



## THE AUGUST MEETING

In 1982 you could buy your first CD player. Since then digital sound has made steady progress, TV sound went digital when NICAM was added to the transmitted signal, and in 1995 the BBC began broadcasting Radios 1 to 5 in the London area using DAB - that's Digital Audio Broadcasting. So, what is DAB - and why did they change from NICAM. At our meeting on 6<sup>th</sup> August, Dick Brocks, G3WHR will provide an introduction to digital communications and the methods used to transmit high speed data over radio.

A stereo CD channel requires nearly 1.5 Megabits/second, so just how do they transmit four stereo channels and one mono channel in a bandwidth of 1.5MHz, and keep them error free over a rapidly varying radio link. Did someone say Coded Orthogonal Frequency Division Multiplexing. All will be explained.

We are very fortunate to have a club member working in this new field of technology and who is willing to make time to reveal the terminology that will make headline news next year.

The meeting opens at 7.30pm in the Marconi College, Arbour Lane, Chelmsford. Hope to see you there.

## DATES FOR YOUR DIARY

- 4 Aug. RSGB NATIONAL MOBILE RALLY - Woburn.
- 6 Aug. CLUB MEETING - Digital Broadcasting - G3WHR.
- 17 Aug. RSGB HQ SATURDAY OPENING.
- 18 Aug. GREAT EASTERN RALLY - Kings Lynn.
- 25 Aug. EAST COAST RADIO RALLY - Vista Road, Clacton.
- 3 Sept. CLUB MEETING - "Encore!" JVFAX - Chris, GØIPU.

## GARDEN PARTY - QTH G3EDM - Ela, G6HKM

We were not blessed with blue sky and sunshine, it was overcast but this did not mar the event at all, in fact we all agreed that the temperature was just right for an outdoor party.

A true Amateur Radio garden with two towers, a delta loop aerial for 40m and of course the HF beam. The garden is surrounded by very high conifer hedges and the tallest row of runner beans we had ever seen, you would need a pair of steps to pick those at the top. I wonder if this is a clever ploy to dwarf the adjacent radio masts etc!

Geoff provided several live PACTOR demonstrations while Sylvia prepared the refreshments.

If you were on a diet this garden party was not for you, the goodies were so tempting that you could not resist sampling all of them.

Our grateful thanks to Geoff and Sylvia for hosting this event and to all the xyl's who brought along such delicious cakes etc.

## SILENT KEY SALE

We repeat this month the list of items, on behalf of the widow of G6RM. If you are interested in any item, please contact James Watt on (01277)353357.

- 1] KW2000 Transceiver with matching PSU/Speaker unit, KW mic, KW-Match SWR Meter, ATU 160-10m.
- 2] HALLICRAFTERS S.40 Receiver, 540KHz-43MHz in four bands.
- 3] Straight Morse Key, brass on mahogany.
- 4] MARCONI CR-150/3 Receiver, 2-60MHz in five bands, bandwidth 300Hz-3KHz, requires PSU 6.3vac & 300vdc, handbook available.
- 5] BC221-M Frequency Meter.
- 6] AVO Meter.
- 7] AVO Minor.
- 8] ECKO TF801A Signal Generator
- 9] PYE CAMBRIDGE Radio Telephones, job lot of four.

NOTE:- All items still available, the KW2000 has been tested "on air" by James; it sounded very good on the 28.325MHz Club Net!

## MESSAGES BY FAX - Roy, G3PMX

Necessity being the mother of invention, we now have a Fax Machine. As we only have one phone line the unit is not set to automatic answering but if a voice call says "I have a Fax for you" we only have to press the START button to receive the message, all within the one phone-call; equally if you require some data from us, the same procedure applies.



## MUSEUM OPEN DAY - Geoff, G7KLV

At the invitation of Dr. Geoff Bowles of the Chelmsford Museum Service the club was invited, once again, to provide a working amateur station in the "Writtle Hut". By established tradition Brian G3CVI was station and technical manager, Pat GØSBQ was QSL manager and Tony G3YTG was installation and special effects manager. On these occasions I do my best to wear both my club hat and my Museum Friend hat! We erected the aerial and set up the club rig and ASTU on the previous Thursday so all would be ready at 10 am Sunday morning. Brian had been busy doing sums and calculating aerial and feeder lengths so as to avoid the "it won't tune" syndrome which has dogged us on previous occasions. The dipole arms and feeder lengths were carefully measured and then the feeder was cut to one of the calculated lengths. Success! Satisfactory tuning on all, yes all, bands!

Came Sunday morning and GBØCMS went on the air without a hitch. There was a contest in full swing at the time so Brian and Pat took advantage of an opening on the 12m band. A total of 66 leisurely contacts were made throughout the day 'till 5pm. Most of the action was on 80m with a few on 20 and 40. Colin GØTRM and Chris GØIPU, in spite of severe physical handicap, were relief operators on a warm humid afternoon. John G8DET was on hand to talk to the constant stream of visitors.

Tony had set up a very impressive Morse reader using a Racal 1217 receiver feeding into a Spectrum Plus coupled to a 22 inch colour TV. The Spectrum was using an RX4 program.

This demonstration excited a lot of interest which was, at least, some compensation for him as he was not able to demonstrate the Marconi kite in action. There was not a breath of wind all day.

These were but two of the many attractions and displays which attracted a gate of 1078 on a day in competition with other popular events. It was a most enjoyable time and my thanks to all club members who gave their time and support and to Geoff Bowles for inviting us to join his very successful Open Day.

**A few days later our Hon: Sec: received this letter.**

Dear Charles,

I am writing to thank the Society for setting up and demonstrating amateur radio in the Marconi Hut at our Open Day on Sunday. As before, the hut was crammed with visitors, and our visitor survey made it clear that this was one of the major attractions. The official total of visitors (excluding an army of helpers and exhibitors) was 1078 - we were well pleased with this, particularly considering the high profile police fun day up the road!

Following a good breeze on the Saturday, we had a flat calm so couldn't indulge in Marconi Kite flying. Perhaps you would pass on my thanks to Brian, Pat and Tony, and, of course Geoff - one day, perhaps, their call signs will come naturally to the typewriter.

The acrias are now down in 'winter' positions, after a very successful joint season of radio events, and I look forward to even better things for the Hut's 75<sup>th</sup> anniversary year in 1997.

With many thanks, Yours sincerely, (signed) Geoff

Dr. G. Bowles. Keeper of Science and Industry.

## LAST MONTH'S MEETING - Geoff, G7KLV

Our meeting attempted to give a history of CARS but in the short time available it was only possible to give a taster. In this Newsletter I only propose to record the highlights of the evening.

We were fortunate in having with us James Watt G6ZC who told us about his first involvement with our hobby. He came to Chelmsford in 1936. A few weeks following his arrival he had worn holes in all his socks and, being an un-domesticated bachelor at the time, he went to purchase some new ones from that well known local outfitter, Laurie Fuller G6LB. On the counter was a copy of the T/R Bulletin, the forerunner of RadCom. James expressed some interest, they got talking, and the rest, as they say, is history! One of his earliest involvements was with NFD.

As an encore he related an amusing incident at Croydon before the war when radio was all the rage. As a publicity stunt the London Radio Orchestra were scheduled to make a live broadcast from an aeroplane. In the best interests of safety all the players and their instruments were meticulously weighed and the results recorded by a loading clerk. All went well until the plane took off and the pilot only just succeeded in getting the plane airborne at the end of the runway. The broadcast was a great success. On landing the pilot had a quiet word with the clerk and after a re-check it turned out that the grand piano had been loaded earlier and did not appear on the bill of lading! To do full justice to these reminiscences requires a tape recorder rather than a word processor!

A number of past club members had been invited to our nostalgia evening. Unfortunately Willie McClintock G3VPK, a past club chairman and RSGB president in 1986, could not be with us due to a prior engagement. John Greenwood G3KRZ, our member in Lincolnshire, phoned to say "wish I could be with you". Eddie Cole G3IIS, still active and living in Colchester, was unwell and unable to attend. Still, there's always another time!

We were, however, happy to have with us Louis G5RV who was on his annual visit to Chelmsford. On previous occasions he has given us the results of his continuing investigations into aerial phenomena but on this occasion contributed to the lively discussion on club history.

Members had been requested to bring along any old or interesting equipment to the meeting and the response was magnificent and contributed enormously to the success of the proceedings.

Louis G5RV brought two interesting items of home construction early thirties style. One was a very stable Hartley oscillator for 7Mcs using a DE4 valve, an LF receiving valve with a 4 volt filament and 120 volt HT. The other was a TX PA for 20m giving 50 watts using a DET1 valve with 1000 volts HT.

Harry G5HF also took us back pre-war with his exhibits. One was a curious chemical rectifier used by Louis and other amateurs in the 'twenties. For more details see Newsletter No.335. Going back to the very early days, he still had a coherer that he used in an early remote control system. He also had a card from the Quartz Crystal Co. acknowledging an order for his first crystal, which probably represented many weeks pocket money.

Colin G0TRM showed us some of his collection of automatic Morse instruments. These included a tape perforator, a UG6 Undulator and a tape transmitter Type P1068. Using a prepared tape he demonstrated the transmitter and the Undulator. Ken G3PMW said that as an apprentice he was allowed to help the man who applied the wonderful swirls to the brass work of the transmitters. He demonstrated the transmitter and Undulator coupled together.

Tony G4YTG had a GPO style Morse key which would have been familiar to candidates doing the Morse test at coast stations.

Fred G2HNF had a 10 watt top band TX with an 807 PA driven by 2 EF91's and a 6AG7. The VFO used a Muirhead drive and the modulator consisted of 2 12AX7's and 2 EL91's. It was built into a TU5 case which was a favourite for such projects in the early fifties. Using the technology of the mid-fifties he also had a 10 watt top band transistorised TX using 5 BFY51's in parallel driven by a BFY51

Ralph G3NAA also showed his 10 watt top band/80m TX using a TT11, a Clapp VFO and plug in coils. The matching receiver for the same bands was also home built, with metal octal valves, based on the Eddystone 640. It was a double superhet with IF's of 1600 and 85 kc/s with BFO and a Q multiplier. Like it's forbear it was a mechanical masterpiece.

Brian G3CVI brought his noise generator which uses a CV172 diode and provides the fundamental method of measuring receiver sensitivity and avoids the inaccuracy of signal generator 'microvolts'. It measures receiver noise factor which is, in effect, a comparison of the receiver under test as compared with a perfect receiver.

John G3VMJ showed his German military receiver type Radione R3 covering 2.5 to 25.7 Mcs. This uses footless octal valves and has a dual

purpose power unit for low voltage DC (vibrator) and AC mains. As inherited the set had been subjected to mains input on the DC input and this had blown all valves bar one together with the step-up transformer. He rebuilt it stage by stage with miniature valves and used it for his main HF receiver. Geoff G3EDM also used one in Germany when he was living there.

Dick G3WHR showed us his synthesised frequency reference covering 1800 to 2000 kc/s used to synchronise equipment for DF hunting. He also had a top band 4 watt transmitter by SSB Products which cost £38 in the late sixties, an RF40 crystal set and an RF field indicator.

John G8DET brought along an interesting selection of early valves and semi-conductors. One valve had a warning to the effect that its 'filament does not glow', in other words, don't turn the filament rheostat up full bore! His main exhibit was a home-brew 2m SSB transceiver using 9 Mcs high performance filters and based on a VHF Comms: design.

Andy G7TKK had a selection of early computers including a Science of Cambridge MK14 with 128 bytes of RAM and 128 bytes of ROM, a ZX80 with 1000 bytes of RAM and a Jupiter ACE with 1000 bytes of RAM. No, there are no typing errors! He also had a kit built Sinclair Scientific calculator.

Looking as if it had been built only yesterday and not thirty three years ago, Roy G3PMX presented the ultimate in home construction! Using a QV08-100 in a tuned anode, tuned grid circuit, 2 watts in and 160 watts out, this PA covered 80m thru' 10. It's pristine condition has been maintained using filtered air cooling in a sealed unit. He also had a Type 27 RF Unit from an H2S radar unit. These units were popular for conversion to 2m front ends and had a 6 Mes IF and used EC52's. An example of old test gear was an Elliot Bros. resistance box, all brass and mahogany.

Finally I had some ready built units which belonged to Arthur G3EHZ including two by Tom Withers. These were a 10W, 2m AM TX and a 2m transistorised RX with a tunable 4-6 Mes first IF. Units by The Minimitter Co. were a valved Q multiplier and a 3 band 24W, TX for 160m through 40m.

Our thanks must go to all members who raided the heights of those dusty lofts for our enjoyment, to members for their reminiscences, to Dick WHR for his account of early NFD's and finally to John DET for presenting and stage-managing the evening for us.

## THE PHILIPS RECEIVER - Geoff, G7KLV (June/continued)

One of the radios was an early transistor, only useful for spares, but the other one was a valve job in a wooden cabinet. Long, medium and short waves and no FM, which might mean that it was pre 1955; interesting!

It turned out to be a PHILIPS receiver released in 1948. Given a brief glimpse of the works even the untrained eye can spot an early PHILIPS. Whereas the majority of British radios of that vintage were much of a muchness, the PHILIPS were different. Not only circuit-wise but in every other aspect as well. Capacitors in the 0.1uF range were always black blobs of pitch-like material. Low value trimmers were the beehive type instead of the horrible compression types. Higher value trimmers consisted of ceramic tubes wound with fine wire. Capacitance was lowered by stripping off turns. A bit awkward if you wanted to increase capacitance again!

Instead of the usual plain drawn aluminium IF cans these were much more elaborate. The mixer and oscillator coils were mounted in these screening cans as well, most unusual!

Two components suggested that it had been to a service man at some time since the volume control and one capacitor were Radiospares, well before the days of RS Components.

The tuning capacitor and dial drives were quite complicated, there being a separate drive for each one off the main tuning control. Although "Made in England" I suspect that the majority of components were Dutch and it was almost certainly a Dutch design.

Plug in to the mains and stand back! Just a few crackles, that's all. I blush to admit that it took me some time to find that the primary winding of the speaker transformer was open circuit. An unusual fault but there's always a first time. The transformer was a rather odd mechanical design and impregnated with the regulation black stuff and obviously not very effective.

(The story continues next month.)

## COMMITTEE MEETING

The next Committee meeting will be held at 7.30pm on Wednesday 14<sup>th</sup> August, in Telford Lodge, you are welcome to join us.

73 from Roy & Ela Martyr,  
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