



THE AUGUST MEETING

Our second evening of reminiscences, introduced by John, G8DET.

The July '96 meeting left many stones unturned while digging into the history of C.A.R.S. and there must be some more examples of early radio equipment that members would like to put on show.

Geoff, G7KLV has spent even more hours researching for old photographs of events relating to members activities; these will be displayed and for a bit of fun will be the basis of a quiz to see if any member can identify all the faces with either a name or call sign.

As on the previous occasion the meeting will be informal with tables provided for members to display their items of memorabilia and if possible a card with a short description of the item for the time when you leave your table to look at others.

Some members or invited guests have already been briefed to provide a short anecdote from the wide range of experiences they have gathered. We anticipate that there will be much to see and discuss so we will be grateful if members can arrive for a prompt start at 7.30pm, in the Marconi College, Arbour Lane

DATES FOR YOUR DIARY

- 3 Aug. RSGB NATIONAL MOBILE RALLY - Woburn Abbey.
- 5 Aug. CLUB MEETING - History of C.A.R.S., part two.
- 16 Aug. RSGB HEADQUARTERS SATURDAY OPENING.
- 31 Aug. SOUTHEND RADIO & COMPUTER BOOT SALE.
- 2 Sept. CLUB MEETING - Guest speaker, Stanley Wood.

DF NEWS

Three events are scheduled for August; on Friday 1st a Chelmsford evening event at Tiptree Heath, on Sunday 10th a RSGB Qualifying event, Salisbury and on Sunday 31st a RSGB Qualifying event, Ripon.

MEMBERS NEWS.

We welcome the return to the Society of Dave Penny, G3PEN.

Congratulations to Jan, G7UVP and family on the safe arrival of a baby girl born last month.

Congratulations also go to Andrew Mead, G4KQE and Philip Cunningham, G0NXH who won the RSGB Qualifying DF event, Colchester/Chelmsford on the 20th July, full report to follow.

GARDEN PARTY (1) - Geoff, G7KLV

All good parties need a certain amount of careful planning and preparation and this one was no exception!

Luckily there was no need to call the Danbury 'hotline' to see if it was on or off! It was perfect garden party weather.

John and Pauline had obviously been working hard preparing for an influx of members, friends and neighbours. I suspect that these occasions are often used as an excuse to have a thorough tidy-up of the whole QTH. All appeared neat and tidy until John took me to his shed to discuss his electric supply distribution arrangements. Luckily we were able to view them from the door and he admitted that he tidied up the garden and all the odds and ends had been shoved in the shed out of the way! I'm sure you know what I mean. We all do the same sort of thing, don't we!

Gwyn G4FKH had been helping John the previous day to install an aerial for the occasion. It consisted of a horizontal V directed towards the NE and SW. After Brian G3CVI had obtained settings for the ASTU various members had a go. The NE lobe certainly worked well and one contact, a GM, was telling us about the flash floods in Elgin.

It seemed to me that the radio was rather like the children getting out the train set; as soon as it's all working the main interest has gone! In the end guests settled down to chat and gossip, which was a very enjoyable way of passing the afternoon!

I think the high-point of the afternoon was the delicious strawberry cream tea, together with a wonderful selection of calorie packed delicacies on which we all indulged ourselves.

Thank you Pauline and John for a very enjoyable afternoon.

MUSEUM OPEN DAY - Geoff, G7KLV

Once again we gathered at the Sandford Mill Museum on the Wednesday to erect the 80m dipole. We have to install it over the water and avoiding the power line. Under Pat G0SBQ's expert guidance this has become a very slick operation and all went like clockwork.

The operating team assembled at 9am on Sunday morning under the direction of our Station Manager Brian G3CVI and everything was up and running well before opening time of 10 o'clock. On these occasions I act as a Museum helper, alternating between welcoming visitors, supervising car parking and attending to any minor crisis arising! Our first visitors arrived a quarter of an hour before official opening time but no matter, we coped. By ten o'clock visitors were arriving in a steady stream. A total of 1385 visitors turned up during the day. As it happened this record breaking attendance was just about right and we were just able to find sufficient parking places for the afternoon rush. Many more and we would have had a problem.

This years Museum Open Day was all part of the Borough Marconi centenary celebrations and there were many attractions for both young and old. It was certainly the most successful Open Day yet with street entertainers, steam engine rides and various demonstrations and hands-on activities for children of all ages. Also present was our own Geoff G3EDM with hives of bees in a huge cage, talking to all and sundry about his other absorbing interest.

The centre of attraction at Sandford Mill is, of course the Writtle Hut, from which the first wireless broadcasts were made. These were master minded by Peter Eckersley. As part of the centenary celebrations a number of guests, including your secretary Charles G0GJS, were invited by Tony Walkden, one of the Museum Patrons, and the Deputy Mayor, to meet Peter's son Miles Eckersley in the evening preceding Open Day. Also present was his cousin Shirley, daughter of Tom Eckersley. Although not as well known as his extrovert younger brother, Tom was a brilliant mathematician and made valuable contributions to the study of wireless communication at Cambridge and with the Marconi Company.

Using the call sign GB2MT, a total of 110 stations were worked, mostly on 80m. One exception was an Italian station at Pisa IY5PIS celebrating the Marconi anniversary on 20m. Other stations worked were Royal International Air Tattoo GB2IAT, Baird TV G2TV, HMS Collingwood Fareham GB3RN and Hemel Hempstead Carnival GB0HCR.

A number of club members did their stint of operating in the rather warm confines of the hut. Tony G3YTG demonstrated his Morse reader. We also had the pleasure of welcoming our youngest operator ever, Philip M0BDY, ten years old and very accomplished!

Our thanks to our hosts the Chelmsford Museum Service, and in particular to Geoff Bowles, for inviting us to take part in this memorable event. We all had a most enjoyable day.

COMMITTEE MEETING

The next Committee meeting will be held at 7.30pm on Wednesday 13th August, in Telford Lodge, you are welcome to join us.

LAST MONTHS MEETING - Brian, G3CVI

At my QTH the XYL has only to call "It's Jim" for me to hasten from whatever I am doing to see the Anglia forecast delivered by Jim Bacon, G3YLA....for his is a truly household name. How splendid it was to welcome him for a second time to our Society to reinforce and up-date our knowledge of VHF propagation with its inherent meteorological aspects.

Once the ensuing laughter had died down when our chairman asked him to forecast the weather for our Sunday garden party (it WAS a fine day), the presentation commenced with a definition.....

In the usually present E layer, at approximately 120km over sea level there can exist transient patches of increased ionization density. The shape, size, depth and number of these SPORADIC E (Es) patches are very variable as is their refractive index which is due to the ever changing ion count and type. The existence of such layers has been known since the middle nineteen thirties when it was assumed that thunderstorms were the prime cause of the phenomenon. Subsequent experience and study suggests a far wider series of root causes which may or may not co-exist with the storms.

The Es layer causes refraction of a radio wave on entry (just as a pencil appears bent when placed upright in water) and can bend the wave gradually so that it is finally able to re-emerge and return to Earth at distances far in excess of normal. The "footprints" of the origin and destination are very variable in size and location and can move rapidly so that one may hear a station the other side of town working a choice bit of DX yet be unable to copy the other station's reply. Jim's ready humour brought about many chuckles and wisely nodding heads among our VHF stalwarts.

Present day knowledge confirms that Es is largely a seasonal occurrence and that the middle summer months appear to be favourite for continuous monitoring of 10m, 6m and 2m, as well as clusters, nets and the Internet to keep one up to the minute with the relevant data.

Jim reminded us of the causes of ionization viz. Sunlight incident upon the rarefied air at the E layer height, the arrival of cosmic particles from numerous sources in outer space...as occurs in the Auroral zones. Meteors also leave behind enormous numbers of ions in their trails which can effect the density in local areas. The free ions are not only gaseous in origin but but have been found to have metallic composition being much longer lived than the former which re-combine rapidly due to moisture presence and disturbance by high level winds, solar winds and magnetic effects. The meteor trails also contribute to the transient nature of the Es layers.

As for when, in a day, one may suspect the existence of Es, Jim showed several diagrams depicting the variation of ion density and refractive index with time. In a similar way in which tides at sea have daily phenomena so do the ionized layers. Diurnal and semi-diurnal tropospheric "tides" together with lee waves in the atmosphere (caused by high ground and the so called gravity air waves) produce disturbances as high as the ionosphere.

Apparently there are generally two maxima per day.....one is about local noon and a second one of greater amplitude during the afternoon at what Jim called "tea-time"...sort of sixish!!!

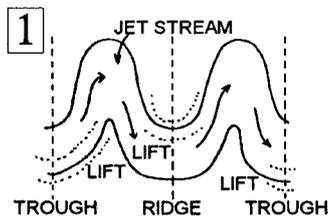
The magnetic K factor is important for the stability of the sporadic patches. If K is 3 or less then things begin to happen, "so monitor your sources of information" we were advised..."and do not overlook WWV. If K is 4 then Auroral effects are often visible and the Es may be non existent or unusable as is the case during Sun-spot maximum. Just after minimum has, over the years, proved to be most likely to witness stable layers.

The weather has an enormous effect on the ionosphere and the way it helps or hinders radio communication and Jim produced some super diagrams to illustrate this effect.....

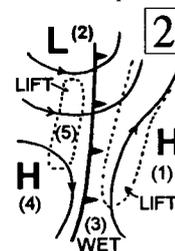
The Jet-streams in the upper atmosphere, on their way from West to East and following their usual undulating paths assist in the formation of "lows" and "highs" (remember your scribe's chat a year or two ago?) Signal paths appear to be enhanced parallel to the axes of the ridges of high pressure and the troughs of low pressure. Hence keeping an eye on the "free" weather charts available on the air and TV can yield useful warnings of the likelihood of Es occurrences. Even mountain ridges together with Jet-streams

produce useable patches which augment propagation approximately at right-angles to them. The vertical air movement so created can cause signals to cross two stream systems with double-hop a distinct possibility; See Fig. 1.

During Jim's talk and at tea-break there were many questions asked such that he had barely a moment to sup his tea. Nevertheless he continued to give us the benefit of his great experience and enthusiasm. He said that the evening would not be complete without dealing with "Tropo", so.....



It is mostly during "Highs" that extended communication is available because, in those conditions the air masses are descending and hence warming and re-absorbing moisture...yielding dry air which tends not to disturb ionization. Due to several other meteorological effects temperature inversions occur at various heights. Here the temperature ceases to fall with height, may remain stable or may increase with height with the consequent drying of the air, clearing of the clouds and increase of the ionization within the inversion. Refraction of signals can then occur or ducting take place inside the greater density allowing the radio waves to travel considerable distances and then to pop out far beyond the usual range under flat conditions. Unfortunately inversions frequently sink slowly earthwards with a reduction of refractive index so that these desirable effects are lost. Jim told us to look for inversions behind cold fronts and highs and gave me a check list for inversions which is reproduced in Fig. 2



- (1) Old highs offer marked inversions.
- (2) Close to centre means inversion is too low.
- (3) Dry air near ground means inversion is possible.
- (4) Close to a low strong winds destroy inversions.
- (5) Air from the SW brings moisture below the inversions.
- (6) New highs have poor inversions in wrong places.
- (7) Temporary inversions can be found behind cold fronts.

Finally Jim suggested sea-breeze ducting which can reach considerable distances inland in the afternoon, is fine for VHF contacts with the Continent provided one stays low and below the inversion which could be only a few feet above the ground.

Sadly the evening had to close and, as our chairman said "Follow that if you can". The applause and general acclamation was spontaneous as we all joined in thanking Jim for a magnificent presentation. We asked him to come again in the future, wished him best 73 and a safe journey home.

GARDEN PARTY (2) - John, G8DET

The July CARS Meeting was the fore-runner for good weather for the Annual Radio Garden Party since Jim Bacon of Anglia TV Weather Service promised that the next weekend "could be no worse than the previous weeks and possibly a lot better. At G8DET's QTH on the south side of Danbury Hill, 138mm of rain was recorded during June 1997, the previous year 38mm!. With the hope of good weather the lawns were cut and edged, they did look a lot better than one month previous after the drought of May.

Previous events at this QTH had used wire dipoles with polar plots which produced many comments similar to "good QTH but every second station is East European". Roy, G3PMX assured G8DET that the club Aerial Tuning Unit "could match nearly anything to nearly anything". With this in mind Gwyn, G4FKH assisted G8DET on the Saturday to erect an inverted Vee Wire Beam HF aerial; the main gain aimed at Spain and Portugal/Sweden with smaller side lobes to Italy and New York.

Sunday, 6th July was bright but not too hot, Harry, G5HF produced a satellite picture showing that at 12.30gmt there was a few cloud banks around but not too near Danbury, it was go. Apologies were received from Roy, G3PMX and Charles, G0GJS due to ill health and others due to prior arrangements. Brian, G3CVI picked up the Club Rig, PSU and ATU from Roy's QTH and skillfully matched the new Vee Beam on all HF Bands.

Members and friends of G8DET and Pauline arrived from 3.00pm and enjoyed endless cups of tea from the new greenhouse and a mass of food brought along. Home made scones, strawberry jam and cream completed the afternoon fare, enjoyed by all who turned up. Contacts were made but plenty of food and chat somehow made talking on the radio harder work.

My thanks to all who produced such lovely food and to my dear Wife for the hard work put in to make the day such a social success.

MEMBERS ADVERTISEMENT

WANTED I'm collecting Marconi Instruments test equipment and would appreciate your letting me know if/when you have any for sale, also if you have handbooks that I may buy or borrow for photocopying.

Contact, Dave Penny, G3PEN, QTHR (01376)326487.

73 from Roy & Ela Martyr,
G3PMX & G6HKM

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Deadline for the next NewsLetter is Saturday 23rd August