



Chelmsford Amateur Radio Society

Established 1936

Affiliated to the RSGB Club Call Sign: G0MWT
President: Carl Thomson, G3PEM Chairman: John Bowen G8DET
Treasurer: Brian Thwaites G3CVI Vice Chairman Martyn Medcalf G1EFL



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This Month's Meeting – Tuesday, 3rd May, 7.30pm at the Marconi Club "Astronomy by John Greenwood, SWL"

Many Radio Amateurs are familiar with the International Space Station where most are licensed and have either seen the ISS or listened to one of its many transmissions. However what happens further out in Space is a mystery to most!

John Greenwood is coming from Canvey Island to tell us about the Stars.

An interesting evening is expected - bring the family, as the subject is common to all.

CARS famous Raffle will have over 10 Prizes - only a £1 per ticket.

Michael Wheaton, G4ZPE (Zipy) – Silent Key

Mike's Funeral was at Chelmsford Crematorium, Writtle Road, CM1 3BL on Monday, 4th April and CARS and the many other Clubs he was associated with were well represented.

Margaret's family provided all the flowers.
**Donation please to "Essex Air Ambulance". This should be via the Funeral Directors,
A G Smith, 7 Spital Road, Maldon. CM9 6DY, by post.**
CARS extend sympathy to Margaret and Family.

Dates for your Diary

Friday, 29 th April	CARS extend their congratulations to a Special Event – see page 3.
Sat 30 th April	CARS – IMD at Sandford Mill with the Public, 10am to 5pm. Free entrance & parking.
Tues 10, 17 & 24 May	CARS CW Net starts at 8pm on Tues 12 th ; FM & SSB Nets start at 8.30pm (Local)
Wed, 11 th May	CARS Committee Meeting – Danbury Village Hall – 7.30pm. All welcome.
Sat/Sun 14/15 th May	CARS Operating from Stock Windmill using GB5SM. 10 – 5pm. Free Public Access.
Sun 29 th May	CARS at W&S Open Day, Hockley 10 – 4pm. See page 4.
Tues 7 th June	CARS Meeting – G5RV Evening at MASC presented by CARS Members.
Thursday 9 th June	CARS Operating from the Marconi Hut, Sandford Mill – G5RV Anniversary Day

To be/remain a Member of CARS, send a Cheque for £12 – Adult Membership (16s and under are FREE) to:- Mr Brian Thwaites, 118 Baddow Hall Crescent, Great Baddow, CHELMSFORD, CM2 7BU. If you would like a receipt, please enclose a stamped addressed envelope with a 2nd class stamp.

Thanks to Geoff, G7KLV for sending the postal Newsletters – could it go by E-Mail? Please inform Geoff, G7KLV by E-Mail of any changes to your callsign, postal or eMail address, etc. Email him on g7klv@g0mwt.org.uk Only by you sending Geoff your E-Mail address, can we ensure **WE** get it right!

Club Nets: Tuesdays 8.30pm: (2nd) 145.375: (3rd) GB3ER: (4th) 1.947/50: (5th) 28.375. All MHz +/- QRM.
Net Controller for May is David, M0BQC. Thanks to Colin & Geoff, G3EDM who did it in April.

Last Month's Meeting:- April Over The Horizon Radars by Andrew Tyler, G1GKN

The meeting opened on a VERY sad note: John our Chairman gave a heartfelt appreciation of Zipy, aka Mike Wheaton, G4ZPE, who'd recently become Silent Key due to a heart attack. Zipy had also been involved in motorcycling, Formula 1, was a Freemason, and known by many as a kind and generous man. His funeral was attended by – I think – about 150 people. There were certainly 100 unable to get into the chapel. Our sympathies go to his widow Margaret, and donations, please, to Essex Air Ambulance.

At short notice Andy Tyler G1GKN presented a lecture on OTHR, Over-The-Horizon-Radar. Why should we care about this? OTHR uses the HF bands, is very powerful, and not always concerned about published band plans, 'secret' and thus unacknowledged. Why HF? Microwave radar range is ~200 miles, and ineffective under about 20,000 ft altitude. There are 2 OTHR systems:

- 1) **Skywave/Backscatter:** 4-40MHz, using ionospheric propagation and refraction. There is poor spectral resolution due to long λ but good Doppler effect with a small target area. Its original use (Woodpecker etc) was Early Warning of ballistic missile attack. Uses 40MW or more, huge fixed antennae 40 miles apart, range 3000 miles and coupled to an ionospheric sounder.
- 2) **Surface-Wave radar:** 100 mile range, over mainly sea paths, 2-26MHz with poor spectral resolution but excellent Doppler resolution due to long integration time. Power about 500+ watts; a large sector is viewed; surface and air targets in this case. Applications include drugs and customs enforcement.

The date of the USA's Bicentennial, 4th July 1976, saw the birth of the Russian 'Woodpecker' (Andy Clark G4IYT's sobriquet). These 2 synchronised, frequency-agile radar transmitters were near Chernobyl and in East Siberia. The NATO code was STEELYARD – maybe due to the massive 450ft high solid construction. Fat caged dipoles gave good bandwidth. Megawatts gave good echoes; however its signal processing was relatively primitive. The HF interference it gave was worldwide. Its Doppler processing was good, but the resolution otherwise poor. Nowadays, only 8 miles from the Chernobyl April 1986 disaster, the aerials remain, but the transmitters have been removed. The small town around them has been abandoned.

What of Blighty? Orfordness was the site of the RAF and USAF skywave OTHR, Cobra Mist. (A site in Turkey had proved impractical). The same area once been used by Watson-Watt. The (recently deceased) BBC World transmitter appeared later. With its 25dB gain log-periodics Cobra Mist could produce 18 beams with sum and difference capability, using 6-40MHz and 10MW. Signals could be processed and stored. It used an early form of SDR. There was a ground-mat to the sea wall, but the 20dB higher than expected noise floor was never resolved. Eventually they gave up and it was shut down in mid 1973. Watson-Watt also had to move on this account (despite the excellent fish and chip shop!), to Bawdsey Manor.

In Australia the Jindalee skywave OTHR (aka JORN) has a range of over 2000+ miles and with its sister stations cover huge areas of ocean off northern Australia. It has 28 x 20KW transmitters that can be phase-squinted. Ionospheric sounders enable the frequency to be varied according to conditions from 5 to 30MHz. The receiving stations are strung out over 2 miles. A map of the state of play is generated every 225s.

Most of the most recent developments are on smaller HF surface wave radars that can be used for aircraft and ship detection, sea state monitoring, inshore safety and environmental monitoring. Rapidly deployable OTHR systems may be useful for antiterrorism, anti smuggling both of drugs and people.

Conclusions: Many countries now want OTHR. There is still poor sea surface coverage; the HF bands most affected, SDR might allow lower power, but at the end of the day OTHR is a threat to the hobby.

There was an at times light-hearted discussion of freedom of info on Wikipedia, jamming by Russian trawlers, what CE stood for, trigger pulse shapes, what in fact Russian trawlers were really up to.

The raffle was drawn and some good prizes awarded.

John G4UZD it turned out had worked at Jindalee, which is 170km NE of Alice Springs – where the nearest shops are - and has mostly Marconi equipment. John took us on a personal photographic tour, with his views on the problems of living in such an environment as well as technical items. The base has its own fuel supply, generator and water supply. Ionising radiation is a hazard. Big feeders go to Baluns at the base of the antennas, and have sunshades! Interestingly the feeders need dehydrators in that dry and at times 41°C climate. There was a small swimming pool, 'barbie' and individual bungalows. Nets were needed for the flies, and ants are a problem. A nearly man-sized gecko was treated with respect. A local hobby is "fossicking", or opal hunting. Local informal tours might include old mines!

Patrick M0XAP – *Thank you Andy and John for such a good evening's presentation.*

International Marconi Day at Sandford Mill, Science & Industry Museum

CARS is pleased to see in February RadCom that IMD is now publicised as Saturday, 30th April. CARS will be at Sandford Mill, which is open to the Public from 10am to 5pm. Entrance and parking is FREE. Tea/coffee and light refreshments will be available courtesy of *Friends of the Museum*.

The idea is to have SSB in the Marconi Hut and CW on 14MHz from Dr Geoff Bowles's office upstairs. Peter Bridgeman, G3SUY will be providing his Marconi 1154 Transmitter and 1155 Receiver in Mark's caravan parked near the Barn. This will be on 3.61 to 3.65 MHz +/- QRM transmitting using AM. It is proposed to reply firstly to AM stations but they will switch on the BFO and receive SSB if there is no AM activity. Ofcom have agreed to CARS using GB100MWT (Marconi Wireless Telegraph). Additionally Colin, G0TRM and helpers will be manning the famous 100-year-old Mechanical Morse stand that is liked by operators aged 4 to 90 years. There will also be a display of Morse Keys.

Tim Wander, Ex Marconi will be presenting his newly published book on Marconi & Writtle. Bring some money as you should be able to purchase a copy.

Friends of the Museum will be staffing the Ships Radio Room and a number of static displays.

May Radio Sport (Contests) All in UTC

02 May – RSGB Club – SSB – 20:00 to 21:30 Local

11 May - RSGB Club – DATA – 20:00 to 21:30 Local

21/22 May – 144MHz May Contest – 24 Hours

07 May – 432MHz Trophy – 14:00 to 22:00 UTC

19 May – RSGB Club – CW – 20:00 to 21:30 Local

28/29 May – CQWW – WPX – CW – 48 Hours

For further information please email Steve G4ZUL contests2010@q0mwt.org.uk

Steve, G4ZUL

Congratulations to the Essex CW Club for winning the RSGB Region 12 Competition, 2010

CARS Propagation Forecast for May

Prediction engines rely upon smoothed Sunspot Numbers and not day-to-day variations. That is why predictions carry the caveat that they are only correct for 50% of days! Gwyn tries to make his better!

Asia: Dhahran around 20:00 on 18.1MHz for 85 percent of days, with poor signals.

Oceania: Sydney around 20:00 on 7.0MHz for 61 percent of days, with poor signals.

Africa: Johannesburg around 18:00 on 10.1MHz for 86 percent of days, with poor signals.

S. America: Rio de Janeiro around 22:00 on 10.1MHz for 86 percent of days, with poor signals.

N. America: Saskatoon around 06:00 on 10.1MHz for 71 percent of days, with poor signals.

Gwyn, G4FKH

QSLs for the GR/MR/2R Prefix for Royal Wedding Call-Sign Change

As the Royal Wedding prefix GR, MR and 2R replaces the traditional regional locator for G, M and 2 Call-signs, it has been necessary for the QSL bureau to create a temporary special sub group to handle the expected large influx of cards. Martin Coles, G0VXC has kindly accepted the challenge of handling GR, MR and 2R calls. NoV holders wishing to receive incoming cards must deposit separate, C5 size, stamped and numbered envelopes with him, clearly showing the special Call-sign in the top left hand corner. Please be advised that in line with conventional GB cards, special Royal Wedding QSLs will not be re-directed via the home Call-sign or QSL manager, even if it is written on the card. Contact details for Martin, G0VXC are as per the RSGB Yearbook and RSGB website.

Mark Sanderson, M0IEO, RSGB Deputy Regional Manager, Region 123, Essex.

Friday, the 29th April 2011.

On this Special Day, 48 years ago, Peter Chadwick was issued with his current Call-Sign G3RZP.

Congratulations from the CARS Committee

CARS Second Tuesday Net - VHF

As I am sure you will have seen in John, G8DET's earlier announcement, we are going to try using the repeater GB3DA for the second Tuesday's 2m net on the 10th May. This will hopefully allow people living further away from Chelmsford to be able to take part and hear all participants, rather than the problems experienced at the moment where people in outlying areas can only hear some of the participants using simplex communications.

I know that many of us use GB3DA at different times and are comfortable using it, but there are a number of people in the Club who are not so confident with using Repeaters - this article is aimed at them. As each make of radio has a slightly different method of setting up for Repeater use, it will be a good idea to refer to your radio's operating manual which came with your radio to help with setting up. Yaesu radios generally have the Repeater offsets programmed into them from new and so are much easier to use, whereas Icom radios require you to programme the settings into a memory setting and therefore take a little longer to set up.

Basic Principles of Repeater Use

A Repeater is a station set up in a convenient high location to provide a good coverage for a wide area; it listens on one frequency while simultaneously transmitting on another frequency, known as Duplex operation. In the case of GB3DA it listens on 145.125 MHz known as the input, and retransmits on 145.725 MHz known as its output using Narrowband 12.5 kHz FM (NBFM). The receiver on GB3DA has NBFM filtering so Wideband 25kHz FM users will be distorted or chopped out. Information can be found on this at the Essex Repeater Group website, www.essexrepeatergroup.org.uk. Note that attempts to use 25kHz will also interfere with repeaters in London/Kent that use the adjacent 12.5kHz channels

In Practice

So we now know that to use the Repeater we need to transmit on one frequency and listen on another, we need to set our radios to listen on 145.725 MHz and transmit on 145.125 MHz, but there is one other thing we need to do before we can access the Repeater. Given the number of repeaters in the country and the limited number of frequencies that can be used, each Repeater has to be accessed by a code known as a CTCSS code or Continuous Tone Coded Squelch System. This allows the Repeater to know that you want to use it and opens it for use. In the case of GB3DA the CTCSS code is 110.9Hz, although at the moment, it still supports the legacy access method of a 1750Hz tone burst for those of you with older radios. However do remember that you still need to use 12.5 kHz NBFM and not let the toneburst cause an over-deviation

Your radio hand book will give you details of which method your radio uses and how to select narrowband FM. Ok, so you have followed the step-by-step guide in your radio handbook and set the radio to use the repeater including the CTCSS or Tone Burst, you should now be able to access GB3DA. If you don't want to hear the regular 15-minute idents from GB3DA there is the option to use the Tone-coded squelch facility on your own radio to block them so that you only hear voice messages being sent through the Repeater and not the Morse idents. Finally, there are some important rules to bear in mind when using the repeater.

- Remember to give your Callsign on each Over.
- Remember that there is a Time-Out on the Repeater; this is to prevent accidental keying from locking out the Repeater. GB3DA is set to cut out after 2 minutes (faster than GB3ER)
- Always let the Repeater reset after the other person has finished talking, listen for a couple of seconds and you will hear the letter "K" in Morse to let you know that the Timer has reset. If you don't let the timer reset you will be cut off when the timer runs out – which can be rather embarrassing for you!
- Although Repeaters are free to use for all Radio Amateurs, they do have to be maintained, insured and run on electricity, which has to be paid for. The Essex Repeater Group rely on donations from amateurs to fund the repeaters from its Members and fund raising activities throughout the year and all donations are gratefully accepted, or why not join the Essex Repeater Group, details are on the ERG website.

If you have problems with setting up your radio for Repeaters or with accessing GB3DA, please feel free to call me on 01268 698304 or drop me an e-mail at belinda.sanderson@tiscali.co.uk and I will be only too happy to guide you through the process. Repeaters are there for everyone to use so please be patient if it is in use at the time you want to use it. Above all, enjoy using GB3DA, you will be surprised at how far the repeater can be heard, and how far you can be heard. I have regularly used GB3DA from the M25 south of London.

Mark, M0IEO

Radio Amateur Old Timers Association, RAOTA

The Radio Amateur Old Timers Association began life as a gathering of early pioneers in the development of Radio. Gerald Marcuse G2NM, collected up the loose ends in the mid 1930's to consolidate the Association. Louis Varney, G5RV was also a Founder Member. It was open to anyone who had an interest in Radio for at least 25 years.

Time moves on and as things stood it would have gradually died out. However in 1958 it was decided to re-establish the Association on a permanent basis and we now have a membership of over 800 people. We run regular nets on 80, 40 and 160m and anyone is welcome to join in. I have made many new friends from all over the UK since I joined them. Membership costs £10 per year for which we receive four very good quarterly magazines. We endeavour to have a stand at all the major rallies and many of our members enjoy meeting there and signing the visitor's book. For more information, please visit our website www.raota.org

CARS and RAOTA Member, Adrian Soane, M0ABY

Olympic Games and Amateur Radio Frequencies

Ofcom and the RSGB have been busy talking about the 70cm Band and the proposed use of much of it during the Olympic Games. The assurance has been given that any "borrowed" frequencies will be returned after 2012. GB2RS and Southgate had this: http://www.southgatearc.org/news/april2011/olympics_spectrum.htm South Essex and North Kent are specifically among the areas affected due to their proximity to London as well as Essex hosting the mountain biking at Hadleigh Farm near Canvey. <http://www.london2012.com/games/venues/hadleigh-farm.php>

Murray, G6JYB

A new Amateur Radio Aerial Company - Aerial-Parts of Colchester

It is with pleasure to find a new Amateur Radio Aerial company near Colchester (in Constable Country). John Lemay, G4ZTR tells me he has stocks of many of the hard to find "bits needed to construct your own Aerials". He supplies Justin, G0KSC – (remember we had a presentation on his new range of Aerials a couple of months ago). More details in the June Newsletter. Tel 07957 449 542 (Mobile) Aerial-Parts of Colchester:- www.aerial-parts.co.uk E-Mail: - mail@aerial-parts.co.uk

John G8DET

Report on CW Training Progress

M1OCN/MM, Colin, a CW student at Danbury, had a QSO with Andy on 80m from his yacht at Harwich. Not far away I know, but it was a QSO from a new CW operator who has the confidence to actually "get on the key!!" Oliver, M0WAG, is doing very well. His transmitting is excellent and he has just completed the 5wpm RSGB test. He has still to have a QSO on the air but I am sure it is just a matter of time. Brian, M3OGM is doing well. We hope to get him on the air sooner rather than later.

March was the annual Commonwealth Contest (ex BERU), it was a good time to check my G7FEK aerial - designed for a small garden. It was primarily designed for 80 and 40m but can be tuned to the other Amateur bands. It proved itself with contacts with Brazil and Canada and the cherry on the cake on Sunday morning, 3D2 Fiji. Andrew heard him creeping up the band, "I called him just up a bit up from the station he was working and he answered straight away.

Please feel free to call in and meet me in the meeting room at Danbury on a Thursday evening. Please check first on 01621 868347. Due to Members' commitments, classes are often held at Tollesbury on a Monday or Tuesday evening.

If you are interested in learning or improving your CW skills, but unable to attend Danbury, QRS transmissions as GB2CW are held on a Wednesday evening at 20:15, on or around 3555kHz.

Jonathan, G0DVJ, does slow transmissions twice a week, both at 9.30pm local time: on a Sunday evening on 145.450MHz using F2A/F3E and on a Monday evening on 144.163MHz using A1A/J3E. There is also a monthly face-to-face session at St. Helena School Drama Studio, Colchester, usually on the last Thursday of the month ... I am sure he would like to hear from you.

Andrew Kersey, G0IBN

CARS Operating from Stock Windmill – 14/15th May

This is our fourth successive year of operating from this site. The address is Stock Windmill, Mill Lane, Stock near Ingatestone, Essex, CM4 9RY. WAB: TQ69. Starting between noon and 2.00 pm BST on Saturday 14th and continuing up to 5.00 pm Sunday 15th May. We will mostly be on lower HF bands and 2m VHF.

To find us get to the centre of Stock Village, where the Cock Inn is. Take care; someone's vehicle hit the Post Office, so there's scaffolding up, and it's a tricky junction as well. Head down Mill Road for just over half a mile, turn left into Mill Lane and the large white tower mill heaves into view on your right. Park up on the right-hand side in order to give emergency vehicles access, or out in the lane.

Patrick, M0XAP, Billericay

President Jottings - May

This month I would like to point out that Colin made 29 Contacts in the 80m Fun Contest and as such awarded himself a Certificate at the April Meeting – Sorry and congratulations on scoring most Contacts.

G0TRM 90 Watts 29 Contacts Multx1 29 Points Furthest – Germany.

Last month's meeting was very well attended and several guests were present in the audience. Our thanks must go to Andy for stepping in to present the talk and also to Mark and John for rearranging the programme in a short timescale. A lot of work went on behind the scenes to ensure we had a speaker at the meeting. Also to John Yates, G1UZD who brought his DVD of an actual OTH installation, it just proves that in our membership we have a lot of experience of most major electronic events. Thanks John for the show.

May I remind you all that our Constructor Competition takes place in a few months time so please give some time to complete your entry.

Carl, G3PEM. President

Training

The next course in Danbury will be a Foundation course on Sept-1st to Oct-6th for which Clive G1EUC would appreciate names and details of those interested. Tel: 01245- 224577.

E-Mail Received. Hi John, G8DET. Apologies for the delay in sending this though.

A link to the full interview recorded with you recorded last year is online at

<http://www.frequencycast.co.uk/hamradiotranscript.html>

We had some very positive feedback to this piece.

It was your discussion of Amateur Radio that inspired me to take my M6 with CARS in October, and I'm now thoroughly enjoying the hobby! We also have a few extra Amateurs listening to our free shows, and discussing PLT interference too, which is also great.

Pete M6PSI - Thanks Pete for the plug

June Meeting - G5RV Evening

To commemorate the Birthday of the late Louis Varney, G5RV CARS will be talking about the famous Aerial Louis developed and is used Worldwide – do YOU have or have used a G5RV Aerial – have YOU a story to tell. Do you have a photo of one? Please contact a member of the Committee or the Editor, please.

And Finally:-

John G8DET edited this edition. Material by; - Trevor, M5AKA; Steve, G4ZUL; Gwyn, G4FKH; Carl G3PEM; Patrick M0XAP; Geoff G3EDM; Murray G6JYB; Peter G3RZP; Pete M6PSI; Andy G0IBN; John G4ZTR and Mark, M0IEO.