



Chelmsford Amateur Radio Society

Established 1936

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

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

Newsletter No 485

Web Address: www.g0mwt.org.uk

July 2006

This Month's Meeting - Tuesday, 4th July. 7.30pm at the MASC. Software Defined Radios by Murray Niman, G6JYB

Software Defined Radio (essentially Digital Direct Conversion) is part of an exciting future that promises to sweep away large amounts of traditional analogue RF and IF circuitry. It permits an amazing flexible variety of traditional and new radio modes, offers new possibilities for experimenters and cheap homebrew - and even offers more points for Contesters!

Read about Software Radio in RadCom but still don't understand? Can't afford an SDR1000? See live demonstrations of SoftRock SDR HF receivers - costing a mere £20! Will it mean the end of the tuned circuit? Come and See!

The talk concentrates on SDR Receivers. However for anyone who has done the new Advanced Course or heard GB3VHF, Direct Digital Synthesis (DDS) and amazing new Transmitters have also arrived.

- **July 4th may also be your first chance to hear about BR68's Successor – See Inside!**
- **Freeview at Full Power – See Inside**

Dates for Your Diary

Sat 1 st / Sun 2 nd July	VHF National; Field Day Contest
3, 12 & 20 th July	RSGB Club Championship Contests
8/9 th July	IARU HF World Championship (SSB/CW)
Wed 12 th July	CARS Committee Meeting - Danbury Village Hall at 7.30pm - All invited.
Sat 29 th & Sun 30 th July	RSGB IOTA SSB/CW Contest
Sunday 30 th July	Colchester Rally

CARS Celebrated its 70th Birthday in April.

Space prevented the Newsletter carrying much about this event and other nostalgic items at the time, so we are doing it now - better late than never !

Committee Recruits

The AGM will see a number of posts becoming vacant, in addition to the Editorial post that has still not been filled yet. It's getting time for YOU to contribute to the continuation of the Society....

Net Controllers: July: Colin G0TRM

August: Geoff G3EDM

Our grateful thanks to Denis and Joy for posting this Newsletter. Could it have gone by E-Mail?

Please keep our Membership Secretary, informed of any changes to your callsign or E-Mail addresses, etc.

For further details contact our Programme Secretary: Martyn M3VAM on 01245-469008 or look on the CARS Web Site.
Club Nets: Tuesdays 8-30pm: (2nd) 145.375 : (3rd) 1.947 : (4th) 1.947 : (5th) 145.375. All +/- QRM.

Constructors Competition

By Colin Page G0TRM

This Annual event had a rather depleted audience but an enthusiastic set of constructors. Members presented details of their latest creations...

Chairman John G8DET gave a description of the new computer system he had on order expected shortly. It is to go on BT BroadBand Talk, run two monitors, use PhotoShop CS2 for Web editing and download data from weather satellites using a serial port. He has specified 2 Gbyte RAM and a 550W whisper quiet power supply to keep things running smoothly. He hopes his new system will last at least 5 years with Windows XP Pro in charge.

Carl, G3PEM then showed O/H slides of his "Recycled 17 Metre Aerial" mostly made from parts already to hand. These parts included plastic milk bottles, old car brake springs, Meccano pieces and plenty scrap aluminium rod. Using various computer programs, he designed and built his antenna with a plastic base plate and a collar incorporating 4 radials. It was tuned with a small choke and a 300pF and could be collapsed for portable working and. Using between 10 and 35 Watts he was able to work a number of distant stations around the World with reports of typically 5 by 5. He has since taken down the aerial, now that leaves had appeared on a nearby tree - to be erected next winter.

Patrick, M0XAP also produced a series of Aerial related projects. He started by showing a 1.5 m long earth spike made from copper, which conveniently mounted a flattened water pipe to accommodate a PL259 connector. He then described his G5RV aerial for 40, 20 & 10 metres, which is matched using the internal tuner in his Transmitter. His G5RV was supported at one end by an assembly that could double as a 9m high Vertical. This was constructed from a scaffold pole and a lightweight aluminium top section. A wooden stake mounted in a 'Met Post' was used to support the assembly and to act as an insulator. The earth spike also supported a lightning arrestor and a remotely operable changeover switch used to short together the ends of the G5RV downlead, turning it into a 'T'. This switch had been in his garden for 3 years without water getting in.

Geoff, G7KLV had been motivated by the May presentation by Hans Summers G0UPL. Geoff had read SPRAT (the QRP Club magazine) which prompted him to make an Inductance Bridge based on a design by G4RGN, but with the addition of a mains PSU. The unknown inductor is resonated against a calibrated capacitor to a fixed frequency oscillator. The unit covers the range 0.25iH to 450iH using three crystal oscillators at 1, 3.162 and 10MHz.

Geoff KLV then went on to describe a Linear Capacitance Meter, also based on a design by G4RGN, which also appeared in Sprat, but modified considerably to make it work! An audio frequency is applied to the capacitor under test and the current through it is rectified and passed to a virtual earth inverting IC amplifier. The resulting DC is amplified and drives a linear scaled meter. To cover the FSD ranges from 100pf to 10iF, two frequencies are used and varying amounts of feedback are applied to the IC amplifier. This unit was nicely marked using Word which entailed printing out successive copies until the lettering agreed with the required panel - this took more time than the construction of the unit. Both units were built in less than 3 weeks with little time for much else (much to the annoyance of the XYL).

Anthony, M1FDE said he wanted a Triplexer for 6, 2 & 70cm but could not find one for sale. Using the Internet he found Diplexers and stitched a few designs together on a computer but had to vary values to fit readily available components. Simulation produced results of 0.2dB in the Passband and about 30dB down outside. Effectively he had put together a Low Pass, Band Pass & High Pass Filters. Since he does not run more than 30 Watts he feels his components should stand the test of time.

Anthony also produced a Crossed Yagi for 2m he had been given. As it did not have a matching harness he built one out of the RSGB VHF Manual. This consisted of a box, switch and a number of very accurately cut coaxial cables. When the Aerial is connected with to the Switching box the following combinations can be produced. Circular, left & Right hand phase, 0, 45, 90 & 135 degrees.

Colin, G0TRM is a serious collector of Morse Keys and while eating his dinner the other day wondered whether a Knife & Fork could be used to make one! He created one by bending the fork prongs up to make two side terminals & using the knife blade as the centre spring. With a careful bit of soldering and everything fixed to wooden base he made one and demonstrated it, to the surprise of the audience. Pity he has nothing to eat with now!

The meeting stopped for a refreshment break and to allow Carl to count the votes.

Results: -

- 1st Anthony M1FDE for his Triplexer
- 2nd Carl G3PEM for his vertical antenna
- 3rd Colin G0TRM for his knife and fork Morse key

First Time Winner Award - Patrick, M0XAP for his antenna projects

Constructors cont'd

During the break two aerals were spotted at the back of the room and the owners were asked to describe these, but regrettably not until after the prizes had been awarded.

John G4CCL had constructed a nicely made antenna for 70cms. He explained that he found another use for 4 pieces surplus plastic, which he used to support the Quad Dipole & Reflector on his Aerial. He had used Brass rod from B&Q as it has less skin effect than stainless steel. The dimensions were taken from an American Aerial Fest paper - where they have a meeting and competition.

David Barber, G8OQW produced a portable "square" Halo tuned for 10m. This was very well made out of 10mm Central Heating copper tubing bent, using an internal spring to ensure the bends did not collapse. A copper matching stub was soldered to one corner and a plastic conduit box provided the waterproof connection area. Changing the joining piece enabled it to tune 6 metres.

Thanks to everyone who took part and to Carl for organising the voting.

Feedback

This section is reserved for items where more information has come to light since a previous Newsletter has been published.

'A Thank You' to all CARS Members from the Late G4INM's Daughter, Patricia:-

Thank you for coming to the funeral and tributes in the Club Newsletter. He used to like coming to the club once a month, and talking to you all. Until he got too ill to come to the Club, I had to read the Newsletter to him because he lost his sight.

I looked after him from 1996 until he died on 6th March 2006. I know he liked coming to the Club Meetings. He also liked going to rallies with Geoff, G7KLV and the late G3NAA and Alan, G0LSH who were good enough to take him round the stands and explain what was on. He also liked to chat to you all about different subjects to with amateur radio.

This is the only way to say "Thank you. I can to all Club Members for your support in the last three months".

Patricia.

Power Consumption

Further to our feature by Ken, G7RFT in the March 2006 Newsletter and the table of power loads, the following maybe of interest.

Processor	Idle	CPU-Load
Pentium D930	153W	240W
Anthlon 64 X2 4200	70W	110W
Graphics Card		
GeForce 7800 GTX 512	94W	203W
Radeon X1900XT	95W	210W
Radeon X300	70W	103W
DVD Burner		
Plextor PX 716A	12W	12W
Hard Drives		
Western D Raptor X	9	10W
Seagate 7200rpm 40GB	7W	8W

CARS Reaches 70

The April 1936 issue of the RSGB 'T&R Bulletin' carried this announcement: "With a view to forming a Chelmsford section [of the RSGB], will members living within 10 miles write to G6LB, Mr. L. Fuller, 85 High Street, Chelmsford promising him their support. If this is obtained a meeting will be arranged."

The first meeting was held towards the end of April and the June 1936 T&R Bulletin carried this short report of the meeting: "Chelmsford, the first meeting held in this area was organised by G6LB and held at G5RV [Louis Varney's house in Galleywood Road] Chelmsford, when an attendance of 26 was recorded, this included a party of 15 from Southend."

The club name was changed from Chelmsford RSGB Group to Chelmsford Amateur Radio Club in 1957 and then in 1963 it went from a Club to a Society.

The club has had many well-known Amateurs as members. Probably the most famous was Louis Varney G5RV. In the early 1950's he developed the G5RV antenna in Chelmsford. It was such a successful design that it's still being used by tens of thousands of Amateurs around the world.

One of the early members of the club was James Watt G6ZC who joined in 1936. He is still a Member to this day.

CARS have always been renowned for having first-class technical presentations at their meetings. In 1965 they were probably the first club in the UK to have a talk about ATV delivered over the air from the QTH of G3NOX-T to the meeting room in Arbour Lane.

More recently in 2001 the club collaborated with the Marconi Company in celebrating the 100th Anniversary of the Marconi's first Trans-Atlantic radio transmission. CARS members operated the station 2MT using all Marconi equipment.

Over the last 4 years the club has developed an extensive Radio Communications Training programme based around PowerPoint slides. The teaching material that members developed for the courses has been supplied to clubs as far away as Australia to enable others to start up their own courses. As a result the training material has helped literally thousands of new Amateurs World-Wide gain their licences.

The club has a proud history and continues to make a vital contribution to Amateur Radio.

73 Trevor M5AKA

Memories of CARS in the 70's.

I have some fleeting recollections of when I used to attend the Club meeting at Marconi College in Arbour Lane. I was about 14 at the time. That would be around 1975. My father suggested I take a look when he provided me with an old Marconi receiver. It was the size of a large chest, with a power supply the size of a PC tower system! My dad, Edmund, worked at Baddow for many years - in Hut 6 for most of that time.

I remember 'Willie' McClintock G3VPK presiding over things back then and there were some interesting presentations. I also seem to remember a regular raffle, for various bits and bobs, but I must admit that most of it's a big blur now.

At one of my earlier attendances, I met up with the only other 'youngster' in attendance - Graham Doubleday, who was a year above me at school. We ended up going to the meetings together and I fondly remember one evening trying out the Puch Maxi he'd just got, as he became 16. You don't see those any more! He ended up taking an apprenticeship at Marconi Radar and bumped into him at the Writtle Road site when I worked there from 1986 to 1988. Not sure now, but I think he left the area.

Back then, I can remember cycling into the college car park in the evening, to see several cars of that era - Marina, Cortina Mk2 or (Mk 3 if you could afford

a newer model!) with massive whip aerials. These pre-dated those mag-mounted ones used by the illegal AM-band CB radio guys a year or so later.

Every now and then, at the meetings, there were components for sale, and I can distinctly remember buying a big bag on mixed resistors for my 'projects'. I reckon I've still got some of them!

When I was keen, I purchased a 'teach yourself Morse' record, with a view to getting a licence. However, at the time, I found that I got more pleasure from listening to The Who and Led Zeppelin, so I never got any further than one or two plays of that record! I reckon it may still be 'round my parent's house - note to self, check on eBay!

Sort-of connected with the Club meetings, I managed to get a Saturday job at Mildmay Electronics in about 1976. My mum, who incidentally used to work at Marconi College, managed to persuade Stan Wright, the owner, that he could do with some help around the place and that I was the ideal candidate! The shop was in Moulsham Street, behind Orrins the Florists. I started there booking in repair jobs, and selling spares and components. This was long before 'Tandy', although we did have 'Radio Spares' as competition, further up Moulsham Street. I got involved in a few of the repairs, but nothing too demanding. I seem to remember getting the all-important job of getting the fish and chip order in from Robinson's, up the road, at lunchtime. I also remember that the two main repair guys both smoked cigars - disgusting! I guess any items picked up from being repaired would have the added 'Eau de Hamlet' aroma fitted free of charge!

I ended up working upstairs in the sales room, on commission, and for quite some time this work supplemented my student grant, so I came out of college in the black - unheard of these days!

Best regards to anyone who remembers me,

Julian Woloszczuk (pronounced Vo-wash-chook)

*Footnote by Trevor M5AKA:
UK Patent Office website <http://gb.espacenet.com/>
shows that Julian's father Edmund Woloszczuk has
31 antenna patents listed from his time at Baddow.*

Ed: who remembers Julian? Write in & tell us

*This year is the 70th anniversary of the club.
Perhaps other members would like to write about
their early years in the hobby for future issues of the
newsletter, even a few paragraphs would do.
Just email it to: editor@g0mwt.org.uk*

The Early Days (2). Remembered by G3MMX-T/G8ADX

I was always very good at art and handicraft at school, Stationers Company's School, in North London. We lived within $\frac{3}{4}$ of a mile of the infamous TV mast at Alexandra Palace (Ally Pally). I had made my mind up to become a draughtsman but, for some reason during my last term at school, I changed my mind to wanting to work with electronics. I well remember spending many happy Saturday morning ferreting around the street markets of North London sifting through the ex WW2 equipment of which there was an abundance at give away prices. I still have a BC-221-M frequency meter from those days. My first project was an oscilloscope using a VCR97 CRT. I remember being careless and putting my hand on the 2kV capacitor; I ended up across the room!

On leaving school in September 1951 I was accepted as a Craft Apprentice by Marconi's Wireless Telegraph Company. Towards the end of the six years I was working in the Television Demonstration Unit (aka TV Demolition Unit). Somewhere along the line I was taken under the wing of Roy Martyr, G3PMX, spending many a happy evening in his shack at Second Avenue, supplied with copious cups of tea and tins of TeaTime assorted biscuits by Ela. The homebrew HF trapped dipole Roy was using at that time was given to me when they moved to Waltham and finally crumbled to pieces when I moved to Devon three years ago.

At the end of the Apprenticeship I did my two years National Service. With my Marconi background I was immediately sent to the RAF's No1 Radio School at Locking, near Weston Super Mare, on a 52 week ground Radar course and stayed the rest of the two years servicing the equipment I trained on. During my time there the first Russian Sputnik was launched and the station amateurs recorded the signals with my Ferrograph recorder.

When I was demobbed, on the basis of the training, I was exempted from taking the amateur radio exam and was issued with G3MMX-T. The British Amateur Television Club (BATC) was then meeting in a loft over a garage and Mike Barlow was one of the leading lights so we often met in his home at Baddow Hall Crescent. I have quite a few photos of BATC and the annual convention. Sadly I never got on the air with TV. Too much of a busman's holiday since, by then I was involved with TV at Marconi's. I finally got on the air to Roy using a 70cms sig gen.

Somewhere along the line the rules changed and I was able to get G8ADX, 2 metres and above. Worked Europe with 5W on a homebrew 70cms rig.

When the rules changed again to do away with the Morse requirement, I tried to get my old G3MMX call

back but was told it was not available! I had a month at Ingatestone after this before we moved to the present QTH here in Devon. I was using Roy's homebrew trapped dipole (made in the 50/60's) he bequeathed to me when he moved from Second Ave and his old FT101D transceiver. All worked very well.

Since the move to Devon, I've not got back on the air, partly because the house took precedence and partly because this is a designated "Area of Outstanding Natural Beauty". Some day soon I hope to!

Best regards to you and all in CARS.

Eric G8ADX - a member of the club for 50+ years

July Contests by Steve G4ZUL

IARU HF World Championship (SSB/CW)

8/9 July, 12:00 – 12:00 UTC, 24hrs

Bands: 1.8, 3.5, 7, 14, 21 & 28MHz.

Exchange: RS(T) + ITU Zone (27)

Categories: single operator, multi operator,
IARU member society HQ station

Scoring:

- within own ITU zone 1 point.
- within own ITU zone but different continent 1 point.
- within own continent but different ITU zone 3 pts.
- different continent & ITU zone 5 points.

Multipliers: total ITU zones plus HQ stations worked on each band. Further information & rules from

<http://www.arrl.org/contests>

RSGB IOTA Contest (SSB/CW)

29/30 July, 12:00 – 12:00 UTC, 24hrs

Bands: 3.5, 7, 14, 21 & 28MHz

Categories:-

- Any station operating from an island as listed in the IOTA directory. (mainland UK is EU-005)
- World (any station not listed as an island).

Sections: single operator, single op – assisted, multi operator. High power, low power, QRP.

Exchange: RS(T) + serial number + IOTA reference. for full information on scoring & rules please see:

<http://www.rsgbhfcc.org>

VHF National Field Day

Saturday 1st & Sunday 2nd July.

Starts 14.00 - Finishes 14.00 UTC (24hr)

Bands 50, 70, 144, 432MHz & 1.3GHz.

Exchange: RS(T), + Serial Number + Locator.

Sections: Open, Restricted & Low Power.

More info from:- <http://www.blacksheep.org/vhfcc/>

VHF contests are listed in January Radcom, p33.

For further information please email Steve G4ZUL - contests2006@g0mwt.org.uk

Steve says to enter 'sm3cer' into Google, and look on his website - it is very comprehensive

Beyond BR68

October 1st should see the launch of the new 5yr electronic licensing scheme for Radio Amateurs and Maritime users (and deregulation of CB/CADS). Ofcom is expected to launch a consultation on a revamp of BR68 on July-4th, and possibly under a new Ofcom 'Ofw' name to coincide with the new era.

At present three separate and outdated BR68s (for Foundation, Intermediate and Full Licences) along with various NoV updates are posted out each year by the RLC. These will all be merged and significantly rewritten into a single downloadable pdf. Unlike some issues, dialogue has been underway and the RSGB (inc Trevor and Murray) has provided considerable feedback to Ofcom's draft. It will be interesting to see what the resulting consultation document looks like.

If you have views on logbooks, club callsigns, regular callsign use, remote-controlled stations and the incentives/differences for the three licence tiers then get ready for one of the most relevant consultations of all. This will be the first chance to comment on the rulebook in a lifetime and also the last opportunity prior to Ofcom turning its focus elsewhere. We are also currently awaiting the licence-fee outcome, but assume that Internet access is key to avoiding lapsed licences and £20 postal fees!

Citizens Band & CADS

Ofcom has been trialling the use of CB frequencies for limited local broadcasting of religious and community events. The service is called Community Audio Distribution Systems or CADS. This has been in great demand by Northern Irish Churches and some English Mosques, and could be widened to any community event such as local fares. With this on the verge of being made official across the UK and the CB Licence due to be abolished on Oct-1st (when use would go licence-exempt), some interesting responses from those affected on both sides can be seen on the Ofcom website at

http://www.ofcom.org.uk/consult/condocs/cads_scheme/

As we went to press it was announced the ComReg who are the regulator in Eire was also introducing a similar scheme to UK CADS on CB frequencies.

For Sale - 10 Metre Dipole

10m Dipole, well made, including coax. Used to belong to Roy Martyr, in Gt Waltham. - £10.00. Buyer collects from Fuller Street. Fred Shead, G4VVQ (G 4 V V Q) QTHR.

Email: g4vvq@aol.com

CARS FREEVIEW NEWS SCOOP!

The recent ITU Regional Conference (RRC-06) has just concluded and issued a list of approved frequencies for high power Digital-TV stations in the UK (which reach us in 2010+). As backed by CARS in the Ofcom Switchover consultation, new co-channel transmitters are present to create SFNs (like DAB) and bolster patchy coverage. Provision has been made in the allocations for new stations at Burnham On Crouch, Rouncefall Hill (at Ashingdon near Hockley) and Clacton On Sea. Following Switch-Over the powers and UHF Channels are likely to be as per the table below (bold = standard channels)

Tx / Freq	1	2	3	4	5	6	7	8	Polar	kW
Crystal Palace	22	23	25	26	28	30	33	37	H	200
Sudbury	34	35	41	44	47	56	58	60	H	100
Rouncefall	34	35	41	44	47	56	58	60	H	4
Clacton On Sea	39	42	49	52					V	1
Burnham On Crouch	35	42	49	52					V	1

Main transmitters such as Crystal Palace and Sudbury will be cleared for at least x10 more power, along with two extra frequencies (perhaps for HDTV).

Note that to receive all services from Sudbury you will need a Group-E/W wideband aerial. If you diplex London & Anglia you will (like now with Ch-5) need to decide your priorities as there is an overlap that a diplexer will cut out. For comparison Analogue TV uses 1MW Peak at Crystal Palace whereas Freeview (which can get away with 10dB less) is currently 20kW, and Sudbury as many know is rather lower.

The switchover plan permits more power on all six existing multiplexes on main transmitters, but relays are only guaranteed three Public Service frequencies.

Note that UHF Channels 31-40 (and 63-68) lie in the 'sell-off' section of the spectrum, where it is not yet certain what services will be present on the 'new' frequencies. For this reason they are not bold in the table. However if the new channels carry HDTV they will use MPEG-4 and you will need a special box (as ordinary Freeview is MPEG-2). If you can't wait then join a few of the enthusiasts who are receiving HDTV on trial from low power TX at Crystal Palace right now!, often using PC cards. HDTV from the BBC is also available for free on Satellite

You heard it here first!

Murray G6JYB

One From The Past

Whilst looking for some paperwork recently I came across an old RSGB publication dating from around 1960 and already in its eighth edition: '**A Guide to Amateur Radio**'. It included some wonderful old pictures and "State-of-the Art" construction projects - all valve of course.

In those days to become a member of the RSGB one had to be proposed by two Corporate members and then elected to the appropriate membership grade. Membership then for a Corporate member, over 21 was £1-10s-0d, that's £1.50 for those not old enough to remember such things.

Amongst the numerous items of interest in this publication there is also a reprint of an exam paper of the time, which differs, little from the paper still in use in the mid-1970's, as I recall. Having been asked on a number of occasions about the old exam and syllabus I hope that the following is of interest.

In those days there were no courses and it was before multiple choice. You were given no information to refer to during the exam, no aids for calculation and formulas, circuits, etc. all had to be learnt. The exam was a single paper of three hour's duration:-

The paper will be divided into two parts. Part 1 will contain only two questions, each of them compulsory. These questions will be drawn from items 1 and 2 of the syllabus. Part 2 will consist of eight questions drawn from the remaining items of the syllabus, of which six only should be attempted.

Candidates are expected to achieve a pass in each Part and failure in either Part implies failure in the examination as a whole.

1. **Licensing Conditions:** Conditions laid down by the Postmaster General for the Amateur (Sound) licence, covering the purpose for which the transmitters may be used; types of signals permissible; types of emission; power; frequency control and measurements; avoidance of interference to other stations, particularly in bands shared with other services; qualifications of operators; log keeping and use of call signs.
2. **Transmitter Interference:** Frequency stability. Avoidance of harmonic radiation and of interference by shock excitation; use of key click filters and other means of preventing spurious emissions. Dangers of overmodulation. Devices for reducing interference with nearby radio and television receivers.
3. **Elementary Electricity and Magnetism:** Elementary theory of electricity; conductors and insulators; units; Ohm's law; resistances in series and parallel; power. Permanent magnets and electromagnets and their use in radio work. Self and mutual inductance; types of inductors used in receiving and transmitting circuits. Capacitance; construction of various types of capacitors and their arrangement in series and/or parallel.
4. **Radio Principles (Elementary):** Alternating currents and voltages. Alternating current theory incorporating circuits with inductance, capacitance and resistance. Impedance, resonance, coupled circuits, acceptor and rejector circuits.
5. **Thermionic valves and circuitry:** Construction of valves; characteristic curves. Diodes, triodes and multi-electrode valves. Use of valves as oscillators, amplifiers, detectors and frequency changers. Power rectification, power packs, stabilisation and smoothing.
6. **Radio Receivers:** Typical receivers; principles and operation of TRF and Superheterodyne receivers. CW reception. Interference caused by receivers.
7. **Low power transmitters:** Oscillatory circuits; use of quartz crystals to control oscillators. Frequency multipliers. Power amplifiers. Methods of keying transmitters. Methods of amplitude modulation.
8. **Propagation:** Wavelength, frequency, velocity. nature and propagation of radio waves. Ionospheric and tropospheric conditions and their effect on propagation.
9. **Aerials:** Common types of receiving and transmitting aerials. Transmission lines. Directional systems. Aerial couplings to lines and transmitters.
10. **Measurements:** Measurement of frequency and simple frequency meters (including crystal controlled types). Use of verniers and other interpolation methods. Artificial aerials and their use for lining up transmitters. Measurement of anode current and voltage and power input to final stage.

So that was then and I was pleased (and grateful, if not astounded!) to have passed in those days. On a final note I found one paragraph in the publication which I think many would do well to reflect upon:

"Whereas a poor or inconsiderate CW Operator is a nuisance only to his fellow enthusiasts, bad telephony operation discredits Amateur Radio generally. The man-in-the-street judges our hobby by the quality of our telephony transmissions, the subjects discussed, and the procedure used."

David Barber, G8OQW

August Sundays at Sandford Mill

Sandford Mill museum is open to the public every Sunday afternoon in August from 2 to 5pm. CARS will be operating a Station on Sunday August 6th and 20th.

We need your support. At IMD there were plenty public but CARS was short with regard to Hosts.

We MUST have Members to greet the public and to explain what is going on. It is not possible for the Operator/Logger to get involved other than to say whom they are working and any interesting details.

One does not have to have a PhD to do this - simply turn up for an hour and help promote your hobby. Brian, G3CVI has a list - please give your name to him to schedule you in - there is no such thing as having too many! Phone 01245 471919 or E-Mail Brian on g3cvi@g0mwt.org.uk

My Experience with EchoLink

Firstly, I would like to make very clear that I am a complete novice to this mode. I have had a lot of help from various people, but more about that latter.

For the people who do not know much about EchoLink here is a brief summary. The Internet came into the public eye in the 1990s making some worried that it would replace Amateur Radio as we know it. However it was soon realised that the Internet could serve as a communications pipeline to hook up with distant locations in a reliable way that was not always possible with satellites or HF communications.

We now have a communications system that unites radio with the Internet. It uses Voice Over Internet Protocol, or VoIP, using the Internet as a bridge between individual voice radio stations. By using VoIP networks, amateurs who were once limited to local comms because of aerial restrictions etc can now talk to people all over the world. The man who brought this about is Jonathan Taylor, K1RFD.

I was sitting in front of my HF radio about a month ago calling CQ to no avail. I even turned up the power but still nothing, so I looked at my Yaesu VX5 Handheld and thought lets give this Echolink business a go. Lying on my desk in front of me was a copy of May's edition of the clubs newsletter (483) and on page three was an article titled **New Echolink Node M0SIX-L on 144.825 Opens in Chelmsford.** I read this a few times to get an understanding of what I had to do. I tried a few things but still no luck.

I gave Clive G1EUC a ring, as I knew he was involved with this project. He explained everything to me, in a clear and concise matter, for which I was extremely grateful. I set up my Yaesu VX5 handheld as Clive suggested and he also gave me some node numbers to try.

I punched in a 20043 (Node) number and called CQ several times and to my amazement I received a reply from an amateur in New Zealand who was mobile and waiting for his wife to return from the shops. Well, I was extremely pleased with my first contact half way around the World on a handheld using 2.5 W. Since that first contact I have worked KH6 Hawaii, YI Iraq, 9H Malta, 9W Malaysia, VK Australia and ZR South Africa, to name but a few.

I have recently been to GU land (Guernsey) for a week to celebrate my Birthday! Guess my age!!! Several club members knew I was going, Clive, Chris and Trevor to name a few, and they said if I got time put out a CQ call through the M0SIX gateway at Danbury, they would listen out for me.

Well on 9th May, I put out a CQ call at 16.00 and Clive G1EUC came back. We had a QSO and he passed me over to Trevor M5AKA and then Murray G6JYB. It was nice to work them all. I felt I was a rare island! At 16.30 Chris G0IPU called in on his way home, my first mobile station. I am truly amazed at how easy it is to make a QSO with somebody over the other side of the world. I have now bought a Yaesu FT-2800M rig dedicated only to Echo-Link.

If you have not tried this mode yet, give it a go. Here are some node numbers you might like to try.

Australia 20043, New Zealand 6504, Malta 278185, South Africa 185459, 9Y4TTL 280791, Buenos Aires 27949, & Munich Olympic Tower 7385.

Finally, I recommend a book called VoIP Internet Linking for Radio Amateurs by Jonanthan Taylor, K1RFD, available from the ARRL. Once again thank you all who helped me.

Martyn Medcalf. M3VAM/G1EFL

Echo-Link (2)

Since Martyn wrote the above, Ron, M3CAM has worked Denis, M0FDU (they live a few hundred metres apart) using Echo-Link via New Zealand - how's that for DX?

Echo-Link (3) - QSY

As this newsletter went to press Clive G1EUC/M0SIX has submitted an application to move the Chelmsford Echolink to a clearer channel, expected to be 144.8375MHz, and 24/7 unattended operation under the new callsign of MB7IDA (Internet DANbury).

Contributions are appreciated for the Newsletter. Cutoff date for the August N/L is Friday, 21st July.

Edited by John G8DET with the aid of Colin G0TRM, Trevor M5AKA & Murray G6JYB.