Chelmsford Amateur Radio Society

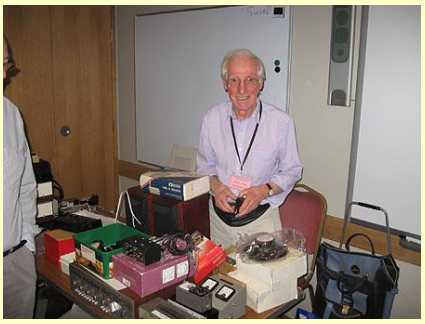
Newsletter

June Meeting

Mon 18-Jun-2018, 7:00-9:00pm
Danbury Village Hall, CM3 4NQ

Table Top Sale

By CARS Members



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

Just as in past years we have no idea what gems will turn up at a CARS TT sale and this year will be the same. Generally items for sale cover the whole range of radio, electronics, visual and audio, mechanical interest and more, much more.

Looking for a particular rig or maybe just a connector for it? Maybe it's a special power supply you need; you could well find it at a CARS TT Sale. Perhaps you will find the rig you sold two years ago and wish you hadn't. Due to a minor rationalisation of CARS equipment and a number of bequests some fully functional items will be on offer.

You will doubtless see just what you did not know you needed, you are sure to find something to send you home with a smile on your face... and the vendors. So don't miss our next event on 18th June starting at 7.30pm. Contact Colin G0TRM now for more information.

Lots of your own stuff to sell? then book a table with Colin Page, G0TRM

Features also include Refreshments and a Free Raffle Ticket!

Note: The Sale is in the Main Hall - whilst Essex Skills Night starts earlier at 7pm in the Small Hall and is free to attend

Note the Change to Time/Venue ! - See p2 for Poster
Oaklands was not available on Tue Jun 5 due to unforeseen circumstances

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In this issue:-

Chelmsford Amateur Radio Society

Table Top Sale & Skills Night

MONDAY 18th JUNE 2018

Danbury Village Hall

Main Road Danbury, CM3 4NQ

Free Entrance

All Essex Radio Amateurs, SWLs & Other Electronic Enthusiasts are invited to attend as either sellers or buyers or just come and have a look

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SKILLS NIGHT 7 - 9pm

Featuring numerous Hands-on Displays and Demonstrations - in the Small Hall and Hawkins Room

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THE TABLETOP SALE

Doors Open to buyers 7.30pm

In the Main Hall: All Good Condition Amateur, Audio, Electronic, Electrical, Photographic, Computer & Associated Equipment may be offered for sale

Sellers Tables £3 - Please contact Colin G0TRM to book your table
Entry to Main Hall for Sellers from 6.45pm

Free Raffle Ticket on Entry

Tea and Coffee will be on offer, thanks to our team in the kitchen - Donations Appreciated.

FOR FURTHER DETAILS CONTACT: **Colin Page G0TRM 01245 223835**
e-mail colinpage@ukgateway.net. Club website www.g0mwt.org.uk

File TT 18 at DVH sale5.doc

Club Diary

Mon 18-Jun-2018	Table Top Sale - Contact Colin G0TRM for a table!	Danbury 7:00pm
Mon 18-Jun-2018	Skills Night	Danbury 7:30pm
Tue 5-Jul-2018	Three Short Talks	Chelmsford – Oaklands Museum, 7:30pm
Tue 7-Aug-2018	Constructors Competition – inc Cash Prizes!	Chelmsford – Oaklands Museum, 7:30pm

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Club Nets

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

- **2nd 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
- **3rd 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.
- **4th 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.
- **5th 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

The first half of 2018 training has nearly concluded with the Intermediate exam session on June 7th. Our training pages have the 2018 sessions listed for the July slot below is available for all three exam levels.

Our training manager Peter M0PSD is keen to hear from candidates for the 2018 courses, as well as any needing practicals or other help. Courses and Morse Classes will resume on Thursday evenings after the summer break – please contact Andy G0IBN in the case of Morse classes

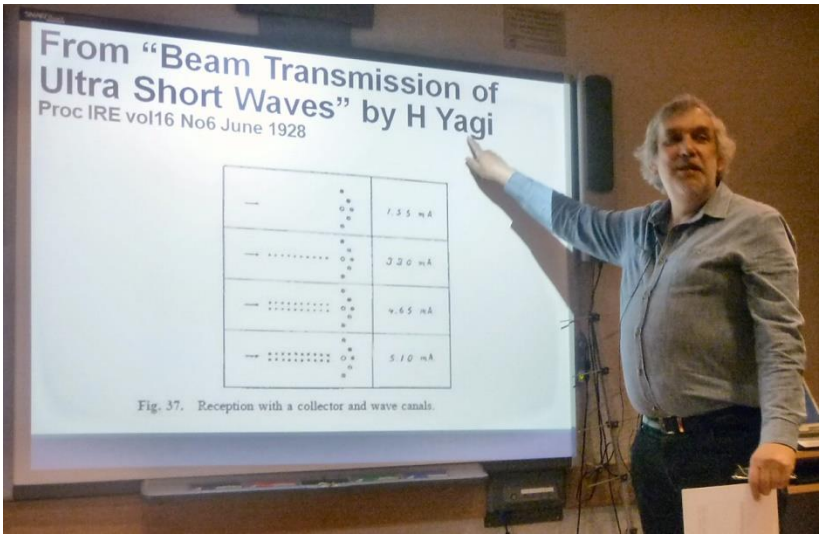
Course	Dates	Comment
Advance-21	Thu July 12th (plus Jul-5)	Exam (optional mocks & Foundation/Intermediate exams)
Foundation-38	Thu Sep-6th – Oct-11th	Please register your interest!

Contact: Peter Davies M0PSD, training2018@g0mwt.org.uk Web: www.g0mwt.org.uk/training

Follow @TrainWithCARS

May Meeting: Unusual Antennas

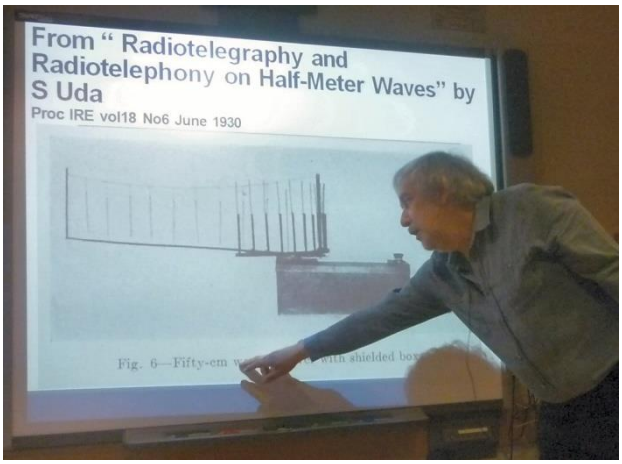
John Regnault G4SWX introduced himself to a packed meeting saying he always had a passion for aerials and their development. He was originally employed by BT in a research department not dealing with radio or aerials but giving him access to historic research papers and documents of which he was able to take advantage.



Left: John G4SWX started with the 1928 Yagi/Uda 1928 Paper (inc parasitic directors)
Right: Yagi the man (in the 1960s)

He started by showing some original institution papers by Mr.Yagi and his co-inventor Mr. Uda. Yagi was the dept head and Mr Uda was the one who did the work, though his name was dropped in later papers.

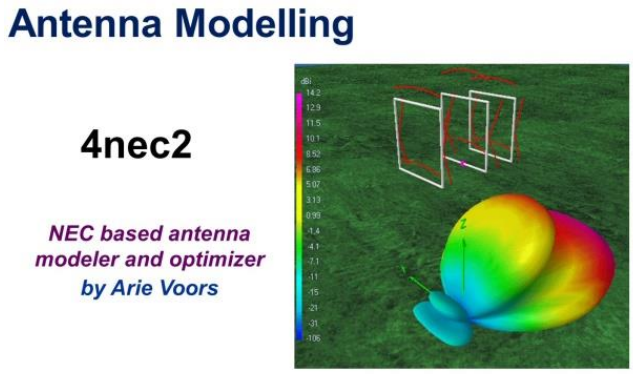
In the diagram shown John pointed out the double set of parasitic directors that gave a bit more gain but were not mentioned in the patent. These papers were published in 1928 and this feature seemed to have been forgotten until the TV Aerial industry produced a similar arrangement when the Digital TV Systems came into service, and they are now quite common on roofs all around the country.

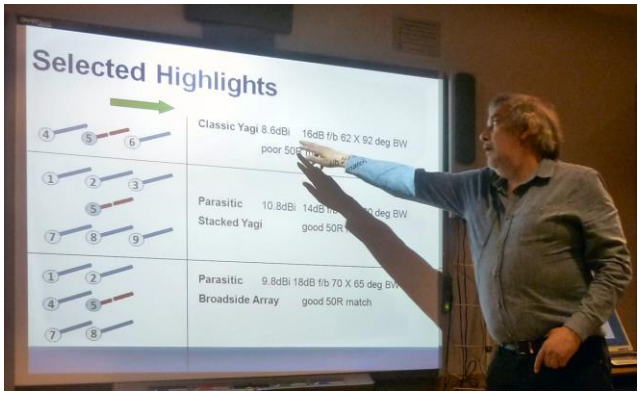


Uda's paper on a 50cm (600MHz UHF) array – and a modern UHF TV Yagi

John set about his own research in parasite elements using an up rated computer with a lot of extra calculating power and the 4NEC2 software which enabled him to calculate the size, position, phase, current and effect on the 3D radiated pattern from the driven element. He was surprised by the effect of correctly positioned parasites very remote from the driven element, illustrating a set of elements with what the designers called suppressor elements aside and not in line with the other elements.

John introduced to us a term which I believe was his own, this was ‘dB per ton’ pointing out that you can reduce the number of elements by ensuring that the ones you use are giving most improvement to the overall pattern (gain, front to back, impedance bandwidth optimising whichever parameter you need to favour. “Don’t get owt for nowt”)





4nec2 is Free – and has enabled a major effort by John to explore the art of the possible

We then had a look at reflectors examining the merits of parabola and wedge arrangements using

Parasitic elements and reducing the number without detriment by placing them in positions where they had best effect (less metal/ton elements for the same dB effect). This reducing of elements to sharpen or flatten the pattern was a subject of John’s research. He also had a lot of ‘What If?’ moments with his computer and was able to design a flat plane antenna with good gain with the same or slightly better pattern using horizontal elements one above the other on a vertical pole. This achieves a very good dB/ton figure and a small footprint on the side of a house or roof.

Summing up, John said elements in the radiation space can be effective to produce far more degrees of freedom including close-stacking of antennas as shown by Justin G0KSC in an earlier CARS talk.

Thanks John, you certainly gave us pastures new to investigate and consider, with the ‘Why did not someone think of this earlier?’. It just needs a bit of expertise with NEC Programs and a decent speed computer. The latter are easy but a man able to drive and understand it? Not many of them about!!

Tony Gilbey G4YTG

Left: John receiving his speakers mug from Tony G4YTG – (Photo by John G8DET)
Right: Johns Parasitic Array

The talk had attracted a large audience, including antenna professionals

After the break Chairman Peter M0PSD drew the raffle and then gave a short overview of the recent equipment that the club had acquired.

He also gave a demo of his overhead worktop digital camera feeding the projector – really handy for demos and in this case showing the internals of a Pye Westminster on the screen.

Latest CARS Equipment and a demo of his overhead camera (zooming the inside of a Pye Westminster)

Unwanted Items

I wonder if you can circulate colleagues if they would like any of these items. I have offered them to Chelmsford Museums but they have not yet said whether they want them. Like you I cannot bear to dump things in the skip.

1) A 23” Panel with Londex Hours and Minutes Counters.
2) A 23” panel with a Chamberlain and Hookham Process Timer.
3) A Speedivac Ion Current Amplifier made by Edwards of Crawley Sussex (see photo)

Best Regards,

Don Jannece

Silent Key: William Elliston G3TIQ

Hello I am sorry to have to inform you of the death of William Elliston (Bill) G3TIQ on the 12th May in Broomfield hospital, he lived in Orton Close, Margaretting.

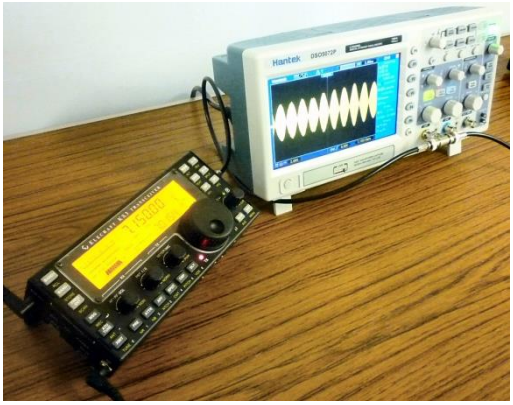
His funeral will be on Tuesday 26th June 2018 at 12.30. The service will be in the South Chapel (the larger of the two chapels) in Chelmsford Crematorium. Only single flowers requested at the funeral, if you wish donations to the Guide Dogs through the Co-operative funeral services in Ingatestone.

Philip Elliston - Bills son.

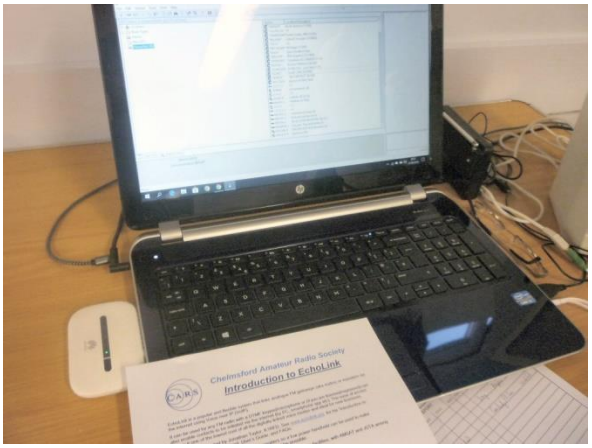
Essex Skills Night: May 2018

May Skills Night was a mild and light evening which made for another fine turn out. Callsign badges, Demos included Digital Voice, Echolink and an Oscilloscope display of modulation by TARG. The rear Hawkins room saw some training practicals and Slim-Jim construction. Rounded off by another fun quiz!


Another fine turn out on Skills Night from CARS TARG, EssexCW etc



Radios: Keith G3WGE Fusion/Wires-X and TARG (Elecraft KX3) Modulation demos

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

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

NEXT EVENTS: Monday June 18th and Sep 17th (after the summer break)

What's a Cambridge ?

In the last newsletter I described the Pye Westminster and brought one along to the last meeting for those who wanted a closer look. Several people remembered using these radios and the equipment that the Westminster replaced – the Pye "Cambridge".

The Cambridge series of VHF transceivers were introduced in the early 1960s to provide compact mobile communication equipment for a variety of services. Once they were replaced with such as the Westminsters in the 70s, Cambridges became readily available on the surplus market, and at rallies and junk sales. In the days when there were no "black boxes" and the only way to get on 2 metres was to build your own (mainly valve) equipment, the appearance of the Cambridges provided many amateurs, myself included, the ideal way to put a signal on the air. Although designed as mobile equipment, they looked very much at home in the shack.

They were robustly built in an all metal case, measuring about 12 by 9 inches, and about 4 inches deep with a cast front panel containing the controls, indicator lights and a forward facing loudspeaker. The microphone and curly lead were also hard wired into the front panel.

As with the Westminsters, the Cambridges covered various bands from 25 MHz to 174 MHz, were either AM or FM, and were single or multi-channel. Separate transmit and receive crystals were required for each frequency used. All looked very similar, so you needed to look carefully at the serial number and frequency plate on the side to see what type the equipment was. Boot mount versions were almost identical inside, but connected to a control box, speaker and microphone via a heavy 18 way cable and Jones plugs. Special variations included a 6v motorcycle Cambridge, and a rare UHF carboot version – ideal for 70cms!

At a time when transistors were beginning to replace valves, the Cambridge was revolutionary in having an all transistor receiver, using transistors such as the OC171 and AFZ12. Indeed the front panel proudly stated "Transistor Radiotelephone". The audio stages of the transmitter were also transistorised, but the rf stages were all valve, using QQVO3-10s in the driver and p.a. stages. The 200 volts or so for the valves was provided by an inverter, whose gentle background whine often gave a clue that a Cambridge was in use. The AM radios gave about 6 watts of rf, and the FM ones could give about 15 watts with good valves.

The top and bottom covers came off quite easily to reveal several printed circuit boards of the various receiver and transmitter audio stages, but the components of the transmitter Rf section were hardwired on to the valve and coil bases and stand-off pillars. They were a joy to work on, as the printed circuit boards came out quite easily and components could be changed and coils rewound without too much trouble. Replacement circuit boards and coils were available from dealers if you wanted for example to convert a low-band Cambridge to 2 meters, but there were also many magazine articles and service manuals available, providing instructions on component changes and coil winding details to enable a complete rebuild to be done.

AM Cambridge's, low band in particular, seemed to be the most numerous types available, but in the late 70s AM was still widely used on 2 metres, so many were in use. 144.75 MHz was the local popular channel that you could almost guarantee to get a contact on. As FM increased in popularity many people carried out a simple modification to their AM Cambridge transmitter. By applying a third of the audio voltage produced by the modulation transformer to the screen grid of the oscillator valve, quite a reasonable phase modulated signal could be produced. The AM receivers were not really conducive to conversion to FM, as the FM radios had a discriminator board instead of a detector board, and the squelch board was totally different. I did however design a printed circuit board containing a discriminator integrated circuit and squelch that replaced the AM squelch board. This worked reasonably well, and the result was a fairly unique Pye Cambridge with a chip in it!

Operation was simplicity itself, just three or four controls to worry about – ideal for mobile use. I used a UHF boot mount Cambridge in the car for many years, crystalled up for GB3ER, GB3CE and other 70cms repeaters. I also used a 4 metre boot mount Cambridge in the car on 70.26 MHz or 70.45 MHz working the XYL at home in the shack on a dash mount Cambridge!

See you at the next meeting, when a real live Pye "Cambridge" will be available for inspection.

Andrew G4KQE

Cataracts and Amateur Radio

If you have not had the Cataract Procedure – read no more but note the heading for future use!

Have you or know someone who has had the Cataract Procedure? The Cataract Procedure is indeed wonderful at restoring misty vision – providing good vision even to short sighted persons who previously had trouble with the tuning controls.

After having the procedure can they see the digital numbers on the Transceiver or is it getting more difficult with a fine white mist getting in the way? Best described as if you have just got out of a hot shower and the room is filled with steam.

Unfortunately I now know that ~50% of all persons who have had the Cataract Procedure may develop a problem after about three years – with what is now commonly called "Secondary Cataracts". Exceptionally this can occur after just a few months.

Your yearly eye test may pick this condition up – even to the point of refusing to let you drive. It is called Posterior Capsular Opacification (PCO). Fortunately there is a relatively simple solution using the Yag Laser Capsulotomy procedure as an Outpatient at your local hospital.

The gentle Yag Laser cuts a small circular hole in the rear of the Cataract lens bag which had become covered in a sort of mist! Only takes a few minutes. It only needs to be done once and should clear the white mist which can cover it in months or years after the Cataract operation. The bits burnt off should dissolve over a month or so. In retrospect I feel the hospital should have a prepared sheet covering all aspects of PCO - it even begs giving it to everyone who has the Cataract Procedure.

The World Health Organisation now find 3rd World Countries do not recommend the Cataract Procedure if they do not have the Yag Laser to restore the effects of PCO.

The procedure is: – Optician – Doctor – Hospital – Laser Clinic.

John Bowen, G8DET *My thanks to those CARS Members who have contributed to this article.*

Useful Links:
http://www.rnib.org.uk/eye-health/your-guide-cataracts/cloudy-sight-after-cataract-surgery
http://www.rnib.org.uk/eye-health-eye-conditions-z-eye-conditions/cataracts-laser-treatment-following-cataract-surgery

Profile: Geoff Lovegrove G7KLV

I was rather flattered, and surprised, at being asked by our Chairman to write a Profile. The only justification is, perhaps, because I have been a member of CARS since 1991. A year later to become G7KLV and flushed with success I purchased a Yaesu FT290R and a Slim Jim but after a few months I tired of it.

I was more interested in making things and won a few prizes in the constructors competitions. I was on the Committee for a few years and, with Colin G0TRM's help, did the newsletter for a time. For me CARS has always been a social club and I have made many good friends, sadly outliving some of them.

At about the same time as joining CARS, I started going to Sandford Mill and joined the Friends of Chelmsford Museums. The Mill was a Monday morning event which I very rarely missed. I had 25 wonderful years there with Geoff Bowles. It has never been the same since he retired. I was partly instrumental in forming the long going and happy association between CARS and Sandford Mill - long may it continue. The Oaklands Museum and Sandford Mill are in the throes of a huge re-organisation. Whether for the better or for the worse, only time will tell.

A Background in Marconi

As a young twenty- year old in 1945 I had the very good luck to join what was then known as the Receiver Group at Marconi Great Baddow, working under George Grisdale - happy days. This was the group which had developed the CR series of receivers. I worked on the diversity versions of the CR150 and the later the HR diversity receivers, one of which is on display at Oaklands. I did ONC and HNC in Electrical Engineering and Endorsements and some C&G, eventually becoming a MIEE many years later. Leaving Marconi in 1960 I returned in 1962, having spent two years with Redifon in Crawley working on HF receivers. We returned to Chelmsford, mainly for family reasons. I re-joined Receiver Group (by then HDA) and later moved to the new Line Comms. Division, becoming involved with underwater digital communication, doing sea trials and spent a week on a submarine in mid-Atlantic- great fun!

And then Water

In 1971 I left Marconi for a second time and joined the Essex River Authority (later being absorbed by the new Anglian Water Authority) based at their Plant Depot. I looked after their mobile radio installation and UHF links, all the electrics of their land drainage installations and electrics in general, except the Ely-Ouse scheme. I could be working on a 25 watt VHF transmitter in the morning and a 100 horsepower land drainage pump control in the afternoon. Never a dull moment. With the dismemberment of Anglian Water (Rivers went to the Environment Agency) I stayed with AW and became Resident Engineer on a scheme installing telemetry in their sewage installations all over Essex - you get used to it - finally retiring in 1990.

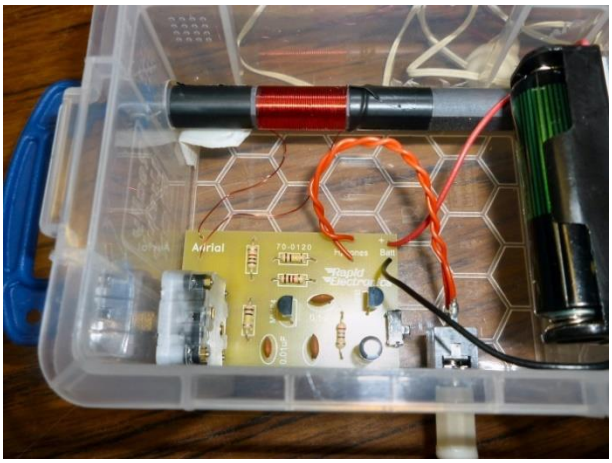
And so, to the present day - with 45 good working years and 28 happy retiring years behind me. Sadly, my beloved Phyl died very suddenly in 2011 after 63 happy years, but she left me with three lovely, caring, daughters complete with grandchildren and great grandchildren. With a lot of very good friends, a wonderful family, I'm a very lucky fellow indeed!

Geoff Lovegrove G7KLV

Intermediate & Foundation Training

CARS Intermediate Course-17 concluded with a bumper exam session on Thursday 7th June which included three Foundation candidates as well. See the group photo below We now have exam slots on 12th July for all exam levels. Foundation and CW classes due to re-start in September after the summer break

Intermediate and Foundation candidates after their exam on Thursday June 7th



Some very neat construction from Practicals on Intermediate Course 17

Help Still Wanted !!...

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

Editor: editor@g0mwt.org.uk **Newsletter and Archive: http://www.g0mwt.org.uk/newsletter**