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**The Journal of**

**Horsham Amateur Radio Club**

March 2009

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Members score (attached separately)

**Cover photo: UHF, VHF Band 1, Band 3 TV aerials very common in Denmark at properties away from major towns and cities**

# Editorial

This month sees the first Junk Sale of the year. Items donated to the club will be sold first followed by everything else in the order in which it arrived. There will be light refreshments and a raffle. The new club web site continues to grow and may have changed since your last visit so do go and take a look.

At the beginning of February I made yet another visit to Denmark although only for a very short time. However I was wearing a new coat which I purchased in England around Christmas which strangely set off the alarm in Tescos at Pulborough near where I work but that often goes off I am informed in this cold weather we have been having.

In Odense, Denmark I again set off alarms in three shops. 'Sir I think you have something in your bag'. I replied: 'I am sure it is my coat'. 'Ok' and out I went. The last shop 'Expert' which is very similar to Currys here, one of the assistants came over to check why the alarm had gone off and I explained. 'Ok I think we can fix that'. So everything came out of the pockets and he detagged it.

'Now there is no problem Sir!' The coat originally came from a chain store in London and was sent to me via a mail order department who obviously forgot to check the tag. It appears that different shops have many different alarms systems tuned to different frequencies since only a handful of shops I had a problem in. They don't call themselves Experts for nothing!

David G4JHI

Copy deadline for April edition 17th March

For items sent by email please send to this address:

[harc.news@g4jhi.co.uk](mailto:harc.news@g4jhi.co.uk)

# HARC February Meeting: Nuclear Power Generation, by John Narborough

John's talk about nuclear power started off with a bit of history. From mediaeval times onwards, alchemists have spent years attempting to transform base metals into gold, with no success. Even respected scientists such as Isaac Newton were involved in this practice.

Mendeleev developed the Periodic Table in 1869 and this allowed rational, logical scientific thought to be applied for the first time. Gaps in the table showed that certain elements had yet to be discovered, and groups of elements in the table displayed similar properties. Marie Curie discovered and named an element Radium; this element gave off nasty rays which could effect photographic film.

Hence radioactivity. That was in 1898. In 1919, Rutherford in Cambridge became the first person to split the atom by firing alpha particles into nitrogen. Later on, Cockroft and Walton managed to create helium from lithium and hydrogen. Otto Hann left Germany before it was too late and started to investigate uranium.

The Manhattan Project was started by Oppenheimer in 1939 with the task of building an atomic bomb before Hitler. The chemistry of an element is due to the electrons surrounding the nucleus. Chemical reactions are when molecules are formed from element sharing outer electrons. The forces holding elements together are very small, presumably because the mass of an electron is very small.

Therefore not much energy is released when these bonds are broken. In contrast, the energy released by splitting an atom of U235 is considerably larger: 200MeV. If an atom of U235



(Left)

John  
Narborough

is hit by a neutron, the atom is split into two elements barium and krypton, 2 or 3 neutrons are ejected and energy is released, where  $e=mc^2$  (Einstein's formula).

A nuclear reactor consists of long fuel rods surrounded by other rods to moderate/regulate the speed of neutrons to prevent the core becoming critical and exploding, or not reacting at all. We saw a picture of a fuel pellet which is the same sort of size as a ferrite toroid about 1 inch diameter.

This pellet has the same energy level as over one tonne of coal in terms of generating steam. Something like 64 pellets make a pin, 36 pins make an assembly and the reactor core

contains 2,500 assemblies. Fuel rods have to be replaced when they wear out, so to speak.

It is possible to reprocess 95% of the material and use it again. However the remaining 5% is nasty stuff (300 year half-life) and the problems of its disposal have not yet been solved. The first large scale electricity generator was Calder Hall. It was designed in 1951 and started operating in 1956.

Carbon dioxide gas was the coolant and the design was called 'Magnox'. The reactor was shut down in 2003. For much of the time, it was used to produce plutonium. Decommissioning will be a major hazard, as the spent fuel rods take 10,000 years to 'cool', i.e. their radioactive half-life. Now there are about 19 sites running 26 reactors, which provides 20% of the UK's demand.

This compares with 80% of electricity in France generated from nuclear plant, and 15% globally. Many of our reactors are reaching the end of their 40 year lifespan and a decision will need to be made as to how to keep the lights on in the country in the future. It takes about 10 years from the first concrete going into the ground 'till electricity comes out the cables on the transmission towers'.

A discussion followed as to what the audience thought. As fusion was still an experimental curiosity unlikely to be usable in practice for many years, it seemed that most people thought nuclear fission should be used. Accidents such as Chernobyl were caused by poor design and operators messing about.

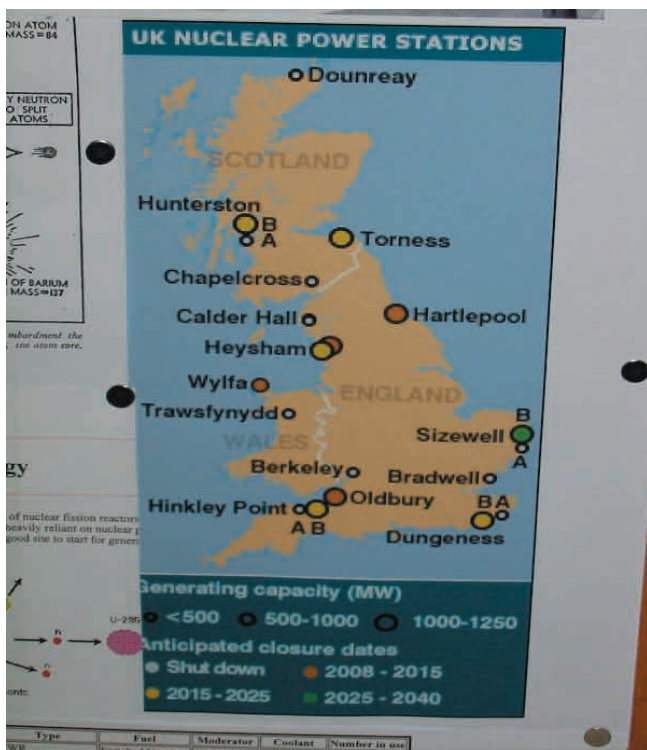
Windmills are basically 'decorative'! Perhaps if the West Coast was covered with them, a reasonable amount of power could be generated on a windy day. However it would be far better to convert sunlight into electricity. If this were to be achieved on a suitably large scale, then the excess sun energy, which otherwise increases the globe's temperature, may be put

to good use.

Ironically, if enough electricity could be generated this way, then the radioactive waste products could, it was suggested, be converted into lead, or better still, gold! Fluorescent energy-saving bulbs are very poor at low temperatures, some generate rf interference, contain mercury, and use energy to construct the diodes, transformers etc inside. But far, far, worse than that, they can put you off your pint by making it look green!

We thoroughly enjoyed the talk and all learnt many interesting facts. John ended the talk by saying that due to funding issues, this would be his last annual talk at Horsham; however all is not lost as we have been invited to go down to the Amberley Museum in the Winter one evening, when the museum is not open to the plebs (my word, not his!). (G3ZBU)

(Right)  
Nuclear  
Power  
Station map



# News on GB3WS

by

Mick G4EFO

We have carried out our first lot of tests from Horsham and I am sorry to say the coverage was not good so no early moves for WS. I have other sites to try in the next few weeks, but as many have commented to me "If it ain't broke, don't fix it!" Apart from around Horsham, Southwater, Slinfold and BB Heath, where the signals were very strong, it was considerably weaker than the existing WS site.

One pole that I would like to conduct;

Question 1. Should WS be left as an FM repeater i.e. operating as it is at present.

2. Should it become a dual mode repeater for digital/FM operation

3. Should it become a digital only repeater

It must be noted that it will NOT be a translator. i.e. If you put FM in, you get FM out, and if you put digital in you get digital out.

Could members email their views to [g4efo@gb3ws.co.uk](mailto:g4efo@gb3ws.co.uk)

## HARC Subscriptions

A reminder that subscriptions are now due for this years club membership.

Please forward £15 to the Treasurer which can be paid by cash or a cheque payable to H.A.R.C. Alternatively payment direct to Paul Barnett, 8 Parsonage Road, Horsham, RH12 4AR.

# The RSGB David Hill Memorial Trophy and Other Contests by TONY G3NPF

In 2001, the RSGB decided to award a trophy to the club who's top five scoring stations achieved the best aggregate score in the Top Band Club Calls Contest. The trophy is called the David Hill Memorial Trophy and is in memory of David G4IQM who sadly became a silent key in 2000, at a fairly young age.

David was a member of the Crawley Amateur Radio Club but he worked for Sun Alliance in Horsham and was well known in the area. HARC has a very impressive record in the contest for this trophy, having never been out of the first three. HARC achieved first place in 2002 and 2005, second place in 2001, 2003, 2004, 2006 and 2008 but only third place in 2007.

Unfortunately, it is always the same six or seven stations that take part. This situation is not much better in AFS and the Club Championship Contests. You can enter these contests from your home stations and they are of fairly short duration, so why not support HARC and submit an entry? All entries count in AFS and Club Championship contests so why not have a go, even if you only achieve a very modest score?

They all count towards the aggregate total and nobody is going to mind if you are a newly licensed member with little or no contest experience. We all have to start somewhere! Only the best five count in the Memorial Trophy, although all entries appear in the final results list.

The great advantage of these contests is that a low score still goes towards the final aggregate total and entering provides excellent training in contest operating procedures. This is not the case in multi-operator events such as SSB Field Day,

where it is fully understandable that inexperienced operators are unwilling to participate, as their efforts could detract from the final result.

HARC needs to build up the number of good contest operators within its membership and the only way to learn is by experience and, who knows, you may even get to enjoy it!

## HARC/CARC Challenge 2009

The Crawley Amateur Radio Club is pleased to welcome our friends from the Horsham Amateur Radio Club for the inter-club challenge

When: 29th April

Where: CARC HQ Hut 18 Tilgate Forest

Start time: 8.00p.m                      End Time: 10.00p.m

The Inter-club Challenge this year is a HARC/CARC radio challenge! Each club will provide a team and may decide how many members in the team. Using our skills as radio amateurs each team is to build an antenna.

Radio equipment, test equipment, tools and computers will not be provided – each team must bring their own. The antenna must fit within a 6-foot cube located on the ground. To prove that you have built an antenna each team must provide proof of reception of your signal. You may take the antenna outside to send your message.

There are no restrictions of band or mode or method of proof. You may use any HF band up to 30 MHz and any mode, but use no more than 5 watts. The winner will be the team that achieves proof of reception from the most remote station.

The rules in full can be found here: <http://carconline.blogspot.com/2009/02/2009-harccarc-inter-club-challenge.html>

# 80m Club Championships

## Info by Peter G3LET

Already in effect, the method of submitting logs for the 80m CCs has migrated from email to on-line robot. The posted rules have been updated, but are not entirely accurate, as email submissions will no longer be accepted, although a response to such emails will be made, pointing entrants to the new arrangement. So - instead of emailing your logs, you now go to

[www.vhfcc.org/cgi-bin/hfenter.pl](http://www.vhfcc.org/cgi-bin/hfenter.pl)

and follow the directions to forward your log. There will be an immediate response, with helpful details of any anomaly that the robot has found in your log file. There is also a FAQ at

[www.vhfcc.org/hfcc/information/robot.shtml](http://www.vhfcc.org/hfcc/information/robot.shtml)

This \*instant\* change may appear a bit brutal, but the HFCC is trying to persuade all entrants to give the new system a go, thereby saving many hours of work in collating and responding to emails.

The robot is being implemented first on the CCs but it is intended to roll it out over all domestic RSGB contests over the next weeks and months. Some of the international ones like the Commonwealth and IOTA may take a bit longer, due to the need to publicise the new arrangement more widely.

## Blog Spot

Crawley Amateur Radio Club would like to bring to your attention their Blog. This is something that is usually maintained by an individual with regular entries of commentary, descriptions of events, or other material.

<http://carconline.blogspot.com>

# Diary

Mar 2nd, 80m Data Club Championship 20:00 - 21:30

Mar 5th, Club Night: Junk Sale

Mar 8th, Bournemouth Radio Society 21st Annual Sale - Kinson Community Centre 09:30 [www.brswebsite.org.uk](http://www.brswebsite.org.uk)

Mar 11th, 80m CW Club Championship 20:00 - 21:30

Mar 14th, Dutch National Flea Market - "Autotron" in Rosmalen 09:00 CET\* [www.radiovlooiemarkt.nl](http://www.radiovlooiemarkt.nl)

Mar 19th, 80m SSB Club Championship 20:00 - 21:30

Mar 26th, Social Evening - White Horse - Maplehurst

Apr 2nd, Club Night: The History of Mr Polley G3PYC part 3

Apr 6th, 80m CW Club Championship

All above times are UTC except\*

Committee/Club Meetings and Socials start at 8pm

# HORSHAM AMATEUR RADIO CLUB

## Committee Members

Chairman - Adrian Boyd, G4LRP.

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Treasurer - Paul Barnett, G4TMC.

8 Parsonage Road, Horsham. (01403 261218)

P.R.O. Andrew Vine, M0GJH.

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**Club net: Sat 21.30 on  
144.725 MHz**

**BADNET: Sun 10.00 on  
3.722 MHz**

**HARC WEB SITE:** [www.harc.org.uk](http://www.harc.org.uk)

HARC meets the first Thursday of the month at  
The Guide Hall, Denne Road, Horsham, West Sussex

Comments, ideas, input and questions very welcome.  
Please send to HARCNEWS or contact a committee  
member about it.

The committee cannot arrange anything if you don't tell  
us.

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# Club Champs 2009 - Horsham Club Scores

Issue: 23rd Feb Rev: A

CURRENT/PREVIOUS PARTICIPANTS	JANUARY			FEBRUARY			MARCH			APRIL			MAY			JUNE			JULY			TOTAL POINTS	%	MODE TOTALS		
	SSB	Data	CW	SSB	Data	CW	SSB	Data	CW	SSB	Data	CW	SSB	Data	CW	SSB	Data	CW	SSB	DATA	CW					
G3LET Pete			377	492															869	10.2	492	0	377			
G3NPF Tony	430	169		543															1142	13.4	973	169	0			
G3OGP Robin			488	223															711	8.3	223	0	488			
G3PYC Ron																			0	0.0	0	0	0			
G3SWC Bryn	300	235	617	675															1827	21.4	975	235	617			
G3VQO Les		233	572	35															840	9.8	35	233	572			
G3ZBU Alister	153	408	319	320															1200	14.1	473	408	319			
G4EFO Mick	159																		159	1.9	159	0	0			
G4LRP Adrian	187			764															951	11.1	951	0	0			
G4TPO Steve	379																		379	4.4	379	0	0			
M0FRH Ian	40			98															138	1.6	138	0	0			
M0GJH Andrew			323																323	3.8	0	0	323			

Contest dates 14th 22nd 5th 2nd 11th 19th 19th 2nd 11th 15th 23rd 6th 4th 13th 21st 18th 1st 10th 15th 23rd 6th Start times are all 2000 clock time, ending 2130 local

HARC total points **8539**

Club position **7th**

UP one place since the last report!

All entries are to be lodged with the Contest Robot at:- <http://www.vhfcc.org/cgi-bin/hfenter.pl>

Latest robot entries may be viewed at:- <http://www.vhfcc.org/cgi-bin/hfposted.pl>

Contest rules: <http://www.vhfcc.org/hfcc/rules/2009/r80mcc.shtml>

The second report of the year & a continued good effort by all. It is good to see more participants in the SSB sections. We still need greater activity in CW & DATA. The new DATA rules mean that you get far more points for using both RTTY & PSK31. Conditions have generally continued as being very poor with long skip and very poor inter-G. Well done to Adrian G4LRP for a very high score of 764 in Feb SSB due to his QRP section entry.

Please note that the rules regarding the contest have changed this year - (a) DATA has a different scoring arrangement and an extended frequency band. (b) from February, all log entries are to be lodged using the Contest Robot - see address above. This is speeding up the calculation & posting of results. Please read the rules before participating.

I have included previous participants as well as new ones in the table. If there is no initial activity from any participant over a two month period then I'll remove them from the table. New participants are most welcome and can be added to the table at any time.

### THE TOP TWELVE CLUBS - out of approx 70 participating (data courtesy of RSGB website)

Pos	Club Name	Total	CW	SSB	DATA
1	Bristol CG	22369	5049	12655	4665
2	Newbury & DARS	20981	6093	9895	4993
3	De Montford Univ	13558	4179	5234	4145
4	Grimby ARS	10589	5907	2967	1715
5	Norfolk ARC	9683	3477	3331	2875
6	Three 'A's CG	9175	4092	4150	933
7	<b>Horsham ARC</b>	<b>8539</b>	<b>2696</b>	<b>4798</b>	<b>1045</b>
8	RAF Waddington	7511	3113	3160	1238
9	Torbay ARS	6626	2236	4390	0
10	Tall Trees CG	5839	1495	3343	1001
11	Bittern DX Group	5728	659	4005	1064
12	Worthing & District	5226	1319	3644	263