



Chelmsford Amateur Radio Society

Established 1936

Affiliated to the RSGB
President: Harry Heap G5HF
Secretary: Martyn M3VAM

Club Call Sign: G0MWT
Chairman: Chris Chapman G0IPU
Treasurer: Brian Thwaites G3CVI

Newsletter No 472

Web Address: www.g0mwt.org.uk

June 2005

This Month's Meeting The Constructors Competition Tuesday June 7th. 7-30pm at the MASC

You've still got about a week to finish your entry. There have been some in the past who didn't start their entry until the day before!

There are just one or two simple rules. First, label your entry with your name and callsign and give it a title. Second, prepare some notes describing your entry. These are for the benefit of the judges, who are the Club Members, and also for the person doing the write-up for the Newsletter. Each Member will be provided with a score sheet and Carl G3PEM will determine the winner during the break.

Be prepared to give a short description of your entry to the assembled company and answer any questions.

The raffle this month is being run by Denis M0FHA and Jim 2E0JPS, give them your support.

Dates for Your Diary

June	7	CARS Mtg. The Constructors Competition
June	15	CARS Committee Mtg. 7-30pm DVH All Members cordially invited
July	5	CARS Meeting Arnhem Talk by Tom Robinson G0SBW
Aug	2	CARS Mtg. Table Top Sale Colin G0TRM

The Club Net Controller for June is Chris G0IPU and July, Colin G0TRM

In Memoriam

***It is with sadness and regret that we announce the recent death of Bob Boddy G6AKL
Obituary Page 2***

Congratulations

The following Members passed the recent Intermediate Exam Myra Davis M3MYR, Keith Galley M3DKD, Alan Wyatt M3OAR, Derek Vanstone M3JMV, Ernest Lerpiniere MRLER, David Pearce M3FBD, Nathan Saunders M3NUN, Nicholas Hickson M3ILM, John Wilson M3IVK, Simon Savage M3IVB and Tony Cooper M3TXC. Congratulations, also, to the course tutors for 100% success!

Situation Vacant

Having nearly reached my 'three score plus twenty' I will not be standing for re-election at the AGM in October. The position of Newsletter Editor will therefore become vacant. The October Newsletter will be my last one. Who ever takes the job on will be actively supported by the Committee and Colin TRM, if he should be required as Assistant Editor. Naturally, I will give all the support I possibly can. I have thoroughly enjoyed my seven year stint but I now wish to retire, so here's an opportunity for some new ideas and a fresh presentation.

Geoff G7KLV

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

For details contact our Secretary: Martyn M3VAM on 01245-469008

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

Last Month's Meeting. The Rodrigues Expedition by Don Field G3XTT

Our Chairman Chris G0IPU opened the meeting and gave the sad news that Bob Boddy G6AKL, a great friend of CARS and amateur radio in general, had passed away.

He also announced that the Society had purchased a quantity of baseball caps with the Club logo for sale at the next meeting, the Constructors Competition.

He then introduced Don Field G3XTT who gave a very interesting talk on the 3B9C expedition which was undertaken by the UK's "Five star DX Association" [FSDX] during March/April 2004. 3B9 is the prefix for Rodrigues Island and is part of Mauritius. The island is located about 600 km northwest of Mauritius in the Indian Ocean and is approximately 11 by 8 kms. It's only resident amateur is 3B9FR [Robert] who is a regular on the DX bands after his working day, but he could never hope to satisfy all of the DX community with a QSO and therefore the island is in the top 100 rare ones.

Don went on to explain the history of FSDX, which was formed by members of the Chiltern DX Club [CDXC], the UK DX Foundation. FSDX plans and implements large multinational DX expeditions to rare DX locations. Don then moved on to the 3B9C objectives, planning, equipment and implementation. The objectives of the expedition were to set high operating standards, to work as many "little guns" as possible, i.e. stations with only modest antenna systems, and also see if they could better the all time total of QSO's for an expedition. Extensive planning took place based upon previous expeditions, team members had actually written a book on planning after the last D68C affair.

On the equipment front 16 complete stations were assembled, the main bands being covered by ten FT1000MP Mk V and ten Quadra amplifiers, these fed Monoband antenna's. Logging was to be on IBM Think Pad laptops interconnected using STAR SOFTWARE written by a team member. The total equipment shipping weight was 6 metric tonnes and even included a roll of carpet to protect the hotel room's floor,. The container with all this equipment was sent some months in advanced of the team flying out.

Don then showed a photo collection of the team of 31 from 10 countries and gave a brief run-down on each member. He stressed how important team work is on an expedition like this and he praised the way everyone mucked-in.

At close down the 3B9C call had worked a total of 153113 QSO's world wide and 37040 of these QSO's were made by unique stations. Just consider the mountain of QSL's! An interesting statistic is that of the 153113 contacts only 8582 were from the UK!

Our thanks must go to Don for an interesting and very well presented talk.

Report by Carl G3PEM. If any one is interested in joining CDXC please contact him.

Up-dating Ofcom by Murray G6JYB

After the main part of the meeting was concluded, Murray G6JYB presented an update on the Ofcom situation regarding the ever out-flowing stream of consultation documents, which he is tackling on our behalf, together with John G8DET, and, incidentally, keeping Ofcom on their toes.

Murray proceeded with a presentation originally for the UK Microwave Group, of which he is also a Member, giving equal input on their behalf as he does for CARS.

Lastly, both Murray and John relayed their responses to the latest consultation document on Maritime Radio Licensing, giving their individual answers to the questions raised by Ofcom. These can be downloaded from the CARS web site under the Ofcom section. The general conclusion is that the Maritime Radio Licensing will echo the Amateur Radio Licensing Consultation Document which will have been published by the time you read this.

It is strongly urged that as many as possible Members get their pens out, or tap their keyboard, in response to the Amateur Radio Consultation Document, as only a united and loud voice can help shape the future of our hobby which we all enjoy now.

Report by Chris G0IPU

Robert 'Bob' Boddy G6AKL

Although Bob was not a Club Member he was well known to many of us as one who had thoroughly mastered the changing technology of amateur radio. He had successfully serviced many of our faulty equipments and would always give good advice on technical matters. I can remember seeing him first at Arrow Electronics at Brentwood in the early seventies but it wasn't until the mid nineties that I actually got to know him. He went to Hatfield Peverel with Arrow and when they folded he moved on to Waters & Stanton.

Bob was always willing to come and talk to us at the Club on technology and servicing. His last talk was on valve HI-Fi equipment and he described an amplifier that he and his son Mathew had designed and built.

He was a popular figure in amateur radio circles and we shall miss him. We send our condolences to his wife Janet and his sons, Chris and Mathew and the family

Geoff G7KLV

Memories of when "It Really Was Radio" Dave G3PEN.

Back in the early Sixties, Top Band operation was all the rage for "local" contacts, and particularly for Mobile use, with every effort made to extend one's contact range. I don't think that modern car

bodywork could support any of the aerials used at that time!

When I first became involved, the equipments were almost invariably valved - I even knew one amateur who used a CR100 as his /M receiver, fitted in the front-passenger knee-hole, and his car had a 6V battery system. He also operated RTTY/M with a 7B teleprinter on the front-passenger seat, but that's another story. HT was derived from rotary transformers or ex-army vibrator converters, often with efficiencies at full rating of less than 50%.

A rotary transformer that could supply the peak HT current used during transmission was likely be less than 25% efficient for most of the time, so a smaller rotary was usually used for the receiver, and often for low-power transmitters. Ex-TCS Receiver rotary converters were ideal, giving about 250V DC output for 12V input. You had to be wary though - many rotary transformers were designed for 24V DC input.

Power consumption was therefore a very big worry. A normal valved Top Band /M station, even running the pathetic power levels permitted in those days, could take well over 10 Amps, and some "WWII surplus" such as TCS receivers and transmitters would take well over 20 Amps on transmit. (These were often used for /M, being wired for 12V heaters and supplied with 12V to HT rotary power supplies as standard.) Also, we only had 12V generators in the cars, not alternators, which meant one had to be driving at a reasonable speed to provide any charging current for the battery, so flat batteries were a not uncommon event. (I remember seeing an article in QST that described the fitting of a massive alternator, wired at AC direct to a 3-phase transformer, to give over 2kV for a 1-kilowatt AM mobile station. Their main problem was that the corona off the tip of the mobile aerial eroded it so fast it went out of tune during a QSO! I could only wish.....)

This state of affairs made amateurs study and implement all sorts of "efficiency" systems into the /M station. Modulators became Class B biased, then screen or cathode modulation and clamp modulation was tried by many enthusiasts - not always with very good effect, or quality of speech. Transistors were introduced for the receiver audio stages in the early 60's (if you could afford them), and then for the AM modulator itself.

Eventually we could buy transistorised HT units, with a DC/DC conversion efficiency better than 80%. (The early designs tended to be very expensive and unreliable, however, and often put out a terrible whistle on the modulation.) Unfortunately, most of the "efficiency modulation" systems could not provide anywhere near 100% modulation depth, and the actual modulated RF output was well down on a decent plate-and-screen modulation system. This mattered, particularly for /M to /M contacts with limited RF output, as good levels of audio were needed to overcome QRM and QRN, including general car noise.

Then an amateur in south Essex came up with an article by an American amateur (in CQ, I believe), which promised to revolutionise the transmitter HT demands. Basically, the idea was that the audio needed to modulate the PA valve could be derived by push-pull transistors, operating in Class B for maximum efficiency at 12V DC. This was applied to the PA valve as usual via a modulation transformer. (For cheapness, it was common to use suitable high-cycle power transformers for this.) The crucial difference was that instead of the valve being supplied with DC HT, the original HT input point on the transformer was taken down to chassis via a silicon diode in series.

The other end of the modulation winding was taken to the valve in the normal fashion. Provided the diode was the right way round, the result of generating an audio signal was that the most negative voltage of the waveform at any moment in time was "clamped" to earth. The valve received a HT voltage in the positive direction that varied in amplitude directly with the audio waveform. This is identical with the video clamping circuitry in a TV, where an AC signal is converted to a DC signal of fluctuating level. The result was supposed to be an RF output signal that varied in amplitude with the modulation level, and sounded exactly like a normal AM signal - with a few provisos.

Firstly, the audio power was now providing not only the normal "audio sidebands", which required about 5W (for a 10W input PA), but also the HT to the valve, which of course was 10W. The modulator therefore had to be capable of supplying 15W of audio - but this was derived directly from the 12V supply, so was relatively efficient from the start. Secondly, because the HT never went negative at the valve anode, as happens with over-modulation, the nasty splatter effects of the valve cutting off because of negative HT on the anode would be eliminated.

Because the audio waveform provided the HT, when the voice level dropped so did the HT, so the effect was close to a continuous very high percentage modulation, which would be of benefit for reception. Normally the valve would cease to put out RF once the HT dropped to a low positive amount (perhaps 30V or so), but this would not give the same effect as cut-off due to over-modulation.

The other major claimed benefit was that when one paused in speech, the HT disappeared and the power drain was at a minimum, while intermediate modulation levels used less power overall than at peak. This would produce relatively enormous reductions in average Tx power requirements, and therefore in 12V DC power demand, compared with other systems. (The VFO and other stages in the transmitter had to have a continuous HT supply, but this power demand was relatively small, and could be provided via the normal methods.)

This idea was latched onto by several keen local "mobile" operators, although unfortunately I couldn't get involved, as I was travelling away from

home a lot at the time. Apparently, the technique was tried out from the home shacks initially, although I believe a couple of amateurs did try it directly as mobiles. Eventually I was informed that the idea seemed to work, producing recognisable audio, although I never heard it myself. However, the tests came to a rapid halt. The main problem was the effect on reception! What was being generated was certainly not SSB (it should have looked just the same as normal AM in fact - but as nobody had a spectrum analyser available, this was not proven), but the effect was almost the same.

During speech peaks, the receiver would "see" a good signal level, and behave normally, with AGC operating to keep the signal levels constant (more or less). With lower levels of speech, and particularly for speech gaps, the RF signal level would go down or even disappear, and the receiver AGC immediately wound up the gain, with the usual nasty effects of noise. When the signal came on again, the result would have been very loud audio, followed by the AGC operating to cut down the signal again.

I'm told the results were painful, to say the least. The same problems were being met by SSB operators at around the same time, who had to educate other amateurs in the correct way of using the receiver, with RF gain reduced and the AGC switched off. At least SSB receivers had the benefit of an injected BFO, which calmed things down a bit, but listeners to this novel form of AM would have had no such benefit. The effect on receivers tuned to adjacent frequencies was also extremely upsetting, as you might expect.

The result overall was an experiment that apparently worked, but which proved unworkable! As mentioned, spectrum analysers were only in our dreams, so I don't know what the actual spectrum was like. It would be interesting to repeat the experiment, using modern analysis equipment to look at the output, and with modern SSB receivers to test the audio qualities! I never saw any further reports on this from the States, so I assume that it met with similar dislike, and faded into oblivion. Has anyone else heard of or tried this system - or was it simply a "nearly workable" April Fool's joke?

PS - one unsung "benefit" was that it would have been impossible to measure the power input to the PA, or RF output, except with a scope or a peak-reading voltmeter across a known impedance. However, in those days amateur transmitters did not have a standard output impedance. Transmitters were rarely tuned-up into 50 ohms impedance, or indeed to any other standard Z. They were simply tuned to transfer the required amount of power to the aerial within the power limits of the PA valve(s), or within the input power limit for the band in question (10 watts on Top Band). This measurement difficulty meant that a considerable increase in power output could be derived without much chance of being found out (tut tut!), by increasing the level of audio power available, and talking louder - rather like the way some SSB stations operate today!

June Contests by Steve G4ZUL

Congratulations to **Jim 2E1GUA** and **Alan M0DDC/P** who have both won certificates in the March 432Mhz AFS contest.

RSGB National Field Day / CW

4/5 June, 15:00 – 15:00 UTC, 24HRS

Bands: 1.8, 3.5, 7, 14, 21, 28Mhz

Exchange: RST + serial number

Sections: a) open, b) restricted, c) low power.

All sections are multi operator and portable only.

for all other information on equipment, scoring

and general rules for this contest see:

www.rsghfcc.org

RSGB Club Championship

Dates for June as follows:

DATA 06 June. 20:00 – 21:30 UTC

CW 15 June. 20:00 – 21:30 UTC

SSB 23 June. 20:00 – 21:30 UTC

further information & rules from www.rsghfcc.org

VHF Contests

18/19 June: 50Mhz Trophy Contest

Starts: 14:00 - Finishes: 14:00 UTC (24HR)

Sections: SF, SO, M, 6S, 6O. (special rules M4,

S7). Full rules from www.blacksheep.org/vhfcc

For any further information please email Steve

G4ZUL contests2005@g0mwt.org.uk or phone

07931-874464.

For Sale

CDE TR44 rotator. suitable for small-medium HF or large VHF arrays. Recently serviced. new ring gear. Manual. c/w 100' control cable plus lower mast bracket. VGC £100.

Contact Dick G4DJC on 01245 256416 or

email: g4djc@yahoo.co.uk

Hi John

Just been browsing the Cars Web-site. Now I have broadband I can afford to! I must say what a wonderful site it is. I have enjoyed seeing the pictures of all my friends and, as soon as the adjacent house is complete and the visits by the planning officers lessen, I will certainly try to get back on air and in touch again. Please pass best 73's to all.

Eric G8ADX ericlawley@tiscali.co.uk

Let's Close with Something different!

A little inaccuracy sometimes saves a ton of explanation.

The only one who got everything done by Friday was Robinson Crusoe

Every time you learn all the answers, they change all the questions.

If you are good, you'll be assigned all the work. If you are really good, you'll get out of doing it.

To err is human; to really foul things up takes a computer.....