



NEXT MEETING - The Annual Film/Video Show



To begin the new year, we offer for your interest some video films not previously shown to club members. Through contacts with The Film Archive Library we have been able to tap into a new source of Videos relating to the history of Chelmsford.

It is surprising how much film footage was made years ago of local industry in action and disasters such as the great flood. Geoff, G7KLV and Charles, GØGJS have previewed some of this material and Geoff has made an abridged version to fit the time scale of our evening. The show will include a supporting programme of recent events. The meeting opens at 7.30pm on Tuesday 3rd January in the Marconi College, Arbour Lane, Chelmsford.



DATES FOR YOUR DIARY

- 3 Jan. CLUB MEETING - Annual Film/Video Show.
- 5 Feb. SOUTH ESSEX ARS RALLY - Canvey Island.
- 7 Feb. CLUB MEETING - JVFX/GØIPU & Bridges/G2HNF.
- 12 Feb. CAMBRIDGE & DISTRICT RADIO RALLY.
- 19 Feb. RSGB VHF CONVENTION - Sandown Park.
- 25 Feb. 10th RAINHAM RADIO RALLY (Saturday!)

DF NEWS - Dick, G3WHR Chelmsford Events.

The Snowman event will take place on Sunday 29th January. This will be a two station event using OS maps 168, Colchester and 155, Bury St Edmunds. After the event competitors have been invited to a bring-a-bite tea at Pat and Mike Hawkins house in Gt. Cornard.

For details of the start please contact me nearer the day.

LAST MONTHS MEETING - John, G8DET

Dr Richard McMahon, assisted by Benjamin Gordon, both from Cambridge University setup an impressive array of equipment for the December meeting. The subject being 'Hi Fi does it better with Valves'. Richard introduced the topic by running through a brief history of sound engineering. The audio quality of the 1930s led the way to the beginning of true Hi-Fi in 1946/7 and the Golden Age of Leak, Quad, Williamson, etc.

He defined Hi-Fi as having a maximum total harmonic distortion of <0.1%, power output of 15 Watts (min.), frequency response of ± 1 dB in the range 30Hz through to 20 KHz with Hum & Noise being inaudible (>100dB down) and the Amplifier should be stable without output load.

1965 saw the introduction of the Transistor Amplifier with its advantages of cooler running, no emission fall-off with life, high power output and the ease of matching to loudspeakers. With solid state came a new phenomena "colouration of sound", partly due to the problem of matching the output transistors and cross-over distortion.

1981 heralded the revamp of the Valve Amplifier in the endeavour to return to natural sound. Most things have fashions and Valve Amplifiers have theirs, mainly because there is no one simple solution to a number of design constraints and conflicts. The Single Ended (triode) output stage has its advantage of low output impedance which aids loudspeaker matching but the DC flowing in the primary winding leads to a larger core (or air gap) to prevent magnetisation. Even order harmonics produced from this configuration are thought to be unobtrusive. The Push-Pull amplifier enables the primary standing DC produced flux to cancel along with even order harmonic distortion.

The disadvantages are that somehow the valves have to be driven in antiphase and that the operating characteristics have to be matched for their working life. The Beam Tetrode was produced for commercial reasons in the UK and sponsored the famous series 6L6 -> KT66 -> KT88 and the more modern EL34 which are now produced in Russia and China (Golden Dragon series).

Power required for domestic audio was described as being: - Quiet = 16mW (62dB); Voice = 1.6W (82dB); Music = 6.3W (88dB) and Revenge Power = 30W and over (95dB).

To demonstrate natural sound, Dr McMahon played a tape, recorded in his garage, the sound of the door closing was quite realistic.

He then discussed the effect of bias on the Williamson Class A Amplifier and demonstrated, with a 1kHz tone, that when correctly biased, second harmonic distortion was not seen on the spectrum analyser (relayed to the audience on closed circuit TV monitors). Increasing the level beyond normal showed a second harmonic component appearing. Odd harmonic distortion above the 5th sounds quite badly on the ear - 13th being particularly bad. One way to reduce distortion is to provide negative feedback - developed by H. S. Black at AT&T Bell Labs in the 1930s. It seems like a bad designers dream; Richard felt that a maximum of 12dB was about right - too much can overload the input stage.

A listening test was organised using Chamber, Piano and Popular music for 3 demonstration amplifiers, coded A, B & C. A was a 'Papworth' 50W, with equal load; B was a 'First Little' 40W with split load and C was the 30W 'Williamson'. I thought the HF was brighter (confused?) on 'A', slightly more bass on 'B' and over-all a more natural sound from 'C'. This was supported by the results from the audience. Biassing was discussed in more detail - the difference between cathode bias and fixed bias which was favoured by Richard.

After tea questions were taken - "does the wire to the loudspeaker make a difference?". Dr McMahon felt that it did up to the point where good sized cables were used but could not justify paying more than a few £ per foot. "Does the loudspeaker make a difference?" - Yes - The speakers we heard cost about £1,500 per pair and were considered natural but insensitive (compared to bass reflex - a little lacking in the lower register). "What is unit interface specification now?". Nearly standard at 1 Volt RMS into 47k Ω .

Another piece of music was chosen by a member - this was piano initially and then gospel singers, both reproduced quite well.

Richard and Benjamin were thanked for an excellent evening and all agreed that 'Hi-Fi did it well with Valves'.

COMMITTEE MEETING

The next Committee meeting will be held at 7.30pm on Wednesday 11th January, in Telford Lodge, you are welcome to join us.

Porthcurno Telegraph Museum - Geoff, G7KLV

This is probably the wrong time of year to suggest holiday ideas but here goes anyway. We were going to spend a week in Cornwall and just before we went I had started subscribing to Radio Bygones and saw a paragraph about the Porthcurno Telegraph Museum. I expect *Morsum Magnificat* has featured it also. Porthcurno is a small straggling seaside village set in a bay and worth a visit in itself. The actual village has a large car park and a number of 'Cables and Wireless' buildings but little else. The only signs of life were a lifeguard and a cafe; enquiries at the latter revealed all and we were given a leaflet which told us to assemble by an insignificant looking brick built hut which we had passed earlier on our way down to the beach. By this time a party of about twenty people were waiting and shortly after our guide appeared, introduced himself and ushered into the afore mentioned hut. This turned out to be the cable termination building where about twenty under water cables were terminated and connected to landlines to the telegraph station in the village.

Before WW2 the telegraph equipment was installed in buildings in the village. As a precaution against bombing a huge cave was excavated in the cliff using the local expertise of the Cornish tin miners. Buildings were then erected in the cave to re-house personnel and equipment.

The site was originally owned by the Eastern Telegraph Co., fore runners of Cables and Wireless, and they owned about 40,000 miles of cable. Porthcurno was also the starting point for another 50,000 miles of cable of associated companies effectively joining the Empire to the Motherland. In 1911 there were 150 operators employed at the site and from all accounts ETC were paternalistic employers offering the workforce excellent accommodation and recreational facilities in that remote and isolated village.

We were treated to an interesting talk and demonstrations of telegraph equipment. We were able to examine a fascinating collection of instruments and test gear. The visit lasted about an hour and a quarter and was to me one of the highlights of that holiday.

So worried were ETC about the wireless experiments taking place at nearby Poldhu that they started eavesdropping.

Although we didn't actually see them, the remains of the aerial bases can be found nearby!

The next day we visited Goonhilly and although interesting, it was to me an anti-climax! My advice is to visit both sites but go to Goonhilly first.

NEW BOOK FOR LIBRARY

Members will remember the informative lecture presented at our December 1993 meeting by Ron Kitchen on RF Radiation Hazards, during which he announced that a book he had written was about to be published.

As a Christmas present, Ron has generously donated a copy of his "RF Radiation Safety Handbook" to our library.

On behalf of the Club we say "thank you Ron for this valuable book" and feel sure that many members will benefit from its contents.

CHRISTMAS DINNER - Ela, G6HKM

I think it can be said that our Annual Christmas Social held on December 17th, was a great success, 33 of us enjoyed a very good Christmas Dinner. Background music was playing but I doubt if many heard it as the chatter was prolific and the bewitching hour of 11.00 O'clock came around all too quickly.

The raffle was well supported with a selection of 9 prizes (there is no escape from the folding of tickets, however Harry, G5HF gave me a hand, thanks Harry. Thanks must also go to our other Harry, G2HPF for taking the bookings from members and collecting all the money and not flitting off on holiday with the proceeds! also thanks to the kind people who made donations so everybody attending enjoyed a glass of red or white wine with their meal.

Last but not least, a thank you to the members of staff of Telford Lodge who looked after us so well.

HAVE YOU SLIPPED THROUGH THE NET?

Report by Colin, G0TRM

Have you ever thought of joining in the CARS Club HF Net?

When is it? - Every Tuesday evening in between Club Meetings. What frequency is it? - 28.325MHz. What time is it? - 8.30p.m. local time. (ON THE DOT) On the dot because Roy our Club President is in the chair, using the Club call G0MWT.

All manner of topics are open for discussion, from Antennas to Aircraft, from Bees to Boating and from Z-matching to Zoom lens. Time and condition permitting antenna, modulation and voice processing experiments etc., are also carried out on occasions

Once Roy has closed the net members have, from time to time, been known to carry out further experiments of interest to a smaller group, such as Amtor, RTTY or even JV-FAX more of which at a later date.

As far as antennas, antennae or even aerials are concerned mostly verticals are used, but many fine signals are heard from a variety of horizontals, loops and combinations.

Since the net first started 10 years ago Harry, G5HF our 'scorer' has indicated that approaching some fifty transmitters have called in, and currently about a dozen members are fairly active for all or part of the evening which ends somewhere around 10.00p.m. or later. Numerous non club members occasionally call in and are always welcomed.

So you do not have an HF licence, or any licence at all for that matter, well never mind, join the happy band of listeners who tune in every week to keep up with the latest news and to hear from Charles, G0GJS, who reports each month on the activities of your Club Committee regarding past and future meetings.

So we look forward to hearing from you in the coming weeks.

73 from Roy & Ela Martyr,
G3PMX & G6HKM

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Happy New Year