



# Chelmsford Amateur Radio Society Newsletter

**February Meeting**  
Tue 1-Feb-2022, 7:30pm  
Online by Zoom

**Royal Signals and Amateur Radio**  
By Geoff Budden G3WZP

For our February talk we welcome Geoff Budden G3WZP who is from the Royals Signals Museum Outreach Team that takes communication to young people.

The Corps of Signals were formally created by royal warrant in June 1920. The Royal Signals Museum at Blandford Camp in Dorset is a walk through history, featuring a diverse range of interactive displays illustrating the science and technology of communications.

Geoff's talk will include the work on a mobile trailer and cover their Centenary Special Event Station GB100RSM



**Zoom:**

**Quick Link:** <https://us02web.zoom.us/j/89945742104?pwd=YnNiRHlY2SzfF3NHlVbEdXS2NBWXBUT09>

- Meeting ID: 899 4574 2104
- Passcode: 791501

## Silent Keys

**Brian Thwaites G3CVI** – passed away on 3<sup>rd</sup> January – Funeral 1pm Feb 1<sup>st</sup> - see inside

**Oliver Prin M0WAG** – passed away on Friday 28<sup>th</sup> January - more details in due course

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**Club Diary**

Tue 1-Feb-2022	Meeting – Royal Signals and Amateur Radio	Online by Zoom
Mon 14-Feb-2022	2MT Centenary – Special Event Station	Writtle Village Hall
Tue 1-Mar-2022	Meeting – Digital Amateur Television	Online by Zoom

**Club Nets**

CARS meets for talks/events on the first Tuesday of the month. The subsequent Tuesdays have club radio nets as follows below and dates listed on our calendar at [www.g0mwt.org.uk/main/events/categories/net/](http://www.g0mwt.org.uk/main/events/categories/net/) :-

- **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 & Morse Classes**

**CARS Training classes at Danbury:** If you are interested in these or other opportunities in 2022, please contact **John O'Connell M0JOC** our training coordinator and Exam Secretary

John can be contacted via [training2022@g0mwt.org.uk](mailto:training2022@g0mwt.org.uk) or 07868-004380

More info and other updates are at: [www.g0mwt.org.uk/training](http://www.g0mwt.org.uk/training)

**Online Morse Classes:** Thursday evenings at 7pm. Coordinated by Andy G0IBN who has on-air practice sessions and via Skype too... <https://join.skype.com/clsfKXXkmlNvf>

- contact Andy via [morse2021@g0mwt.org.uk](mailto:morse2021@g0mwt.org.uk)

 Follow @TrainWithCARS

## January Meeting: Cheating at Maths

Our first talk of the New Year was on Tuesday 4th January, where we welcomed back Damian Bevan G4WPO, for a talk on 'Cheating at Maths using computers' However Damian said that a more serious title for this talk would be 'Using computers to solve mathematical problems'.

In 1936, in the 'age of electricity', Alan Turing presented his machine which he hypothesised was able to compute anything which is capable of being computed.

It turns out that around a century earlier, back in the 'age of steam', Charles Babbage and

Lady Ada Lovelace had already been having similar thoughts about mechanical computing engines, designed to solve mathematical problems. In those days, human 'computers' were used to laboriously calculate and tabulate the solutions to maths problems ranging from trigs and logs, to astronomy, nautical tide tables, banking and insurance information etc. Another famous computer was Katherine Johnson who did maths for Nasa flights (see the film 'Hidden Figures')

The earliest algorithms arose from Ancient Greeks such as Euclid. Early mechanical / electrical computers models could only do basic maths or a fixed problem (such as Engigma), whereas more general purposes machines gave more flexibility for programming

Damian gave examples of:-

- Square Roots by Factoring and Tower of Hanoi and computing Pi
- A more applied example was an Euler's approximation of how a resistor-capacitor circuit charges
- Not everything has an exact answer. Statistical methods can cope with random elements (often call Monte Carlo analysis) looking at probability issues such as road/air traffic, spread of epidemics etc
- Chaos theory can enable judgements on how accurate a weather forecast is
- Fast Fourier Transforms give SDR spectrum displays, Digital-TV and 4/5G mobile wireless
- Symbolic methods can help language translation, or sequence DNA

Of course radio is built on maths/physics – inc for propagation, link budgets, EMF calcs, radio circuit design, digital modes and SDRs

Some programming tools that are good at maths are widely available. Python is great at general work, but there are free addons such as Numpy to expand its maths capability.

More specialist tools include Mathematica, Matlab, GNU-Octave, Mathcad, Maple, Julia and SageMath

Summarising, Damian commented that the mathematicians of yesteryear were geniuses, with vivid imaginations, but very limited by the tools available.

In contrast the modern world has been developed on the back of sophisticated maths and amazing computing power -with remarkable capability just in your smartphone/pocket; and with plenty of effort going into Software Defined Radios, CGI effects for gaming/films or virtual reality.

.Our thanks again to Damian for his presentation and insights



Charles Babbage, Ada Lovelace and Alan Turing

## 2MT Writtle Centenary 14<sup>th</sup> February

On Tuesday 14<sup>th</sup> February 1922, a small group of Marconi employees turned on a medium wave transmitter in a 'long low hut' at Writtle, and began an experiment which is now regarded as the Birth of British Broadcasting. Led by the irrepressible Peter Eckersley, the 2MT team broadcast every Tuesday evening. What started as a station for 'calibration purposes' for the fast growing number of radio hams, transformed into an entertainment programme like none before.

### Special Event Station

To commemorate the centenary of these momentous broadcasts CARS will be running a special event station. The plan is to use the special callsign **GB100 2MT**.

Writtle Village Hall has been booked for the afternoon and evening of Monday 14<sup>th</sup> February 2022. We plan to have HF and V/UHF stations on the air CARS members are invited to come and operate or just drop in for a chat. If you are interested, please contact Paul G4PVM – [g4pvm@g0mwt.org.uk](mailto:g4pvm@g0mwt.org.uk)

The special callsign is also available for members to use from home. It will also be used for the club nets.

Look out for further celebrations on 14<sup>th</sup> February on BBC Essex, Phoenix FM, and Hospital radio, including a broadcast by Chelmsford Community Radio from the hut at Sandford Mill at 7.30pm, and an outside broadcast by BBC Essex from the original site at Writtle.

Marconi historian Tim Wander G6GUX has recorded some material and will be in Writtle on the day. He may even drop in to see CARS in the village hall.

### On the Internet

Jim Salmon 2E0RMI will be streaming a tribute to 2MT starting at 11am. Full details of the audio and video can be found on Jim's web site (<https://www.emmatoc.org/2mtcelebration> ).

At 6.45pm, the stream will go live to say hello to people watching & raising a glass to 2MT. Anyone can watch via a phone or laptop or tablet online, on the 'Mixcloud' link on the day.

### Looking further ahead – May 21/22

Writtle Parish Council is planning a weekend celebration to be held over the weekend of 21/22 May with a village fete including a historical display and wireless themed walk, an exhibition of 1920s themed art, the Marconi van exhibition by Oxford University's Institute of Digital Archaeology, and a service of celebration conducted by the Bishop of Bradwell.

CARS will again run a special event station from Writtle village hall, close to the site of the original broadcast. More details nearer the time.

**And previously** – Look back at the 95<sup>th</sup> in 2017: <http://www.g0mwt.org.uk/sandfordmill/gb952mt>



## Silent Key: Brian Thwaites G3CVI

Former CARS Treasure Brian Thwaites G3CVI sadly passed away on 3<sup>rd</sup> January 2022, age 95.

His Funeral is at 1pm on Tuesday Feb 1<sup>st</sup> at Chelmsford Crematorium, followed by refreshments to the nearby Secret Garden Tea Rooms in Writtle Road

Brian was licensed in 1947 and an RSGB member for 75 years. A long-time member of Chelmsford Amateur Radio Society, he was a keen operator at club events such as National Field Day, International Marconi Day and special event stations. Brian often participated in club nets as well as the Shaving Cub net.



Over the 25 year period of 1989-2014, Brian served as club Honorary Treasurer, as well as Membership Secretary from 1998 to 2013. For many years Brian manned the door at CARS meetings, welcoming members to meetings. This remarkable service was marked by a presentation and honorary membership in Dec 2014. Brian was also a recipient of the CARS Amateur of the Year Award in 2006.

As a young man he was part of the team, headed by Louis Varney G5RV who developed the G5RV Aerial. Stationed on Galleywood Common, one of his tasks was to raise or lower the antennas being tested under the command of Louis. These were the days before computer modelling when each variation had to be built, erected and tested for radiation patterns, SWR and radiated power. These tests were repeated over different ground conditions and situations such as the proximity to trees, houses, wire fences and pylons.

Our condolences to his widow Pam, and their daughters Chris and Angie.

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## RSGB Construction Competition

This year the RSGB Construction competition is online and separate from the Convention. The deadline for entries is 1<sup>st</sup> March - full details are at <https://rsgb.org/main/construction-competition/>

If you are a RSGB member you can enter as an individual or a team as follows:

- Email a short description of your entry and up to four photographs to [construction.competition@rsgb.org.uk](mailto:construction.competition@rsgb.org.uk)
- If your entry needs further explanation, an appointment will be made for you to talk to the judges and demonstrate your project using video conferencing technology
- The deadline for entries is 1 March 2022, with results announced at the RSGB AGM in April

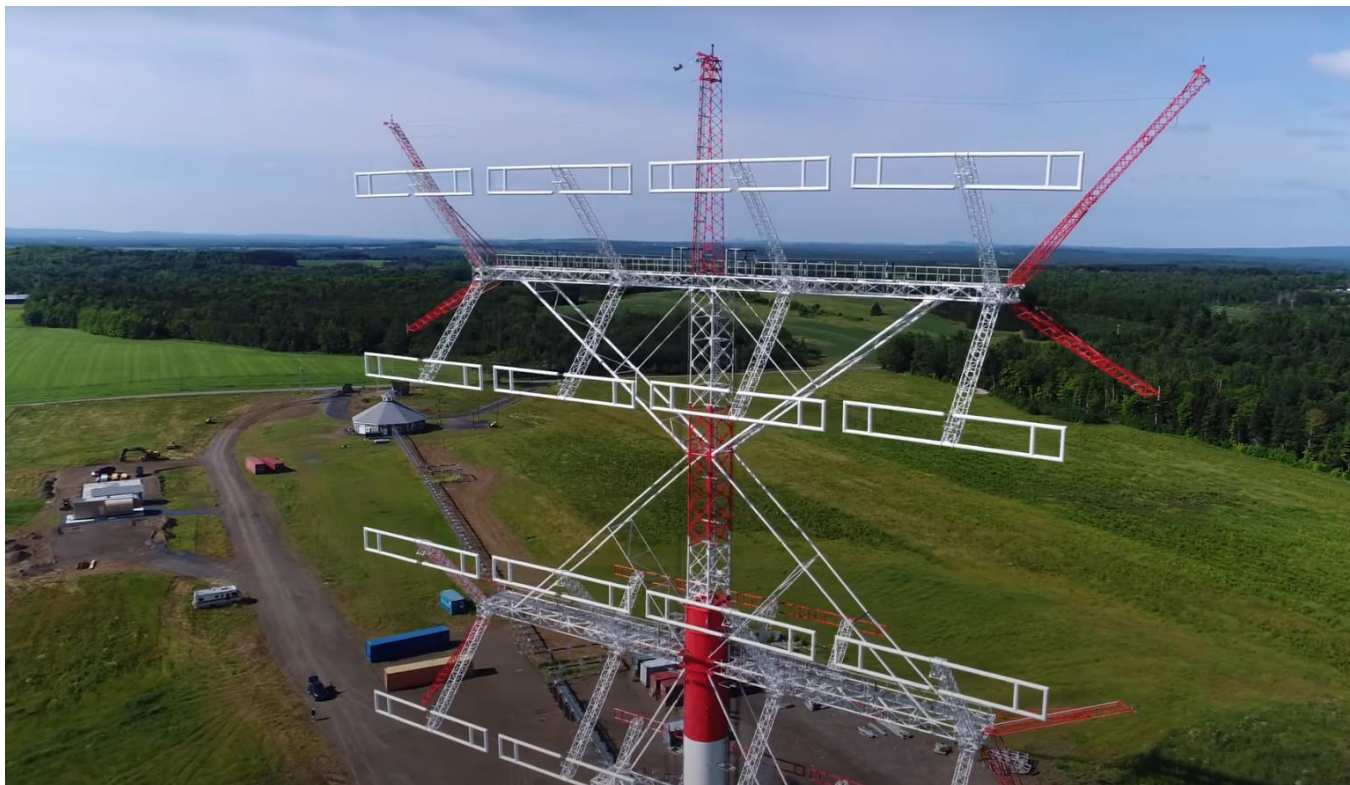
**Categories:** The judges will consider entries in four categories:

1. **Beginners:** a chance to build a kit, create your own antenna or construct something
2. **Construction excellence:** recognising the skill and craftsmanship used in building the entry
3. **Innovation:** recognising an original contribution
4. **Software:** recognising the importance of software technology to all aspects of amateur radio.

**A cash prize will be awarded for the winner of each section, with a bonus for the overall winner, who will also be declared the winner of the Pat Hawker G3VA Trophy. Special recognition will also be given to Foundation licensees and/or those under the age of 24**

## HF Antenna for 59++

This fully rotatable 200 ton HF phased array is for USA broadcaster WBCQ in Maine. It is fed by a 500kW Tx and has double-sided 16-dipole phase arrays (of white and red folded dipoles), enabling beams for any DX heading in 5-30 MHz.



Note: A nice drone video of this is on YouTube - <https://www.youtube.com/watch?v=43IPs4GdIKQ>

## Future CARS Talks

### March 1<sup>st</sup> 2022: Digital Amateur TV

Dave Crump G8GKQ of BATC will introduce Amateur TV (full definition real TV – not slow scan). His talk about the tremendous strides made in full definition digital amateur television, making DATV usable in more amateur bands than ever.

Zoom:

- Meeting ID: 837 8535 7544
- Passcode: 306875



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