



# Wythall Radio Club

## Wythall Contest Group

G1WAC G4WAC G7WAC G0WRC M5W



g0eyo@blueyonder.co.uk

http://www.wythallradioclub.co.uk

**Wythall Radio Club** meets from 8pm every Tuesday evening at Wythall House, Wythall Park, Silver Street, Wythall, B47 6LZ, near Birmingham. Visitors are very welcome. **Wythall Radio Club** is affiliated to the Radio Society of Great Britain

## Newsletter

### May–June 2012

## Wythall Rally- A Big Success!

With the support and help over the weekend from most of the club membership, the 27<sup>th</sup> Wythall Rally was the best ever with over 500 paying visitors and profits up 50% upon last year. We benefitted from selling equipment donated by Frank G3MZU's (now SK) estate. Again we were supported by major traders, Radioworld, Westlake, Sandpiper, JAB Electronics and other component suppliers. We also had a large number of traders selling used equipment which went down well with our customers. In the end 36 traders booked space with us and they seemed to have had a good day. The queues started to form well before the 10am opening time and by 10am they were the longest we had ever seen. The scouts did a fantastic job looking after the parking and we managed to park everyone who came on site. The bring and buy didn't do so well from visiting customers but was very much appreciated by club members who were able to sell their stuff for free. We also had, for the first time ever, our own club stand where we sold the club surplus equipment and components. We also had a new caterer this year whose Army style



chuck wagon proved as big a success as his burgers, bacon and pork baps. He had a good day and will be back next year. This was the first year where

we had no-one in overall charge of the rally day. Individual club members looked after their own areas of responsibility and worked well together when a

collective judgement was required.

The club has now invested its earnings in providing broadband interconnection in the shack and we will be looking at spending some money on new flooring and storage facilities. We may even look at replacing one or two of our rigs.

As summer approaches we will be looking at attending several special event weekends. The Easter Gathering at Hanbury proved especially successful this year with members despite less than perfect weather and we have Mills on Air to look forward to in May as well as a Plug and Play weekend at the end of May. In June, we hope to put on a Jubilee SES and a station at the Transport Museum at Wythall, and at Wythall Carnival in August. Talks from visiting lecturers have become a regular monthly

feature and these have proved very popular with the members. Finally the Friday social evenings have become a regular feature of the club's calendar and are very well supported by members who come from a drink and some nibbles and a play on the radio.

Well done Wythall Radio Club, proving that you really can "Have fun with RF"

Chris G0EYO

## Forthcoming Talks

### TALKS

May 2012

15th "Instant Morse" Interactive Morse Demo by Steve White G3ZVW

June 2012

256th "My World of VHF" by Tim Kirby G4VXE

*Other talks "in the pipeline" this year include a visit from Mark G4FPH to talk about VNA (Vector Network Analysis - I don't know what it means either!) and 2E0SDR giving a talk on Software Defined Radio. Dates are in the diary*

### SPECIAL EVENT STATIONS

12/13th May "Mills on Air" Avoncroft Museum, Bromsgrove

26/27th May "Plug and Play" weekend in Wythall Park

June 4th Diamond Jubilee station at Wythall Park

June 16th/17th International Museums weekend at Wythall Transport Museum

### MAKE A NOTE IN YOUR DIARIES FOR THESE EVENTS

**Remember the Lew Williams CW Shield event runs through out May. You can get details from the Files section on the G4WAC Yahoo group**

# A Tale of Two Marconi P20b portable valve radios

Described in the sales literature as “All-Dry” Personal Portable, they were clearly house trained and boasted a two waveband 4 valve superhet in a casket shaped die cast box with spring loaded lid and hinged base.

Weighing in at 4lbs inclusive of combined HT and LT battery, the radio measured  $6\frac{3}{4} \times 4\frac{3}{4} \times 3\frac{1}{2}$  in imperial units.



Two examples were liberated from Frank's loft recently and were given the once over on the work bench.



There were marked differences in the component layout between the two, the most notable being the placement of the audio output grid bias electrolytic and bypass resistor. These components were moved from by the audio output transformer to the under chassis where they took up a lot of space and made component replacement much harder to achieve.



The chassis used very long but thin waxed paper capacitors which were apt to fall apart or go very leaky.

Hooking them up to my trusty 67.5 v and 1.4v supply I was rewarded with absolutely nothing by way of signals from either radio although the earlier one (by serial number) did produce faint crackles when the set was turned on/off by the lid operated switch.

The audio output valve a N17 had an open circuit filament so before fitting a replacement it seemed appropriate to recall that these battery valves do not have separate cathodes, the heater doubles as the cathode and therefore the heater has to cope with any current the valve passes together with its own filament current.

I suspected therefore that the filament had been stressed by the valve passing excessive current and there is a common theme forming here- leaky capacitors. With the valve left out, the voltages at the electrodes were measured and sure enough a hefty +ve 6v at the control grid. No wonder it threw in the towel.

A further check or two revealed more +ve voltages where they should have been negative and so the associated coupling capacitors were changed by Philips “mustard” types, very reliable they are too.

The audio output stage was now very lively responding well to the touch of a screwdriver blade but still no signals. The oscillator coil looked rather “mouldy” for want of a better expression but did prove to be innocent; lack of results was down to the grid 2 resistor (22k) to the frequency changer being open circuit.

A NOS resistor to match the others in the chassis brought forth absolutely nothing! The single diode detector and audio amplifier valve was deprived of its anode voltage by a very sorry looking 470k resistor being open circuit.

A replacement restored audio of quite good quality for such a small speaker.

One down, one to go.

I pounced straight on the paper caps - again they were leaky, but not as bad as the other set. Replacing these restored correct voltages on the electrodes but no signals. Could it be... that pesky 22K resistor? Oh yes it was- not quite open circuit but measuring 490k. In went another component of suitable vintage and the set burst into life. Not quite as good audio as the first and a continuous low level “tone” marred the demodulated audio.

So a little bit more to do should time permit.



These sets are compact but the down side is access to the valve holders is difficult and may well require temporary removal of some components whilst work is in progress.

The Americans were manufacturing similar ranges of battery radios using lightweight cases which were oblong in shape and made of plastic. They were not as durable and indeed common complaints were that the hinged lids distorted or twisted. Access to the electronics was equally difficult but they did not suffer the same problems with component deterioration as the Marconi which is a blessing. The American manufacturers generally used series strung heaters with a 6v battery for LT and either 67.5v or 90v for HT.

At the same time as these all valve sets were being made, the Americans were experimenting with “hybrid” radios, part valve, part transistor and of course once they had transistors working reliably in the rf/if circuits...the rest is history.

Ian  
M01DR

# G4VPD VHF Mast Re-build

Well I've been putting off this project for years, due to the size of it but I finally bit the bullet, and with the help of Don G0NES and Glenn G8NOF, project "antenna rebuild" began. Firstly we needed a safe working area, so Don's scaffold was installed and secured to the tower (thanks Don). Next was the removal of the old antenna's, 4m,6m,70cm,2m, so cables cut (monster opening predicted at this point) and one by one the antenna's were removed.

The metalwork was cleaned and checked, and a new heavy duty rotator and bearing were installed. Then 70cm beam and 70MHz beams mounted, as quickly as possible before the neighbours noticed they had all disappeared! The 2m monster beam was then built and installed, getting the support ropes right was a job on it's own! Finally assembly of the 6m beast and installation and boy that was awkward to get up on the roof!!

Four days into the project now, and still off air. Next up was the removal of the old cable looms, and cutting and strapping the new cables which were four lengths of 25m westflex 103 and control cables for the mast-head pre-amps and rotator. The cables were then terminated, antenna tails taped to mast with (hopefully) enough for rotator loop. Pre-amps and wiring loom connected, loom then fed over pergola, fixed to wall and finally fed into shack and terminated.

At last we could now connect the analyser and test SWR etc. Cable loss was also tested and came in as predicted (low). Radio connected and beacon hunting started. At this point we discovered the 70cm pre-amp was not working, so removal and trip to Barry's. next day (thanks Barry) repaired preamp re-installed. Finally all antennas were fine-tuned on the SWR (1.5 or lower were obtained on all four).

Bingo we are in business! Scaffolding was then then disassembled and removed. Now



One removed and three to go



17 el 432MHz and 5 el 70MHz



New rotator and bearing fitted then 432/70MHz fitted on mast



13 el 2m beam built



Final installation

the mast could be raised to check for any cabling issues and rotation prob-

lems. None found! Great! All radio's connected up and on-air tested.

No problems. The whole project took over a week to complete, and the weather was brilliant which helped immensely! On-air performance appears as per manufacturers specifications (InnovAntenna). Lots of forward gain with next to NO side lobes, and up to 40db front2back rejection!! (depending on antenna) WOW

Was it worth it ??? YOU BET !

Almost no band noise on all 4 bands compared to the old installation (which was a good setup anyway). The bands were quiet for a few weeks after installation but then the rewards came, 1170km qso on 2m, and regular stations worked into Europe in the UKAC contests. Mid France worked and lots more countries heard on 70cms.

Holland worked (tropo) on 4m (new country) and more stations worked again in the UKAC contests, with the final session of 2011 reaping results to finish 3<sup>rd</sup> place for the year, and finally 6m, worked four stations on TEP/F2 into central Africa. Great, as it was almost only open to Africa from the south coast of the UK, so the low noise and high gain paid dividends to enable contacts from the Midlands.

Plenty of winter E's worked also, and I am now waiting for the Spring openings (fingers crossed) via TEP/F2 to south Africa and Asia, and of course the sunspot maximum F2 openings worldwide (we hope!)

1<sup>st</sup> place Feb 2012 UKAC session – a first for me! I am hoping It can only get better!

Mike G4VPD

Antennas are from [www.innovantennas.com](http://www.innovantennas.com)

# 40m QRP

The G-QRP Club sells a good range of 40M CW xtals at a very reasonable price. Here is a very cheap and easy to build transmitter using these xtals. Power output is approximately 6 Watts for a supply voltage of 13.8 VDC ( if you experiment with the Pi output values and FET bias then over 10 Watts can be had, but a large heat sink will be required for the FET ).

Construction is made easy by using a pad cutting tool for the circuit board - this tool is also available from the G-QRP Club. Easy to obtain components are used throughout the design.

The circuit consists of a Colpitts xtal oscillator TR1 followed by a diode switch D1, D2, a driver TR2 and PA stage TR3. A zener diode ZD1 stabilises the DC supply to TR1 stage, this oscillator runs continuously to avoid any chirp etc. The oscillator output is keyed by a diode switch consisting of D1, D2 and their associated components. Capacitor C1 provides some envelope shaping of the keyed waveform, it is isolated from RF by L1. On key down C1 gradually charges up towards the supply rail via D4 and R1, thus D1 and D2 become forward biased allowing the oscillator signal to pass to TR2 without a steep rising edge of the waveform. On key up, C1 discharged via R1, R2 the time constant of which eliminates a sharp falling edge of the waveform.

Tr2 is biased to class B via D3. It's collector load consists of L2, VC1, a parallel resonant tuned circuit. A low impedance tap on L2 feeds TR3 gate. The gate is heavily swamped by low impedance bias network and L2 tap, this is to overcome the 150pF or so of gate capacitance that would otherwise be difficult to drive. TR3 is biased for a standing current of 200 - 250mA by VR1. The drain load for TR3 is a Pi network, the 80pF ( approx ) of output capacitance exhibited by TR3 is taken into account for the network component values.

A low pass filter ( L5 and L6 ) follows the Pi network. A two pole two way switch is used for antenna switching, DC supply to the transmitter and also a mute voltage for a RX IF. A matching RX is currently under construction for use with this TX.

As mentioned earlier, it is possible to obtain 10 Watts output simply by changing the



880pF capacitor in the Pi network to a 1200pF and increasing TR3 standing current to 800mA. However, I do not recommend this unless you fit a large heat sink to TR3 as it does run very hot at this power level. The receiving station is unlikely to hear any difference between 6 and 10 Watts Tx power, I run mine at 6 Watts for a total current drain of 750 mA, if you require 5 Watts exactly, reduce Tr3 bias voltage accordingly.

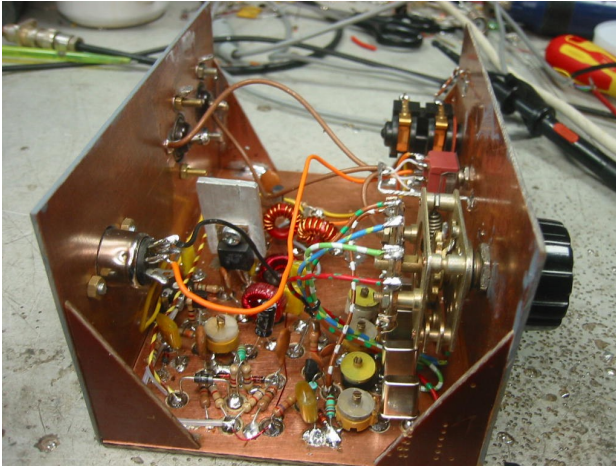
Alignment of the finished transmitter is simple, with no drive set the standing current of TR3 to 200 - 250 mA. Apply drive and adjust VC1 for maximum output power. Adjust the xtal trimmers for exact xtal frequencies, these trimmers were only included in case several of these transmitters are built for use in a net and all produce the same TX frequency. You may note an extra transistor on the circuit board, this is used as contact closure

to ground key switch so my electronic keyer can be used with this set.

The front and back of the case is made from some copper clad board, the circuit board



# 40m QRP Transmitter cont'd



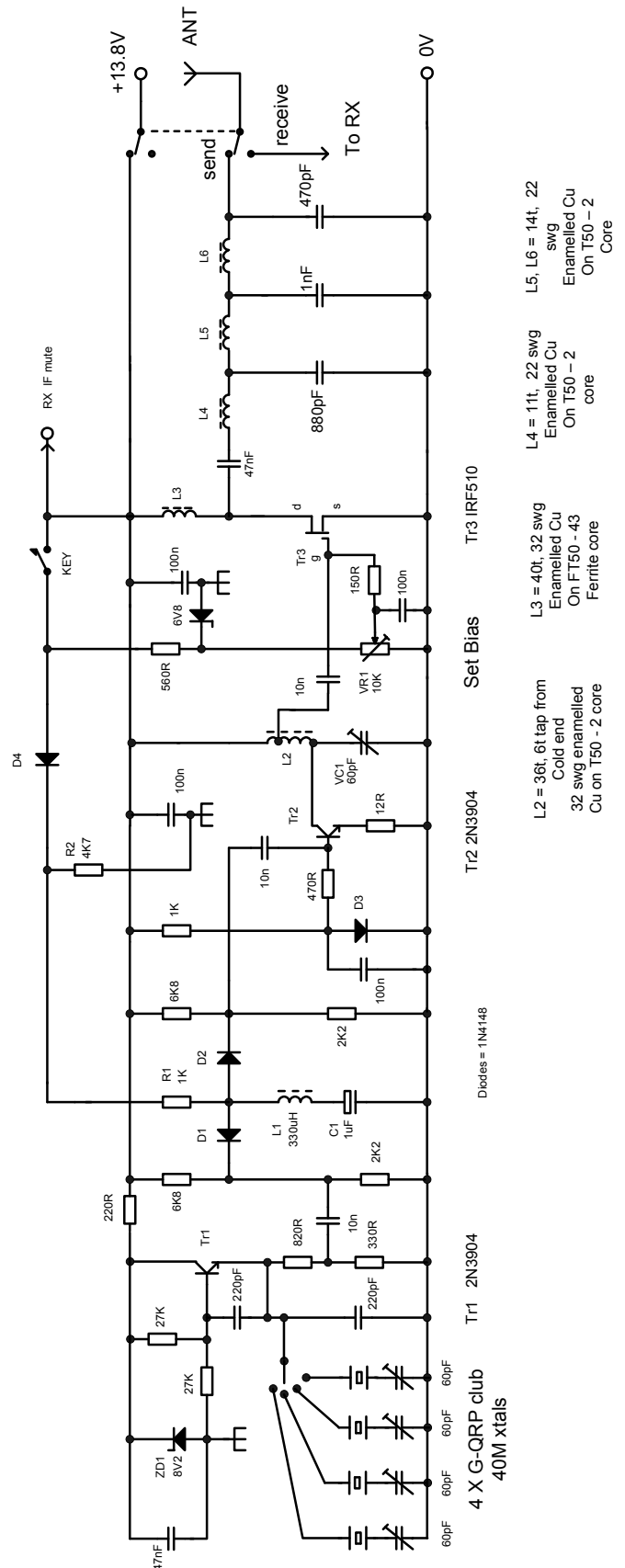
forms the bottom of the case. The lid of the case is made from a perforated aluminium ceiling tile.

Barry Zarucki M0DGQ

**Mills on the Air  
Sat 12th May  
at Avoncroft Museum, Nr  
Bromsgrove  
GB1DGW  
HF QRO and VHF  
Come and Join us  
10:30am - 5pm  
(earlier to set up)**



M0DGQ



# Hanbury Fair -GB4HEG

Are you coming to Hanbury fair?  
 Steam and vehicles from a long ago time.  
 Remember the snow a few years back was there.  
 We hoped for better weather this time.

Tell helpers to make sure a waterproof coat.  
 It's going to rain, so an umbrella as well.  
 If it's as bad as they forecast, you might need a boat But sun is a  
 maybe some forecasters tell

Les turned up with an instant pitch tent.  
 It erects in seconds was what he was told.  
 And before too much time was spent .  
 There was a dwelling all guyed down and bold.

Then up went the mast with the usual flair.  
 Lots of helpers were gathered around  
 "We're bloody useless" someone did declare.  
 As once more the antenna was laid on the ground.

Then came the awning, the shelter for all.  
 We'd found that a mouse had made this his home  
 For we saw a hole gnawed into a wall.  
 We were happy to learn that this creature had gone.

But soon the station was loud on the air.  
 A line up of wireless some old and some new .  
 The signals were booming from Hanbury fair.  
 This is when we're most proud of this thing that we do.

The forecast was wrong with the suggestion of sun.  
 The wind soon picked up and brought with it the rain. But despite  
 the weather we all had some fun And we all look forward to return-  
 ing again

So thank you to all who gave your support.  
 The station can't happen if you don't give your time I'm ever so  
 happy, so to write this report I've decided to revert to the past days  
 of rhyme.

Darren GW7HOC/MW5HOC  
 (Official WRC Bard)



## GB4HEG

Special Event Station at Hanbury Easter  
 Gathering on April 7th—9th 2012  
 Run by Wythall Radio Club  
 QSL via bureau G4WAC

QZL Zone 14 - ITU Zone 27  
 IOTA Reference: EU-003/Mainland Ct Britain IARU  
 Grid Locator: IO82XH, PIAB SO96



Photos: above GB4HEG QSL card; top right, Les M0COK; Howard M6AUL and Phil 2E0WTH doing something useful for a change; Jon M0JMM doing God knows what and a steam tractor

# Easter Contest 2012—Results

An excellent turnout for the second Wythall RC Easter Contest, beating all records set in the first year.

45 stations were active during the contest, of which 24 sent in logs. It is worth repeating that in this contest as indeed in any RSGB or other event, it is *always* worth sending in your log, for the small amount of effort and time it takes to do so. It helps the adjudicators a lot!

5 stations (astonishingly for just 5 days activity!) managed over 100 QSOs with other members. Not surprisingly, they all found themselves in the leading positions. 20 multipliers won the contest last year – this year, only the bottom three entrants *didn't* get at least 20 multipliers! Amazing!

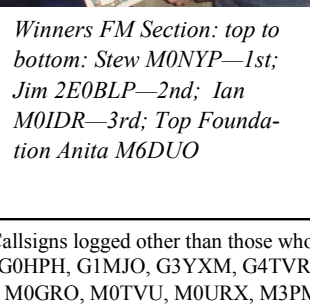
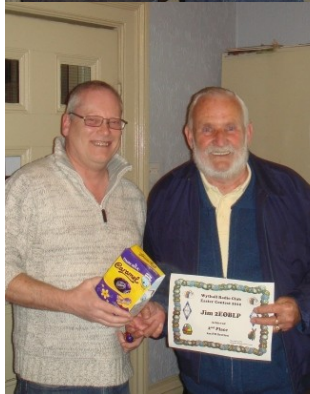
Competition was much fiercer in the 2m FM only section and had one or two of those decided to enter the ALL section, the results would have looked different. Food for thought for 2013 maybe?

Congratulations to all winners and thanks to everyone for taking part and making it such great fun! What will you all do between now and December 24<sup>th</sup>? J

Congratulations to winners Stuart M0NYP, Jim 2E0BLP and Ian M0IDR (great result from Evesham!) A special well done also to Anita M6DUO, the highest placed Foundation Licensee in her first ever contest!

Congratulations to Mike G4VPD, Chris G7DDN and Colin M0GJM

Chris G7DDN obo Contest Committee



L: Chris G7DDN presents Mike G4VPD with 1st place in All Section

R: Mike G4VPD presents Chris G7DDN with 2nd place in All Section

L: Mike G4VPD presents Colin M0GJM with 3rd place in All Section

Winners FM Section: top to bottom: Stew M0NYP—1st; Jim 2E0BLP—2nd; Ian M0IDR—3rd; Top Foundation Anita M6DUO

## Section 2FM

POS	CALL	QSOs	BEST	MLTS	PTS
1	M0NYP*	122	86	41	3526
2	2E0BLP*	120	81	40	3240
3	M0IDR*	102	70	37	2590
4	G1VLT	97	64	35	2240
5	M6DUO*	80	63	34	2142
6	M5DUO	68	52	31	1612
7	M0JMM	57	52	25	1300
8	2E0SDD	46	42	28	1176
9	M6AUL	42	42	27	1134
10	M0DGQ	56	43	25	1075
11	M6FAB	49	42	24	1008
12	M6STJ	37	37	26	962
13	G0NES	50	38	22	836
14	M1JSS	41	35	23	805
15	G0MTN	25	25	19	475
16	M0AEJ	33	27	16	432
17	M3SSP	7	7	7	49

## Section ALL

POS	CALL	QSOs	BEST	MLTS	PTS
1	G4VPD*	101	76	42	3192
2	G7DDN*	103	74	39	2886
3	M0GJM*	88	67	37	2479
4	G0ICJ	71	59	31	1829
5	G0EYO	59	59	29	1711
6	M0RKX	40	40	28	1120
7	M0MCX	31	31	23	713

## Composite Table

POS	CALL	QSOs	BEST	MLTS	PTS
1	M0NYP*	122	86	41	3526
2	2E0BLP*	120	81	40	3240
3	G4VPD*	101	76	42	3192
4	G7DDN*	103	74	39	2886
5	M0IDR*	102	70	37	2590
6	M0GJM*	88	67	37	2479
7	G1VLT	97	64	35	2240
8	M6DUO*	80	63	34	2142
9	G0ICJ	71	59	31	1829
10	G0EYO	59	59	29	1711
11	M5DUO	68	52	31	1612
12	M0JMM	57	52	25	1300
13	2E0SDD	46	42	28	1176
14	M6AUL	42	42	27	1134
15	M0RKX	40	40	28	1120
16	M0DGQ	56	43	25	1075
17	M6FAB	49	42	24	1008
18	M6STJ	37	37	26	962
19	G0NES	50	38	22	836
20	M1JSS	41	35	23	805
21	M0MCX	31	31	23	713
22	G0MTN	25	25	19	475
23	M0AEJ	33	27	16	432
24	M3SSP	7	7	7	49

Callsigns logged other than those who entered above included...  
2E0WTH, 2E0XTV, G0HDF, G0HPH, G1MJO, G3YXM, G4TVR, G4WAC, G6ZDQ, G7OKF, G8EOJ, GB4HEG, GW7HOC, M0COK, M0COP, M0GRO, M0TVU, M0URX, M3PMP, MW3YKL, MW6YDP

# Contest Corner

CLUB STANDINGS				
80M CC	6M UKAC	4M UKAC	2M UKAC	70cm UKAC
19/42	17/73	13/25	17/73	23/50

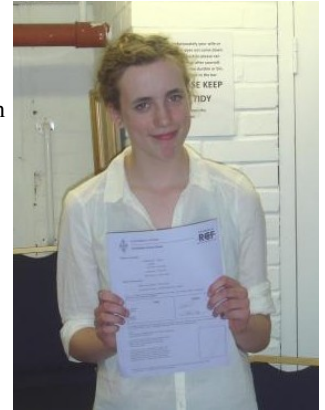
UPCOMING VHF CONTESTS			
DATE	TYPE	START (local)	LENGTH
01-May	2M UKAC	8pm	2.5 HRS
05-May	70cm TROPHY	3pm	8 HRS
5+6 May	70cm - 248Ghz Contest	3pm	24 HRS
08-May	70cm UKAC	8pm	2.5 HRS
19-May	144Mhz MAY Contest	3pm	24 HRS
20-May	1st 2M BACKPACKERS	12	4 HRS
22-May	6M UKAC	8pm	2.5 HS
27-May	4M CUMULATIVE #3	11am	2 HRS
29-May	4M UKAC	8pm	2.5 HRS
05-Jun	2M UKAC	8pm	2.5 HRS
10-Jun	2nd 2M BACKPACKERS	12	4 HRS
12-Jun	70cm UKAC	8pm	2.5 HRS
16+17 Jun	6M TROPHY	3pm	24 HRS
24-Jun	4M CUMULATIVE #4	11am	2 HRS
26-Jun	6M UKC	8pm	2.5 HRS

UPCOMING HF CONTESTS			
DATE	TYPE	START (local)	LENGTH
07-May	80M CC SSB	8pm	1.5 HRS
16-May	80M CC DAA	8pm	1.5 HRS
24-May	80M CC CW	8pm	1.5 HRS
2+3 Jun	HF NFD	4pm	24 HRS
04-Jun	80M CC DATA	8pm	1.5 HRS
13-Jun	80M CC CW	8pm	1.5 HRS
21-Jun	80M CC SSB	8pm	1.5 HRS
02-Jul	80M CC CW	8pm	1.5 HRS
11-Jul	80M CC SSB	8pm	1.5 HRS
19-Jul	80M CC DATA	8pm	1.5 HRS
28+29 Jul	IOTA	1pm	24 HRS

# Training

The club started an Intermediate Course in April with two club members, Chris M6BNQ, Keith M6KAO and non-member Tony M6KST who took his foundation course at Solihull club. Their examination is scheduled for the 18th June and we wish them well. My thanks to tutors, Barry M0DGQ, Peter G4LWF, Dave G3YXM, David G0ICJ, for helping us run these courses. And to David G0ICJ and Mike G4VPD who invigilate them. Without the support of these guys we would not be able to run these courses.

Tara ( daughter of Paul M0PYT-right) re-took her Foundation exam on April 22nd and passed with a very good mark (22/25). Her new callsign is M6GAL Lets hope we get the chance to have some QSOs in the very near future. We have organised a re-take of the Foundation exam for Jake (grandson of Peter G0HPP) for May 9th and fingers crossed he gets his ticket shortly.



We could run another Foundation course between mid June and September when our Advanced course starts in preparation for the December examination. If you know of anyone looking for a Foundation course then please let Chris G0EYO know.

Some of you may know that I also act as a Tutor for the Bath Distance Advanced Learning programme run by Steve Hartley G0FUW. I am pleased to say that Steve and the tutors were awarded the RSGB Kenwood Trophy at the RSGB AGM held in April. I could go to the award ceremony as it clashed with the Intermediate class but I am told a certificate is on its way.

Chris G0EYO Training Coordinator

## Low Williams Shield

Remember that during the month of May you can enter the contest for the Low Williams Shield using your CW skills. This is not so much an contest but an event to award the member who the contest committee decide has made good progress in developing their CW skills. The rules are on the Yahoo G4WAC website so why not have a go. There are plenty of CW opportunities during the month not least our own special event station at Mills on Air and the Plug and Play weekend. So have a go

## Kempton Rally

Chris G7DDN organised a car load to visit Kempton Rally in April and came across new members Dave G7IBO and Juliet M6RSC wandering around. Everyone seemed to have had a good time. Haven't heard of any new rigs though!

*Four go off to Kempton; l-r Barry M0DGQ, Ian M0IDR, Dave G3YXN, Chris G7DDN*



The next issue of the Wythall Radio Club Newsletter will be published at the beginning of July 2012

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