



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 458

Web Address: www.g0mwt.org.uk

March 2004

This Month's Meeting. Antennas by Alan Boswell G3NOQ Tuesday March 2nd. at 7-30pm at the MASC Beehive Lane.

In these days of black boxes, with performance far in advance of the homebrew jobs of yesteryear and considerably more sophisticated, one of the popular fields left for amateur experimentation is antennas. However good the hardware is, it is ultimately the aerial that determines the overall performance of the amateur station. I prefer to call them aerials. I am not anti American in any way, far from it, I just prefer the English word for them!

Be that as it may, the more we know about them the better! To further that end we have invited **Alan Boswell** to come along and tell us more about them. He is a professional engineer and has a range of talks on aerials ranging from the sublime to the gor-blimey, ie VLF to microwave. We thought the most popular subject from his range would be **HF Antennas** and that is what he has agreed to do. This promises to be a very interesting talk so why not join us?

Harry G5HF and **David M0BQC** will be organising the raffle for us, so give them your support.

Dates for Your Diary.

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| February 29 | Cambridge & DARC Rally. Wood Green Animal Refuge, Godmanchester. |
| March 2 | CARS Mtg. Antennas by Alan Boswell G3NOQ. 7-30pm. MASC |
| March 10 | CARS Committee Mtg. Danbury Village Hall. 7-30pm. |
| April 6 | CARS Mtg. To be advised. |

International Marconi Day Saturday April 24th.

This is our popular operating event of the year, commencing at midnight Friday. We welcome Members who will come along to Sandford Mill for a spot of leisurely operating. We particularly extend a welcome to all our newly licensed Members. Come along and have a go with 100 watts and a really good aerial. Our Station Manager Brian G3CVI will be there to welcome you and introduce you to our latest rig. We operate two stations, the main one in the famous Writtle Hut.

The Mill is open for visitors from 10am 'till 5pm. We also welcome Members who will come along and act as hosts, explaining to the public the fascination of Amateur Radio. See Brian at the next meeting and reserve yourself an operating spot.

The Club Net Controllers.

March - Ron M3CAM April - Harry G5HF May - David M0BQC

Question and Answer.

There is a vast amount of accumulated technical knowledge within the Club. For a trial period we are holding a Q&A session to round off our meetings. If you have a question our Chairman will be pleased to help you by calling on Members to provide an answer for you. If you prefer you can write your question on a slip of paper and leave it on the signing in table.

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.

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Please advise changes of address to Geoff G7KLV.

Last Month's Meeting. Power Measurement by Dave G3PEN

Dave Penny G3PEN gave an excellent talk on the very important subject of RF power measurement at our last meeting. Anthony M1FDE, as he always does, has produced a superb write-up of the talk and demonstration. It was decided by the Committee to publish it in a slightly different form on this occasion, and produce a technical report in it's own right. To fill the last page some technical data has been included on the design of attenuators.

Our thanks to Dave for an interesting and informative lecture, demonstration and advice on purchasing suitable measuring devices, and as Ant said, if you want to buy a power meter at a rally be sure you get there before Dave!

Recent Rallies by Geoff G7KLV.

We had a wonderful day at Canvey this year when we had two tables at the South Essex ARS Mobile Radio Rally at Canvey. We managed to make over £190 profit after all expenses were paid. The sales team were down there by 8-30 and managed to be almost ready by opening time! We have always found the organisers there very helpful and their members are always on hand to help the exhibitors unload, a really thoughtful and much appreciated touch! They also serve the most appetising high cholesterol refreshments, but it's only once a year! Our thanks to all you Club Members for your contributions in making our stall so successful. It was a most enjoyable day and we hope the punters enjoyed it too.

Some of us went as visitors to the "Pickett's Lock" rally held nowadays at Stevenage in the relatively plush Leisure Centre. No concessions except for the under fives, admission was £3. A group of us got there just after 10 and arranged to meet at 12 for lunch. By 11-30 we had done the rounds and decided to go upstairs early, looking forward to a nice meal, to find they only served liquid lunches! I had wanted to buy some two gang pots and Alan G0LSH wanted to buy a USB thingummy. No luck, so we were heading for home by midday feeling somewhat disappointed and disgruntled A pity, because Picketts Lock was always a worthwhile day out!

HARIG Challenge 2004

For the last few years, the Harwich Amateur Radio Interest Group (HARIG) has run an annual challenge and details of the HARIG Challenge for 2004 have just been released.

A principal aim of this year's Challenge is to encourage amateurs to set a goal for their radio

operating / listening and to try to achieve this goal in 2004. Challenge 2004 encourages contact with a minimum of 18 different stations from differing parts of the world. The Challenge is targeted at HF working (in line with recent licence changes) to raise awareness of the Maidenhead Locator System and the geography of the world. Discovering the squares worked is part of the challenge. The challenge is open to all Radio Amateurs and runs from February 2004 to 31 December 2004.

The objective is to work stations in Maidenhead Locator Squares beginning with each letter of the alphabet (from A to R in any order = 18 possibilities). At the lowest level of achievement you may use both CW and SSB modes on any UK amateur band below 60MHz for the award. The operator can choose their own level of difficulty – making the 18 contacts on the same band with the same mode will enhance the award.

Claims are to be submitted on the record sheets available along with the full rules from the HARIG website <http://members.lycos.co.uk/harig/> When submitting multiple sheets for the same mode, no call sign may appear more than once. Participants should obtain a full copy of the rules as there is a list of no-no's, including:- No terrestrial repeaters (but Satellite is OK), no /MM's, no Packet, SSTV, Internet or other data. QSL proof of contact is not required.

As part of the challenge, individuals must make judgements about the amount of time required and bands used to find stations to complete each record sheet. Individuals must also decide for themselves (e.g. by consulting a World-wide Locator Map) which countries to contact to work a required locator. Good Luck!

G8ADX New QTH

Dear friends,

As many of you have heard, (and probably sick of hearing) my wife and I plan to move to Devon (The wettest place in the UK our ex-Devonian Chairman, G8DET, would have us believe!). At 9am on 17th November "off went the van with our 'ome packed init" and we've been in temporary accommodation at Althorne ever since. The new house is being built in Devon where they seem to be in a different time warp! It's rumoured that it might be finished at the end of February. On about the 10th Feb we intend to move to a flat adjacent to the site and put a check on those long Devon Cream Tea-breaks!

I came to the Chelmsford area in 1951 when I joined, as an apprentice, Marconi's Wireless Telegraph Company, as it was then known. I progressed through the Television Demonstration Unit TDU - aka TV Demolition Unit which later became known as Operational Services Group OSG - aka Odds & Sods Group to

Broadcast Studio Installation Engineer, to finish up as a Project Engineer in the Contracts Office.

We had a great time in the early days of "do anything, go anywhere" being hired by the BBC for various occasions such Princess Margaret's Wedding (I was on a 30 foot scaffold tower tower a-top Tower Bridge as a cameraman), It's a Knock-out, Winston Churchill's Funeral, numerous Grandstand events, elections etc, to name but a few. We also did the first TV coverage of the Winter Olympics 1964 for American TV. Also for the U.S. we covered President Eisenhower's Goodwill Trip to Rome and Delhi. No satellites - tapes were flown back to the US.

Amateur-wise I had the very good fortune, soon after I came to the area, to meet Roy Martyr, G3PMX, who, with his notorious attention to detail, accuracy and perfection, became my mentor.

I spent many exciting evenings tuning around in Roy's shack at Second Avenue (many cups of tea supplied by Ela now G6HKM). Many years later, when he changed QTH, he gave me his home brew trap-dipole which survived until I had to de-rig it for this move. The aluminium elements more or less just crumbled.

After National Service, I gained a licence, G3MMX-T and was a member of British Amateur Tv Club, BATC. Never did get pictures on the air - too much of a busman's holiday so, when class B came in, I converted to steam only, G8ADX, always intending to take the CW. Ironically now the CW requirement is abolished we're moving to an "Area of Outstanding Beauty", so I guess it'll be wires not beams! At least I had a few weeks of HF and proved that Roy's antenna still worked after about 40-odd years!

Well, the whole point of this is to say how much I will miss all of you, my friends. I do hope that we shall meet up on the bands as soon as I can get "organised". The new QTH will be near to Plymouth, so if you're down that way "my luvs"..... Best 73's de Eric Lawley G8ADX

Beware Credit Card Holders

A year or two back Eric G8ADX was eating in London and offered his credit card for payment. The waiter took it away, out of his sight, to process the bill. Some time later Eric was dismayed to find that he'd been spending serious amounts of money! He'd been conned! It was eventually sorted out but it was a most unpleasant experience.

John G8DET, who is also involved with Neighbourhood Watch has sent us this one. It's nothing to do with radio, but be warned!

Chelmsford and surrounding districts have been targeted by telephone con men posing as Security Branch from Visa & MasterCard. They

sound very professional. They ask you whether you have bought something costing £300 - 400.

You haven't, so say "No". They then say that they will refund you the money as it was a fraudulent transaction. All they need is the 3 digits off the back of your card. If you give it to them, (as many people have), your account is then emptied! They must have got a flimsy from a petrol station or similar, used the Telephone Directory and Bob's yer Uncle. I do not know who pays, but I have an idea it is YOU!

You must never give details from your Bank Account or Debit/Credit card to anyone over the telephone who calls you. If you have been approached dial 999 and report it.

I have been given an internet contact, www.essex.police.uk/news. but have not looked at it myself yet. If you want the actual multi-page original report, contact me!

Rodrigues Island, 20th. March - 13th. April 2004 by Chris M5CSM.

First of all thanks to Dick G4DJC for the website address. For more information see <http://www.fsdxa.com/3b9c/>.

There is a DXpedition to the Rodrigues Island (3B9C) between the 20th of March and the 13th of April. As part of this Dxpediton there is the "Nevada Rodrigues Trophy" to aim for.

The objective is to work 3B9C on as many bands and as many modes as possible. These are the following bands and modes that qualify for this award:

CW: 160m to 6m (10 bands)

FM: 10m only

PSK: 20m, 15m and 10m

RTTY: 20m, 15m and 10m

SSB: 160m to 6m excluding 30m (9 bands).

There are a total of 26 band/mode slots to work!

Here is a list of sections that may be of interest to you:

1. UK local clubs - lets do a collective CARS effort! Also choose one section to enter as an individual!
2. UK High Power.
3. UK Low Power-100 watts single element.
4. UK M3.
5. New Licensee - Licensed since Jan 2003, includes Class B converts!!

Deadlines!

Club entry: 21 May 2004.

Individual entry: 31 May 2004 - email direct to g3nhl@tiscali.co.uk.

For the Club effort please email your log to me at contests@g0mwt.org.uk or fax your paper log to 01268 887258 (clearly marking FAO Chris McLaughlin K140). If you don't have email I can computerise your paper log and send it as a Club effort and individual effort providing you make it clear which section you would like to enter.

Indications so far, Steve G4ZUL, Dick G4DJC, and me M5CSM are up for the challenge! The more participation the better we will do! Please join us!

The IMD Aerial at Sandford Mill by Brian G3CVI

I have always been somewhat puzzled about our aerial and asked Brian if he could explain it to me. I had always assumed that there would be a mismatch at the top where the feeder is joined to the two arms, which there isn't! It is nice to give names to things and this aerial is called an All Band Doublet. I asked Brian if he would put pen to paper and he came up with this explanation!

I have frequently been asked to state how my IMD aerial actually works. So, if you are interested try this approach....use a nice soft pencil.

At the top of a sheet of paper draw a line right across leaving margins of about a centimetre and call the left hand end F and the other end E. Assume this is our piece of wire to become the aerial. By some means or other we will "energise" it at F (no matter how) but the far end E will be a voltage max and current min or nearly so. Draw the usual sine-wave for the current distribution from E where it will be zero simply because it has nowhere to go...and continue back towards F with the waves above and below the line taking care to get the half-waves equally spaced out. It is an advantage if your line length produces a partial current curve at F (see later why).

Now at a point approximately halfway from F place a dot on the line and call it P. This bit is tricky...."rotate" the entire left hand bit vertically down the page exactly the same length and reproduce the same current curve down to the bottom ensuring you end up with the very same partial sine-wave you had at F to start with. If you do this with a second piece of paper (possibly tracing paper) it helps to get the break at P safely carried round the corner. Now rub out the first bit from F to P.

With another piece of paper if space dictates it, draw an exact mirror image of the entire inverted L shape pointing to the left with the vertical bit close up to the first one spaced a few mm from it. You now have two inverted L aerials with their vertical bits so close together that they produce almost no radiated signal. It is in fact as much as you would get from a dipole whose length is equal to the spacing between the wires which in practice is usually about six or seven centimetres or so. The currents in these vertical bits are everywhere in opposite sense thus cancelling the radiation from them.

To achieve this we must feed the system at the bottom ends by connecting them to the

output of an RF transformer viz. the ASTU.the aerial system tuning unit The usual types are typified by the MFJ series which we have utilised. The opposites ends are fed from the terminal posts of the unit which provides the required signals in opposite sense so as to provide the two non-radiating currents. The impedance at the bottom ends is not often known and need not be because the ASTU is adjusted to get SWR of unity thus matching the transceiver output (probably 50 ohms) to whatever happens to exist at the feed point. It does help in practice to arrange the length of the wires so as to avoid voltage max because if the whole system is not quite at earth potential it avoids the tingly fingers disease. A proper earth should be used, of course.

Now up at the top we have the radiating part of the system; we could hang up a half-wave for a chosen amateur band and we would achieve the usual predictable broadside radiation pattern....but at other frequencies the top wire may be not a resonant length on an amateur band....no matter....it still radiates but with a pattern which might be difficult to predict but IT WILL STILL act as an all band aerial.

The system I put up at the Mill has given us hundreds of QSOs all over the globe with reports such as "You are the strongest signal on the band". It is half-wave on 80m but we "get out" on all HF bands very well even though the feeder passes through a brick wall on its way into the hut.

In general the losses are very low especially if one uses stranded wire whose RF losses are low due to the skin effect. I arranged the length so as to avoid the voltage max at the feed point on all bandsalthough on 10m one end comes a little close so a foot or two of less or more "feeder" would solve this. The word "feeder" has at last appeared...advisedly because I wanted to emphasise that the vertical bits are actually parts of the resonated system but are not to radiated because the polar diagram would be very obscure and show very mixed polarisation with almost unpredictable nulls and maxima.

The usual requirements for aerials still apply of course....height is important but with a multiband arrangement you cannot have the theoretical optimum height on all so get the whole system as high as the site permits and allow the vertical bit to hang down at right angles as far as possible to preserve the symmetry which assists the signal cancelling property of the close spaced "feeder". If things do not tune-up easily then strap the bottom ends together and tune against ground using the top as a capacity hat.

Have Fun...we do at IMD, see elsewhere on this letter.

Incidentally, I've got another short piece on aerials from Brian which will have to wait until next time as also will the review of Joe Carr's 'Antenna Toolkit' promised last time.