



# Chelmsford Amateur Radio Society Newsletter

## May Meeting

Tue 1-May-2018, 7.30-10pm  
Oaklands Museum, Moulsham Street

## Unusual Antennas

By John Regnault G4SWX

Guest speaker John Regnault G4SWX returns to CARS – on the topic of novel and unusual Antennas

John who is an EME enthusiast and the RSGB VHF Manager has previously given us talks on 'Building a Remotely Operated Station', 'Introducing Moonbounce', and 'Tricks with Coax'. This time he will give a thought provoking talk on some of the more unusual antenna configurations that are possible.

John will present a more generalised look at parasitic antenna arrays. Starting with Uda and Yagi's original papers and patents from 90 years ago, John will highlight that these Japanese researchers were actually thinking in 3D rather than just the more familiar 2D of most antennas named after Professor Yagi.

Novel examples nominally at 70cms will be shown, but John also discusses how this work can be applied at other frequencies such as the higher HF bands to 'enhance' the performance of HF beams.

Be prepared for some new insight - and inspiration that antenna experimenters should take a new look at beam antennas and possibly develop some novel 3D designs!

The evening will also feature our famous raffle, as well as refreshments. So make sure you pop along!



**Be Prepared: Our Table Top Sale is coming... – Tuesday 5<sup>th</sup> June**

### In this issue:-

Club Diary.....	2	Sunday Apr-22: Stakeholders Day .....	6
Club Nets.....	2	What's a Westminster ? .....	7
Training & Exam Dates .....	2	Notice: CARS Table Top Sale June-5 <sup>th</sup> .....	8
April Meeting: FreeDV – Digital Voice.....	3	John G8DET: My Journey with Amateur Radio .....	9
Essex Skills Night: April 2018 .....	4	uLog - Help Wanted .....	10
International Marconi Day - Saturday 21 <sup>st</sup> April .....	5	Help Still Wanted !!... .....	11

## Club Diary

Tue 1-May-2018	Unusual Antennas - John Regnault G4SWX	Chelmsford – Oaklands Museum, 7:30pm
Mon 21-May-2018	Skills Night	Danbury 7pm
Tue 5-Jun-2018	Table Top Sale - Contact Colin G0TRM for a table!	Chelmsford – Oaklands Museum, 7:30pm
Mon 18-Jun-2018	Skills Night	Danbury 7pm

## Club Nets

CARS meets for talks/events on the first Tuesday of the month. The subsequent Tuesdays have club radio nets as follows:-

- 2<sup>nd</sup> Tuesday in the Month – VHF**  
 The CARS VHF FM Net uses GB3DA from Danbury starting at 8pm (local).  
 GB3DA is 145.125MHz Input and 145.725MHz Output - and CTCSS-only (110.9Hz), 2min timeout  
 If for any reason GB3DA is not available then 145.375 Simplex will be used. Vertical aerials are best for this
- 3<sup>rd</sup> Tuesday in the Month - UHF**  
 The CARS UHF FM Net uses GB3ER from Danbury and starting at 8pm (local).  
 GB3ER is 434.675MHz Input and 433.075MHz Output - and is CTCSS-only  
 Vertical aerials are best.
- 4<sup>th</sup> Tuesday in the Month - HF**  
 The CARS 80m Net on "3756kHz" Night, SSB and starting at 8pm (local).  
 Horizontal aerials are best. The idea is to enable distant CARS Members to join the Net.
- 5<sup>th</sup> Tuesday in the Month (when there is one!) - MF**  
 This is the CARS Top Band Net on 1947/1950 kHz +/-QRM, LSB and starting at 8pm (local).  
 Horizontal aerials are usually used for this Net. A reminder - limit your power to a max of 30 Watts, please.

## Training & Exam Dates

Our training pages have the 2018 sessions listed for Foundation, Intermediate and Advance.

Our training manager Peter M0PSD is keen to hear from candidates for the 2018 courses, as well as any needing practicals or other help.

Morse Classes are continuing on Thursday evenings until the Jun-7<sup>th</sup> summer break – See Andy G0IBN

Course	Dates	Comment
Intermediate-17	Thu Mar-22 <sup>nd</sup> – Jun-7 <sup>th</sup>	In progress!
Advance-21	Thu July 12 <sup>th</sup> (plus Jul-5)	Exam (optional mocks & Foundation/Intermediate exams)
Foundation-38	Sept/Oct	In planning - Please register your interest!

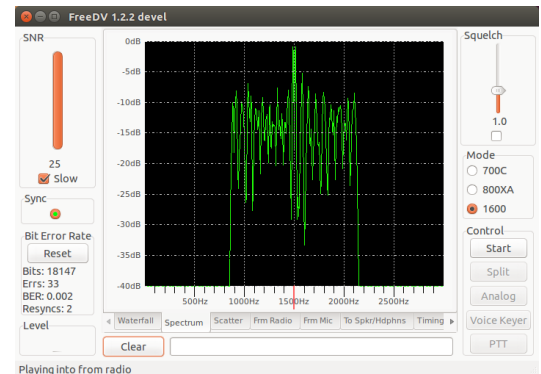
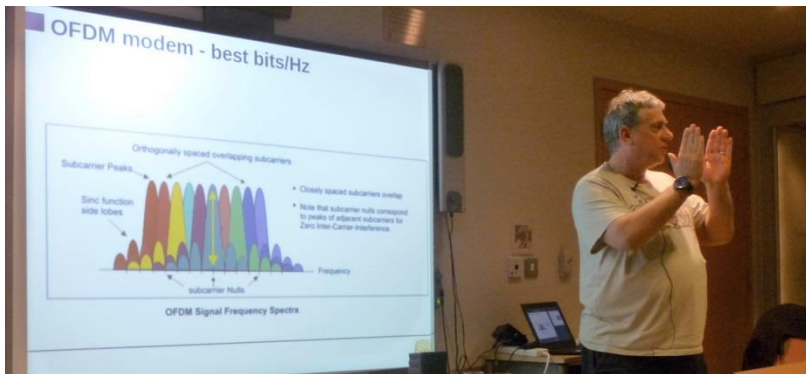
**Contact:** Peter Davies M0PSD, [training2018@g0mwt.org.uk](mailto:training2018@g0mwt.org.uk) Web: [www.g0mwt.org.uk/training](http://www.g0mwt.org.uk/training)

 Follow @TrainWithCARS

 Follow @ChelmsfordARS

**April Meeting: FreeDV – Digital Voice**

A well-attended meeting of almost 50 were present to welcome and hear guest speaker Matthew Phillips G6WJP explain and demonstrate a true amateur innovation on HF. In less bandwidth than SSB, Digital Voice (DV) has been developed and even used for GB2RS news. FreeDV uses multiple subtones (OFDM) and an ingenious model of the human voice for its Codec to reduce the bit rate down to a mere 1600 or even 700 bits/s. As its name suggests it is free open source and does not use proprietary codec chips.



**Matthew G6WJP explaining multi-tone OFDM - and the FreeDV software that uses it**



**Matthew receiving his speakers mug from Tony G4YTG – and some for the many who attended**



**Useful Links:-**

- More photos are on the [CARS website](#)
- [FreeDV](#) - inc software download
- [Codec2](#) - inc audio samples – by David Rowe VK5DGR

After the break Chairman Peter M0PSD drew the raffle and gave a short talk on planning permission issues – perhaps more about these in a future talk

Note: GB2RS is broadcast in FreeDV on ~3640 kHz - so give it a try! - Thanks Matthew

**Essex Skills Night: April 2018**

Spring is here! - and the evenings are getting lighter. The evening of 16<sup>th</sup> April had quite a variety of activities which made it another attractive/popular event to attend (from Kent as well as Essex).

Activities include lots of different radios, data and DV modes, including SDRs & PSK31, TARG & Essex-CW Club and Jim and Glynis doing a roaring trade in badge making. Intermediate-related demos and practicals were also underway in the rear Hawkins room. Below are some of the photos – more are online



**Slim Jim antennas made a return – whilst Dipole Tuning practicals assisted Foundation trainees**



**Radios: David M1DCJ with the new club Icom 7300 SDR – and Essex CW with CARS/TARG visitors**



**Digital: Perry M6XPD et al advising on DV radios - and Jim 2E0RMI with a PSK31 demo**

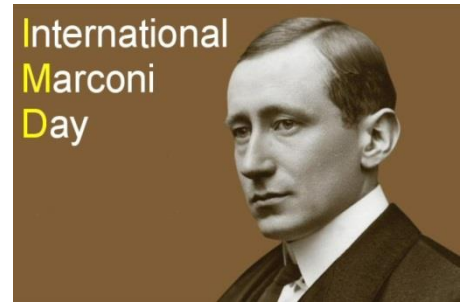
The [website](#) has more photos including some of the quiz picture questions!

Our thanks again for excellent refreshments by Myra and Ann in the kitchen, helping the evening along.

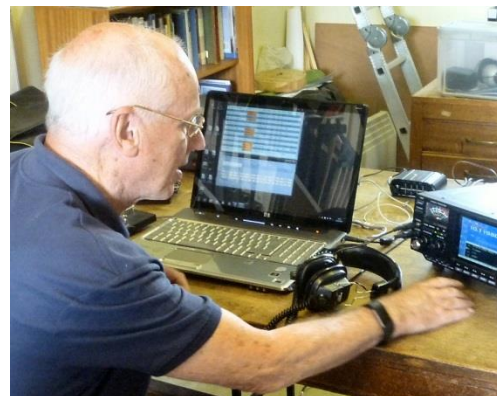
**NEXT EVENTS: Monday May 21<sup>st</sup> and June 18<sup>th</sup>**

**International Marconi Day - Saturday 21<sup>st</sup> April**

International Marconi Day commemorates Marconi's Birthday on 25<sup>th</sup> April 1874, and is held on the nearest Saturday. CARS was registered as one of the Award Stations and despite some poor HF conditions operated two stations on CW and SSB as GX0MWT with ~40 QSOs. The nice weather was really helpful for our outdoor activities which included a barbeque, 53 visitors and a further three VHF/UHF stations - including the first use of the new club Icom 7100 on D-Star.



**Barbie outdoors!**



**IMD HF Operators in the 2MT Hut and Upstairs**



**VHF/UHF included Echolink, DMR - and Dorothy M0LMR working DX on D-Star (Pretoria, USA and Brazil)**

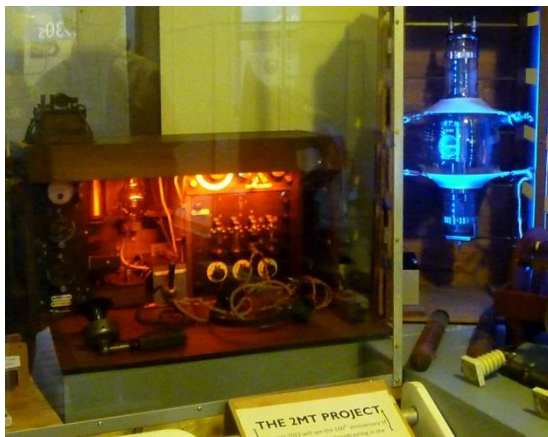
**Sunday Apr-22: Stakeholders Day**

Following on from IMD we returned on the Sunday showing our training schedule and equipment. This was an invitation-only day for Sandford Mill stakeholders – and gave us an opportunity to engage with other groups and discuss the future. More fine weather too! - Our thanks to all those who came along.

**Peter M0PSD**



**CARS demos and displays on Sunday were orientated towards training and education**



**The 2MT Project and related displays look forward to the forthcoming broadcasting centenaries**



**Radios in the 2MT hut and Marconi TV Demonstrations upstairs**

## What's a Westminster ?

In last month's newsletter Murray made reference to a Pye Westminster. Some newer members of the club may not be aware of these iconic radios so I thought I would describe them in more detail.

The Westminster series of radios were VHF PMR (Private Mobile Radio) transceivers in use in the 70's by various services, taxis etc, and which were readily available from rallies, junk sales and dealers for a few pounds from the early 80's. They still pop up every now and again on internet auction sites, and there must be thousands lying around in sheds around the country.



They were quite light equipment measuring about 9 inches square by about 3 inches deep. They were either AM or FM, single or multi-channel, and came in a range of bands. An E band Westminster covered 68 – 88 MHz (ideal for 4 metres) a B band (very rare) one covered 132 – 156 MHz (for 2 metres) and an A band one (much more common) covered 148 – 175 MHz. The most numerous version seemed to be the P band, covering 79 – 101 MHz. All these variations looked identical from the outside, so you really had to study the type number on the plate affixed to the side carefully to know what you were getting. They came in both dash mount and boot mount versions. Both versions were almost identical inside, but instead of the volume, squelch, channel selector switch (if multi-channel) and on/off switch on the front of the dash mounts, the boot mount version had a cast plate on the front holding a 38 pin socket to connect via an umbilical cord to the control box and speaker on the dashboard.

The transmitter was crystal controlled, all transistor, giving 10 – 15 watts of Rf on FM, and about 5 watts on AM, and the receiver was again crystal controlled, an all transistor, double conversion superhet, with IFs at 10.7 MHz and 455 kHz.

The top and bottom covers came off quite easily to reveal a very neat modular built construction. There were a dozen or so printed circuit boards of the different stages of the transmitter and receiver, such as the receiver Rf front end board and the transmitter multiplier stage board. The boards could easily be removed for working on or replacement - and the components on the boards easily changed.

There were several dealers selling Westminster spares, and as all the range were physically identical, but electrically different, it was possible, for example to buy a B band front end board to put in an A band radio, to bring it down onto 2 metres.

More fun however, was to study the circuit diagrams and component lists (service manuals could be obtained from rallies) and actually change some of the components, or re-wind coils to make the boards work on other bands. Many people converted P band Westminsters to E band (for 4 metres) in this way, and several magazine articles appeared giving detailed procedures for conversion and tune up. Parts of the conversion were easy, for example, P band and E band have the same TX multiplier/driver coils, but the capacitors are different, so all you had to do was change, for example, a 100pF silver mica capacitor for a 120pF one to bring the resonance of that coil down a bit. Some coils needed rewinding, a bit more fiddly, but definitely "do-able". It was a very rewarding way to spend a few evenings in the shack with a soldering iron!

In use Westminsters proved to be very capable radios, particularly in the environment for which they were designed, i.e. in a car. 10 channels proved to be more than enough, you just crystallised up on the local centres of activity, such as 145.500, 145.525 and 145.550 MHz, and on 4 metres all you needed was 70.26 and 70.45 MHz!

Another use for the Westminsters came when packet radio was being developed. Rather than tying up an expensive multi-mode transceiver, many amateurs used a Westminster as their single frequency packet radio.

I will probably bring a Westminster along to the next club meeting if anyone would like to have a closer look, and I'll take the covers off so you can see the stages of a real radio and how easy they are to work on.

73's

Andrew G4KQE

---

### Notice: CARS Table Top Sale June-5<sup>th</sup>

Make sure you don't miss our next event on 5th June starting at 7.30pm at Oaklands

In order to assist with construction and recycling, the June meeting is the CARS Radio and Electronics Tabletop Sale, coordinated by Secretary Colin G0TRM.

Please contact Colin G0TRM now for more information.

**Lots of your own stuff to sell?**

**Book a table !**

**- via Colin Page, G0TRM**





## John G8DET: My Journey with Amateur Radio

I was born near Prestbury Race Course, Cheltenham (of Gold Cup fame) and joined Post Office Telephones (POT) as a Youth in Training in 1956. The POT required me to study City & Guilds (C&G) Telecommunications but the local Technical College only ran these courses in the evening so I was given a day off in lieu – I then studied the Ordinary National Certificate during the day. I received a letter from the Queen requesting my services but I deferred this to complete my ONC Electrical when I joined Royal Electrical & Mechanical Engineers (REME) in Honiton for 3 months of basic training; being the youngest out of 114.

I was selected for Officer Training and was commissioned 2Lt in 1959 (along with Michael Heseltine), posted to 3Bn REME Training at Arborfield where I was in charge of radio, line transmission and cypher training and also looked after amateur radio station G3IHH which was operated by the many licensed amateurs on my staff. We had Marconi TXs SWB 8s and 11s.

After 18 months on the pay of a Captain, I returned to POT in Cheltenham as a Technical Officer and worked on many projects in Gloucestershire including a Clerk-of-Works (COW) at the Wootton-under-Edge radio tower (photo – right), the introduction of Marconi 24 Channel PCM, American Strategic Air Command base and the Concorde Project at RAF Fairford and other communication sites around.

I returned to studying part time gaining HNC with IEE Electronic Endorsement's and C&G Full Technology Certificates in both Line Transmission and Radio.



### Early Amateur Radio

Having been introduced to amateur radio in the Army I obtained my Licence G8DET in 1969 when the Radio Authority allowed 2m operation without Morse – I am total Morse illiterate as my Staff Sergeant told me having failed the Army test!

I was a Member of The Golden Valley VHF Contest Group GW4ABR/P and were awarded the 1st G4 +3, 2m Award, the 1st G4 + 3, 4m Award and later the VHF Manager's Trophy in 1976.

In 1970 I was promoted to POT Headquarters in Finsbury Circus, London where I wrote and organised the National introduction of Subscriber and then International Dialling projects. This was followed by the National introduction of digital exchanges, travelling extensively throughout the UK and gaining along the way Chartered Engineer status, MIERE and finally MIEE (now MIET).

### CARS

During this time I had moved to a hill top house in Danbury and joined both the POT Radio Society (with G4YTG's Post Office Tower as it's symbol on their QSL Card) and CARS and was active on 2m SSB using home constructed equipment. For 10 years or so had a 2m SSB sked on Sunday mornings with Robin Harvey, G4BBR in Cheltenham, a distance of 145 miles.

I joined CARS when they used the Marconi Training College in Arbour Lane with Ron Ferguson G4VF President (Managing Director of MIMCo), Roy Martyr G3PMX and Tony Dix G5IX Vice Presidents; Willie

McClintock G3VCF Secretary (later RSGB President); Ken Dews G3PMW Treasurer and Don Beattie G3OZF as Public Relations Officer (later RSGB & IARU Region 1 President) and later with Chris Chapman, G0IPU's family provided the tea at meetings.

I had stints as Treasurer, Newsletter writer, Vice and then Chairman for 21 years. During this time CARS were awarded the RSGB Kenwood Trophy for Training in 2007, a Lottery Grant in 2008 and RSGB Club of the Year in 2009.

After years operating in contests with vehicles stuck in muddy fields, CARS got involved with Sandford Mill and Dr Geoff Bowles where we provided GX0MWT as an Award Station with IMD. Various promotional activities covered Marconi 100 years ago with Special Event Stations including 2MT & GB100MWT.

**Photo:** John G8DET with Marconi's Daughter Princess Elettra Marconi at the unveiling of the Marconi statue in 2003 at the Essex Records Office in Chelmsford

With Murray G6JYB, I created the first CARS Website in 1999/2000 and finally eMail Newsletters – do you remember 15kbytes/sec emails on old dial-up modems? I am convinced though that paper newsletters were read more thoroughly than the electronic version; but that is the penalty of progress.

At this stage I must give credit to all those past and present CARS Members and their families for the tremendous effort and support they have provided for CARS – without this team effort CARS would not be the successful Society it is today.

Ill health kicked in with life-threatening leg aneurysms (too long seated in front of a computer?) in 2011. This eventually forced me to downsize to the flatland of Chelmsford where I can communicate only via GB3DA & ER with my Chinese Baofeng tuned in for me by Mark Sanderson M0IEO.

The POT, BT and radio has provided me with a very rewarding and thoroughly enjoyable career which I know will never be repeated - times have changed.

**John Bowen G8DET**



## **uLog - Help Wanted**

Can anyone help Don Rose M0BAW please ?

He is asking the help from any Club member who uses the uLog logging system, as he trying to solve a problem with ADI file transfers to Club Log and would be glad of some advice.

An e-mail would be appreciated from a helping hand.

His email is: [rose.don@talktalk.net](mailto:rose.don@talktalk.net)

And if you haven't heard of uLog before – there is more here: <http://www.m0pzt.com/ulog/>

## Foundation & Intermediate Training

CARS Intermediate Course has just passed its half way mark at Danbury. Below is from April 19<sup>th</sup>. This course and a significant number of Foundation candidates are due in a joint exam session on June 7<sup>th</sup>. Overall CARS has three Intermediate exam sessions a year – there are also slots in July and December.



Practicals in full swing on Intermediate Course 17

## Help Still Wanted !!...

- **Newsletter Editor**
- **Newsletter Items**



Copyright – Chelmsford Amateur Radio Society - All contributors acknowledged

Editor: [editor@g0mwt.org.uk](mailto:editor@g0mwt.org.uk)

Newsletter and Archive: <http://www.g0mwt.org.uk/newsletter>