



## APRIL MEETING "A Gallimaufry of Amateur Radio Devices and Experiences"

This month we welcome Geoff Mills for what promises to be a most interesting and informative evening.

Geoff was first licensed in 1946 as D2DM while working in Hamburg, his rig was a crystal controlled, electron coupled oscillator (ECO), single valve 6L6 for CW operation on 20 metres into a pair of colinear dipoles.

Now as G3EDM/VK3EDM, Geoff is one of the UK's most active stations on the HF bands and as well as extensive SSB operation he enjoys pioneering the new DIGIMODES to many of the large number of Amateur Radio friends he has made around the world.

The illustrated talk will include "something for everyone" and we recommend the occasion as one that no member should miss.

The meeting will open at 7.30pm on Tuesday 4<sup>th</sup> April, in the Marconi College, Arbour Lane, Chelmsford. The evening will include the first annual bumper raffle draw made from the accumulated list of ticket sales at the meetings over the past six months.

### DATES FOR YOUR DIARY

- 4 Apr. CLUB MEETING - Gallimaufry - Geoff, G3EDM.
- 16 Apr. CAMBRIDGE REPEATER GROUP RALLY - Chesterton.
- 22 Apr. INTERNATIONAL MARCONI DAY.
- 22 Apr. RSGB HQ OPEN DAY.
- 2 May CLUB MEETING - DF Techniques - G3WHR & G4KQE.
- 21 May WATERS & STANTON OPEN DAY - Hockley.

### NATIONAL FIELD DAY 1995 - Gwyn, G4FKH

How many of us have given a thought to this year's NFD?, I can confirm that our committee has. I was phoned the other day to enquire if I am still interested? The answer to that question was an emphatic yes! How many other members are interested, I wonder? We need operators/loggers and plenty of helpers. Please think about joining in, I will try to attend the next club meeting to do some canvassing.

There will be a planning meeting at the QTH of Charles, GØGJS on Monday 10<sup>th</sup> April at 8pm, please confirm on 01245-256654 if you wish to attend. In the mean time, you can register your interest with me or Charles. Hope to see you on 3<sup>rd</sup>/4<sup>th</sup> June.

★ ★ STOP PRESS ★ ★

Announced in April RadCom is a change to the NFD rules to allow a second receiver on site. This has the potential of creating more interest for new operators to monitor and advise on band conditions and activity. A second tent and aerial is already being considered.

### NEW MEMBER

This month the Society extends a welcome to Jan Swanwick who is a Short Wave Listener.

### TIMELY REMINDER - Roy, G3PMX

Believe it or not, there is now only 9 weeks to the constructors' competition on 6<sup>th</sup> June. How is your project shaping up?, mine is already finished!!!

### LAST MONTHS MEETING - John, G8DET

Colin Lodge, G4IHK, reluctantly returned from New Zealand to provide his second lecture/demonstration in the series entitled 'Cellular Communications'.

Colin reminded the audience about the main elements of mobile phone networks - surprising how much can be forgotten in a year!. For reference please consult the detailed write-up by GØTRM in the CARS Newsletter, Number 338, March 1994. Building on the basic system details Colin filled in more detail of the hardware and system problems encountered in running an expanding and highly dynamic network.

The main communication link between the local transmit/receive site and the Mobile Switching Centre (MSC) or exchange is by '30 channel PCM links'. These are really 30 channels for voice communication plus one channel (time slot 16) for all channel signalling and another (time slot 0) for system alarms and synchronisation. All sites have two links to ensure that if one should fail the local area does not lose communications. The problem a user has is 'do you replace equipment you bought 10 years ago?'. From a maintenance point of view the equipment should be left alone for as long as it is running without major repeating faults. Then it is time for replacement; the problem is by then it really will be unreliable but still pressure is there to keep it running, the very action of introducing new equipment also produces problems in the system. The Vodaphone Network Control at Newbury monitors all the UK base stations, 1,300 at present, expanding later to 4,000. Comprehensive diagnostics enable Network Control to 'fault' the equipment remotely and often tell the maintenance engineer what the suspected fault is before he opens the door to the base station; even the door is alarmed so they could tell when he got there!.

Colin showed overheads of a typical 4 cabinet (2 back/back) installation and produced actual hardware examples of the equipment including channel magazines, showing different manufacturers and generations. He showed a Nokia (Finland) receiver and one by Orbitel noting the different sizes. As with all electronic equipment the size of the PCB's has been getting smaller as the years go by. BT had now agreed that Adaptive PCM could be used - this doubled the effective number of channels which could be transmitted to the base stations using 8 bit/4 bit conversion units produced by an independent company. Colin's newest maintenance aid was a very small receiver which could be plugged into a lap-top computer and used to monitor all sites. It even allowed the grid reference to be put in and it worked out what base station one should work!.

Colin gave many practical examples of the sort of problems a system engineer faced - for example how do you check that the diversity system using one transmitter and two receivers is actually working - customers do not appreciate you switching it all off!. Colin said that the paging channel is used extensively as a guide to what is working. He answered many questions from the audience, e.g. New Zealand has 200,000 customers out of 3 million inhabitants.

Colin was thanked for an excellent evening and said he would consider another lecture with more on Digital Mobile Communications at a later date.

### COMMITTEE MEETING

The next Committee meeting will be held at 7.30pm on Wednesday 12<sup>th</sup> April, in Telford Lodge, you are welcome to join us.

## DFNEWS-Dick G3WHR

The Snowman event took place on Sunday 29<sup>th</sup> January with Richard Witney and Paul Beards doing duty as the hidden stations. Usually an event is run on a single OS map, however, this year we followed the precedent set at the National Final and used the top half of the Colchester map and the lower half of the Bury map. The weather wasn't too kind with torrential rain falling at the start of the event. The bearings from the start at Nayland went towards Sudbury and towards Colchester. I chose to find the Sudbury station first and obtained a cross on the river Stour. I arrived close behind Andrew and followed him along the footpath. The area beside the river was ankle deep in water and had few places to hide so I pressed on towards the nearby railway. The next transmission brought me back to a very slippery river bank where I found G4IZX/P. Paul told me that Andrew had already been in - and not just to the hidden station.

I sloshed my way back to the car and set off for Colchester. A further bearing from West Bergholt told me that Richard was somewhere near Wivenhoe and indicated the North bank of the river Colne. Wrong - standing with my toes overhanging the quayside at Wivenhoe, the DF set pointed to the opposite bank. After a 20 minute journey, level crossing gates in my favour. I duly found G4ICP/P down the hill from Fingringhoe and Richard signed me in.

Afterwards, all competitors and operators were invited to a Bring a Bite tea by Pat and Mike Hawkins, where the usual demolition of a table full of food took place.

Results	1 Andrew Mead	4 Mike Hawkins
	2 Roy Emeny	5 Phillip Cunningham
	3 Dick Brocks	

Future events: 9<sup>th</sup> April, RSGB Banbury  
21<sup>st</sup> April, Chelmsford  
30<sup>th</sup> April, RSGB Mid-Thames

## RESIDUAL CURRENT DEVICES - Geoff, G7KLV

In those far off days before the Fifteenth Edition of the IEE Wiring Regulations, when life seemed more straight forward, these were known as earth leakage circuit breakers. At one time there were two sorts available, they were either voltage operated or current operated. The voltage operated types tripped the circuit if the voltage of the consumers earth terminal exceeded that of an earth electrode by about 40 volts. Rather tricky things to install since this electrode had to be placed outside the resistance area of any parallel earth that might exist. The current operated type, now in common use, is much more straight forward in that they trip if the difference between the circuit feed current and the return circuit current exceeds a specified value, in other words, they trip if the difference between the line current and the neutral current exceeds the designed tripping current.

If a current operated device trips one tends to look for a leakage from line to earth. A neutral to earth leakage will also operate the trip but tends to be less obvious. I have had two instances of this; I installed a 30mA trip for a neighbour and all seemed in order until we switched on one particular light; it tripped! Meggering the line to earth proved OK; head scratching! The trouble was eventually diagnosed as a neutral to earth fault in the metal lamp fitting. To this simple mind the fault only appeared when the light was switched on so therefore it was something to do with the live conductor!, one learns eventually.

On another occasion I had been drilling a hole in a wall at home; later I stopped to make myself a cup of tea. As soon as I switched the kettle on the trip operated. Extensive tests on the kettle proved it was OK; all very odd. I then realised that I had probably drilled through a cable embedded in the wall. Investigation revealed that my drill had severed the insulation between the neutral and earth. The odd thing was that I didn't trip the earth leakage breaker when I caused the actual fault; it was when I switched on the kettle, which took much more current than the drill, that there was sufficient out of balance current to operate the trip, it was a one amp trip.

The trips usually have some means of testing operation, this takes the form of a test button which connects a wire wound resistor between one pole on the feed side to the opposite pole on the load side of the breaker; the value of this resistor is such that it will pass the nominal trip current when the supply voltage is applied. With a 240 volt supply and a 30mA trip the resistor will be of the order of 8000 ohms. I have known these resistors to go open circuit so that the trip appeared to be faulty. The resistor was replaced quite easily and all was OK afterwards.

Residual current devices are well worth installing but do thoroughly test your installation before doing so, paying particular attention to line to earth and neutral to earth leakage. Test the trip regularly after installation.

## Letter to the Editor - Brian, G3CVI

### How it all started for me in the world of amateur radio.

I was sitting at the domestic "all band all electric radio" an AC Touchtune 5 by GEC when tuning past a short wave spot on the dial I was astounded to hear a voice say "This is LU6AJ and my QTH is...." all of which meant nothing to me at the time. Suddenly at enormous strength another voice piped up saying that he was G2HAJ in Southampton.... my home town at that time. He even gave his address so I was on my bike within minutes and calling at his house. To my surprise I was welcomed with "come in the coffee is ready, come into the shack".... What is a shack? It was a nicely laid out small bedroom full of radio gear with 4 huge mercury vapour rectifiers (so I was told) glowing in the corner and emitting a strange sizzling noise. His name was Paul and he immediately took me under his wing and that was really the first introduction I had to this world of ours.

Already with a C & G radiotelecom final I was happy enough with the circuits in use at that time (1946) and my morse speed was about 10wpm labouriously obtained in the Air Defence Cadet Corps (Later the ATC) so it was a matter of getting up the morse test to a steady 12wpm. Paul really hammered away at me with a pencil on a table top using the old system of rhythm rather than opposites which he did not like. It was a struggle but time passed and one day I presented myself at the main GPO teleprinter station in the docks. I was well gone with an awful bout of flu and sneezing every few minutes; the room had at least a hundred of the old Creeds clattering away and just outside the open hopper window was a shunting engine (steam, of course) puffing out sparks and soot much of which came through the immovable window to fall on my papers. The morse oscillator yooped like a broody hen; "Let's have some practice", said the old timer sat opposite me and he sent me a page of mixed stuff at what appeared to be a lot faster than the required 12's. "Now you have a go" he said, so I sent the sample put in front of me and all went well with only one error which I corrected with the proper signal. I asked him if he had sent to me at 12's and he laughed and said "Blimey no mate you were bashing along quite nicely at 15's so what are you worried about?, give us your form.... you're OK so don't let me down with sloppy morse when you go on the air for the first time". I nearly collapsed from the stress and the flu, he took me to the operators' inner sanctum and gave me the strongest tea I had ever sipped and a couple of aspirins.... home I went and slept the sleep of the "just". The letter of confirmation arrived four days later.... (RLA please note)

In those days we served a year of CW only, max: 25W...it was very instructive and not a bad idea. My single 807 ECO would run about 15W to the aerial which was a half wave on each band nested to a common feed point with a balun. My receiver was a much modified R1155 and gave me a great deal of fun. I strongly suspect that I was copied on every harmonic under the sun because almost no-body used low-pass filters and rarely had more than two tuned circuits twixt anode and aerial; I distinctly remember seeing a well known local in Hampshire who regularly connected his aerial to the anode via a mica "condenser".... The story could go on.... I just hope it starts some talking at the meetings because it is good to remember the great strides since the old artificial aerial boys became fully licensed after the war... is it as much fun?, I say it is depending on your attitude to the simple rigs and the international friendships that we enjoy. There is the bait.... let's have some dialogue.

## HOME IS ..... Eric, G8ADX

In days of yore when knights were bold it was his castle which was protected by a moat, drawbridge, portcullis, hot pitch, guards, etc... In these enlightened days most of these would in some way infringe the Health and Safety Laws!

I have two 60w lamps which light the way to our front door when triggered by a PIR. My neighbour had a 500w floodlight which lit his front garden when triggered. It was rumoured that this helped the thieves who relieved his Telcom van of £1000 worth of kit! He now has an additional similar setup fixed to the telegraph pole by our gates. Our area is now known locally as Colditz!

In spite of this, some thieving hound has relieved G8ADX's gas guzzler, of it's 7/8, 2m whip, even though it was parked in the drive, close to the house (Grrrrr...)

How does one protect one's property? One is not allowed to have walls topped with broken glass, nor barbed wire in hedges, nor to wire up to the grid system, nor in fact anything which may hurt the blighter! The public complain of noise pollution when alarms sound and now new rules are being implemented in respect of light pollution from floodlights particularly those which are switched on and off by detectors. I am considering a 6 foot moat of the most viciously barbed bushes and brambles that I can find!

Maybe the Syrians have the right idea, if you can't keep your paws off others people's tackle...cut 'em off!..... Wonder what they do for adultery?

73 from Roy & Ela Martyr,  
G3PMX & G6HKM

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