can be a very rewarding way to operate.

## **DX IN CRAY VALLEY**

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Sunspot numbers have been really low (as low as 11). This has made it really difficult to hear the VK0EK, FT4JA and 9X9MM expeditions, let alone work them! Fred G3SVK had picked up a few goodies, but was unsure if his QSO with VK9CK (Cocos-Keeling Is) was good. The expedition was not too strong on his



dipoles, and like the Heard Is expedition, there are some BIG signals in Europe. He suggests that the fun for these BIG boys is not in making the contact, but breaking the pile-up! He complimented Rosie E44YL (Palestine) who does not put duplicate contacts, but bemoaned the fact that VK0CK and FT4JA were so weak. The BERU contest provided a few Commonwealth DXCCs. He also worked Iran and Ethiopia on 40m, as well as LU1ZI (South Shetland Is.).

No other reports were received, or no additional table scores so I shall hold the table a further month in the hope of receiving a few more entries.

## OTHER NEWS - BEE KEEPING: JOHN LARGE

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Members will recall John's talk last year about the development of the Oxleas Wood Apiary. He provided this update to Keith G4JED, which I reproduce here as not all members would have seen it.

*"The Apiary and its bees have overwintered very well; it is going from strength to strength. For this year we have installed an automatic weather station and some electronic wizardry and gizmos in the hives to enable us to monitor the bees comings and goings and their foraging performance. This year two of your members are enrolled on the Introduction to Beekeeping Course.*

*You might like to publicise the Apiary and its activities. There is a general introductory text on the Apiary on the [Home](#) page at [www.oxleaswoodapiary.com](http://www.oxleaswoodapiary.com), the [Introduction to Beekeeping Course](#) gives details of the course and there are separate [Apiary Days](#) for the public to obtain some 'hands-on' experience of working with the bees in the apiary - there is a downloadable [brochure](#) providing details of the Beekeeping course and Apiary Days - [talks and visits](#) to schools, societies and clubs are also available - generally these are available from late-May onwards through the Summer. The Oxleas Wood Apiary web contains downloadable images [here](#) including posters - to the best of my belief there are no copyright issues with these."*

## NEXT QUA DEADLINE

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- **The deadline for the next QUA is 29 April 2016. Articles in Calibri 11pt please.**

## ...AND FINALLY

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- Cray Valley Radio Society is affiliated to the Radio Society of Great Britain
- The Society has adopted the RSGB's 'Safeguarding Children and Vulnerable Adults' policy, which shall be adhered to at all events
- Cray Valley Radio Society is an Equal Opportunities society
- QUA is published by Cray Valley Radio Society. Any opinions expressed herein are not necessarily those of the Society
- CVRS committee minutes are available on request to the Secretary