



Chelmsford Amateur Radio Society

Established 1936

*Affiliated to the RSGB
President: Harry Heap G5HF
Secretary: George Farr G3UTC*

*Club Call Sign: G0MWT
Chairman: John Bowen G8DET
Treasurer: Brian Thwaites G3CVI*

Newsletter No 454

Web Address: www.g0mwt.org.uk

November 2003

Next Month's Meeting. RadCom by Steve Telenius-Lowe G4JVG Tuesday 4th. November, 7-30pm at the MASC.

Let's face it, we all like to have a good gripe about things from time to time and one that takes quite a lot of flak is RadCom, the official journal of the Radio Society of Great Britain! Yes, I have to admit that I am one of the gripers! But then looking at the cover price and comparing with the subs. to RSGB it seems to me that it's quite good value for money - even if I had to pay the full sub! There are lots of things I like about it and a few that I don't but as far as I'm concerned that applies to all publications! Perhaps it's now time to be positive. We all have our favourite features and the one I always turn to first is TT, and secondly to the ads. of the Birkett Brothers, who seemed to have deserted us recently! Pat Hawker's contributions are always interesting and seem as fresh as the day he started way back in the fifties. What an achievement!

Let us welcome **Steve G4JVG** to tell us something about editing and publishing this august journal. It promises to be an interesting evening so give him your full support. Also worthy of your support is **Jean**, the XYL of our new Secretary George UTC, in volunteering to do the raffle again this month.

Dates for Your Diary.

- November 4** CARS Meeting. RadCom by Steve Telenius-Lowe G4JVG MASC 7-30pm.
- November 12** CARS Committee Mtg. Danbury Village Hall 7-30pm.
- December 19** CARS Christmas Dinner, The Anchor, Runsell Green. 7-30 for 8-00pm.

Subscriptions Due.

The Subscription rate was approved at the AGM last month and the good news is that it remains the same as last year in spite of increasing costs, at £10, with reduced rates for students etc. Forty five Members renewed at the last meeting. Please be advised that to ensure you receive the January Newsletter your subscription must be received by the December meeting on December 2nd.

Contact Brian G3CVI at the November meeting or send it to him at 118 Baddow Hall Crescent, Gt.Baddow, CHELMSFORD CM2 7BU. His phone is 01245-471919.

The CARS Christmas Dinner.

It is now time to book your place for this popular event. The date is Friday 19th. December. The venue is The Anchor at Runsell Green, nr Danbury. The time is 7-30 for 8-00pm.

Ken Whittle G7RFT has kindly made all the arrangements. Menus will be available at the November meeting, but if you want to be sure of a place give him a bell on 01245-257088 because numbers are strictly limited.

His address is 26 Beach's Drive, CHELMSFORD CM1 2NJ. The costs are £24 with a glass of house wine and £21-50 without. Make your cheques payable to K.L.A. Whittle

CARS meets at 7-30 pm on the first Tuesday of the month at the MASC, Beehive Lane, Chelmsford.

For details contact our Secretary: George G3UTC on 01277-622707.

Club Nets: Tuesdays 8-30pm: (2nd) 145.375 : (3rd) 1.947 : (4th) 1.947 : (5th) 145.375. All +/- QRM.

Newsletter Editor: Geoff G7KLV 01245-473822 or email: geoff@g7klv.free-online.co.uk

Assistant Editor: Colin G0TRM 01245-223835 or email: colinpage@ukgateway.net

Please advise changes of address to Geoff G7KLV.

The CARS Hierarchy

President - Harry Heap G5HF Vice President - Charles Shelton G0GJS

Committee Members - Executive Officers

Chairman - John Bowen G8DET Vice Chairman - Chris Chapman G0IPU
Secretary - George Farr G3UTC Assistant Secretary - Colin Page G0TRM
Treasurer, Membership Secy. & Club RSGB Representative - Brian Thwaites G3CVI

Other Committee Members

Librarian & Publicity Manager - Anthony Martin M1FDE
Newsletter Editors - Geoff Lovegrove G7KLV & Colin Page G0TRM
ERG Representative. - Murray Niman G6JYB Contest Manager - Chris McLaughlin M5CSM
Awards Manager - Martin Medcalf G1EFL Training Coordinator - Clive Ward M0SIX/G1EUC
Tony Gilbey G4YTG, Ron Ingate M3CAM, Denis Lewis 2E0BIA & Jim Smith 2E0JPS
QSL Manager - CARS Member Carl Thomson G3PEM

Last Month's Meeting. The Annual General Meeting.

Meeting at our usual venue Chairman John G8DET began the evening with some notices before moving to presentation of awards. It was decided to present all the awards and certificates at the AGM rather than scatter them throughout the year.

Our President Harry G5HF presented the Amateur of the Year Award to Trevor M5AKA for his outstanding efforts to ensure the CARS name is well and truly on the map. Ela G6HKM presented the Roy Martyr Trophy for Excellence in Amateur Radio to Anthony M1FDE.

Harry G5HF then presented the Construction Contest certificates to the following Members-

- 1st Prize Anthony M1FDE
- 2nd Prize David M0BQC
- 3rd Prize Colin G0TRM
- "First Time Winner" Dennis M3BIA

He also congratulated Ron M3CAM on winning the Chelmsford Award using all CW.

That done, the formal part of the evening was then started. Our Chairman presented his report outlining the very successful year for CARS. John explained how important the raffle and sales had been for the Society's finances. He regretted the sad passing of members Patrick Smith M0AQL, Arthur Butcher G3KPJ and Ralph Polley G3NAA. However John was pleased to record the good progress of Tony G4YTG and Ronnie, XYL of Charles G0GJS after their recent health problems.

He thanked Colin G0TRM for his work on the sound system at Society meetings, and Geoff G7KLV for the excellent newsletter.

John took great pleasure in announcing that Tom G4INM, following a unanimous vote in Committee, was made an Honorary Member of CARS. The Committee had seconded Chris McLaughlin M5CSM as Contest Manager. He

thanked Murray G6JYB for his help with the CARS web site.

In conclusion John expressed his willingness to be re-elected as Chairman to provide continuity in view of the four resignations from the Committee.

Our retiring Secretary, David M0BQC, then presented his report mentioning the highlights of the year; the success of the training programme for the Foundation and Intermediate courses, the Christmas dinner at The Anchor Runsell Green, the new Society constitution, International Marconi Day and the other open days at Sandford Mill. It was another year of steady growth.

Brian G3CVI then presented the Membership Secretary and Treasurer's reports. This year's accounts are in an improved format showing the everyday costs separately from the one off items. The strength of the Society funds means that subs will not change. The Treasurer's report acceptance was proposed by Tony G4YTG and seconded by Ela G6HKM and accepted by the Members. In conclusion, Brian presented bar charts illustrating the age spread of the membership.

Our President Harry G5HF made his address saying how he had felt last year that, perhaps, the Society had reached a peak but he was pleased to report continued growth. A special vote of thanks was made to Chris G0IPU and his training team.

Then under Harry G5HF's guidance the Committee retired. Those not seeking re-election were Ken G7RFT, Trevor M5AKA, David M0BQC and Carl G3PEM.

Chris IPU presented the training report; 63 successful Foundation and 7 Intermediate students, speaks for itself. He told us that Carl G3PEM, Murray G6JYB and he are going on the RSGB Trainer's Course at Telford to prepare themselves for the last full RAE to be held in December.

John G8DET was re-elected Chairman, proposed by Brian G4CTS, seconded by Murray G6JYB and unanimously accepted.

The retiring Committee Members presenting themselves for re-election were voted in *en bloc*, proposed by Geoff G3EDM, seconded by Trevor M5AKA. All accepted; Anthony M1FDE, Brian G3CVI, Chris G0IPU, Chris M5CSM George G3UTC, Colin G0TRM, Geoff 7KLV, Martyn G1EFL, Murray G6JYB and Tony G4YTG,

New Members, Denis 2E0BIA, Jim 2E0JPS and Ron M3CAM were proposed by Martyn G1EFL, seconded by Ken G7RFT and all accepted. Clive Ward M0SIX/G1EUC who had been seconded to the Committee was elected by a proposal from Carl G3PEM and seconded by Chris G0IPU.

That completed the formal business of the AGM and to round off the evening John chaired an informal question and answer session with a team consisting of Murray G6JYB, Fred G5HNF and Tony G4YTG. A long discussion followed on G5RV aerials prompted by a question posed by Patrick M3XAP.

Report by David M0BQC

Trials & Tribulations of a Radio Interference Officer Pt. 2 by Dave G3PEN.

We are probably all familiar with the microwave oven. Back in the very early 60s, it was virtually unheard of, as were the worries about the effects of exposure of the human body to strong RF fields. More anon!

One Autumn, I had to visit a manufacturer of inflatable plastic toys (which were made of pieces of sheet plastic joined together by means of RF welding), because his operations were causing almost total wipe-out of the local TV reception from London. The location was a village north of London, where the TV signals were pretty pathetic, but just about OK if nothing else was on channel.

In fact, he'd been in business for some while, but normally kept to day-time hours (about 8am to 4pm). This caused little trouble, because most people only watched TV from the early evening onwards. Unfortunately, he received a large order for Christmas sales, and had to go onto overtime to meet his contract. In practice, this meant working till 10pm or later - neatly wiping out the entire evening viewing for the entire village. The situation was complicated by the fact that he employed a large number of the local ladies, which meant that the husbands complained about the interference, but the wives were earning good money in the run-up to Christmas. And, of course, the local "upper crust" wives were generally not employed, so there was a higher level of aggravation of influential people - altogether a very explosive social situation.

The set-up consisted of some 30 or so RF welders, each running about 1kW output, plus a few others for bigger jobs, with outputs up to 2.5kW. They mainly worked in the 30-40MHz band, although a couple were down around 27MHz. This range of frequencies was chosen for the most effective welding of the plastic, with each machine set individually for best results, so a wholesale change of basic operating frequency was not acceptable. The RF generator and power unit sat in a box under a table, with the RF fed to an array of metal straps over the table, which was metal - the "earth return". The operator pressed a foot-pedal to lower the straps onto the table, with the plastic sandwiched between the straps and "earth". Each type of item being welded had a different pattern of welding straps, so there was a great variety of systems in use. The welding action was also started by the foot-pedal operation, with a time switch for control - usually set for a couple of seconds.

The generator was either one or two very large triode valves, of the sort used in diathermy machines - in fact, that was what these probably started life as, before hospitals up-graded and threw them out. There was absolutely no RF screening, and the HT was self-rectified AC, at several thousand volts. The circuit was basically a "tuned grid, tuned anode" oscillator, which wandered by up to 3 or 4 MHz through each welding cycle, as the plastic melted and the load varied. You may just imagine the "RF spectrum" scene in the large factory room - some 30 to 40 machines in operation, each to a rhythm determined by the specific work and the individual operator's skill, each spewing out a very strong local RF field, with harmonics galore, and each RF source swinging wildly in frequency every few seconds.

The actual TV interference was of three types. The local Band I signal from London was pulverised whenever a machine strayed above 40MHz during its cycle. The ITV Band III signal was hit whenever a harmonic went across the channel - and the drift could be 15 to 20MHz at that frequency. A number of TV receivers were affected via IF pickup - the "new" standard of an IF in the mid-30MHz band was now in use, and if the interfering signal crossed the sound channel or vision carrier frequency, it was rather noticeable, even at low levels.

Luckily, the owner of the factory was most receptive to all the engineering changes needed to maintain operation without local mayhem - he had to be, else he'd have been shut down, pronto. The work needed a considerable effort from a GPO team - all for free! I won't bore you too much with the details, but basically it ended up by setting every welder to a single frequency below 35MHz, so that it avoided the critical TV IF's, and the harmonics all missed the ITV channel. An RI Inspector had to attend weekly to re-check the frequencies (until he'd trained the owner to do this). The RF output coupling was reduced slightly,

to reduce the frequency swing with load changes. We also had to educate the operators to not tweak the frequency for best welding results, which they had been doing previously - actually, we took the control knobs off in the end.

We also added as much RF filtering as we could to the power supplies and miscellaneous cabling. The ideal would have been a screened room for the entire factory! One or two machines were so unstable or so bad for harmonics that they couldn't be controlled, and they were taken out of service. Finally, we ran a series of visits to every person complaining of interference, checking their receivers and aerials to ensure that they were correctly installed and working - which brought out a lot of problems that gave bad signals in any case. We also installed high-pass filters to reduce IF break-through and front-end overload, where needed.

Finally, Christmas came and went, and the factory reverted to normal hours. With the work already done, this effectively cleared up the problem - as far as I know.

The post-script however was that one evening when I was working there, the owner came in, in a panic, carrying a large leg of lamb. He said his wife needed it cooked at once, and proceeded to re-arrange the output straps of one of the machines to encase it evenly all over. He then ran the welder at full power for a short while, until he pronounced it "done", and disappeared at a high rate of knots, carrying a beautifully cooked joint! This was my first-ever experience of RF cooking (albeit at 35MHz), and I found it fascinating. However, when I later asked him whether it could also cook his staff while using the machines, he was not really forthcoming and I'm not too sure we know the real answers today, do we?

Sandford Mill Open Day

This year's event nearly didn't happen as far as the station was concerned. On the previous Tuesday your scribe set up the system and ran his usual tests with everything working perfectly. But on the day the aerial showed a major fault and refused to accept power. Eventually I removed the jumper wire at the terminal posts and ran the whole thing as a Marconi tuned against ground....easy when there is the counterpoise *in situ* under the floor!!! We then worked about a page and a half mostly on 18 MHz.

The total of visitors was about 1200 and we had lots of youngsters and parents showing interest in the station and Ham Radio. Strangely there were considerable questions about the aerial..."Why is it not like our TV one on the chimney?" The general public really does not understand the idea of a wave system for radio and appear not to grasp the fact that wavelength is of the essence. However lots of pamphlets were taken so we hope for some more recruits in the future.

Subsequent examination of the ASTU revealed some corrosion on the moving plates of one of the variable capacitors which reduced the gap to zero, hence an effect similar to a short. After polishing the faulty plate I was able to run up to 100w CW without any problems.

To all of the folk who operated and helped with the clearing up, a big thank you and see you for IMD 2004.....73 de G3CVI

Club Net Controllers

The net controller for November is David M0BQC, followed in December by Chris G0IPU, January by Colin G0TRM, February by Geoff G3EDM. Currently both March and September are open to volunteers. Harry G5HF will be in the chair for April, starting with David again in May. This sequence is then repeated throughout the year. To volunteer, call Colin G0TRM, on 01245-223835

News Items.

Congratulations to Tom G4INM on becoming a Life Member of CARS in recognition of his services to CARS and Morse training.

Congratulations to the CARS Contest Group who came third in the September 144MHz Trophy Contest. The team consisted of Trevor M5AKA, Chris M5CSM and Steve G4ZUL, assisted by Phil and Julia.

Congratulations to Jim 2E1GUA who has had two more contest successes. He was the Leading Intermediate Station in both the Single Operator Fixed Station Section of the May UHF Contest and the Single Operator Fixed Station Section of the 432 Mhz Trophy Contest.

The Inter Club Quiz Evening is fast approaching. It's being held on November 17th at the Dengie club in Mayland. Contact John G8DET, initially, on 01245-224677.

Jim 2E1GUA/M3GUA recently proved that Australia can be worked using low power and simple antennas. His antenna system consists of about 80 feet of end fed wire in a V shape just 20ft high connected to a Welz HF band antenna tuner the AC-200. His rig is the Icom IC-706 MKIIG. Using this setup on 14Mhz SSB he recently managed to work VK1HBC using his M3GUA call sign with 10 watts output, he got a 5+5 report. He also worked the same Australian station using the 2E1GUA call sign this time running 50 watts and got a 5+9 report. He says that he finds the best time for DX working like this is about 03:00 GMT. **SEM Z-MATCH.** Will the Member who purchased this unit from Brian G3CVI please contact him...the instruction pamphlet is now available.

FOR SALE Osker SWR 200 swr and power meter with calibration card and instructions. Checked against a lab standard and in perfect condition. Offers over £25...on sale for the widow of recent SK. Contact Brian G3CVI