



DECEMBER MEETING

For our Christmas Lecture we have something rather special for the interest of members.

Through our association with the Marconi College, we have been able to arrange with one of their resident lecturers, Mr Ron Kitchen, for a modified version of his presentation which is currently included in the RF Radiation Safety Course.

Ron has kindly agreed to review his wide experience in the subject and deliver a talk entitled :- "RF Radiation Safety from the Amateurs Point of View". This illustrated talk should remind us of the potential hazards that can be encountered when 'playing around with RF' and clarify the sparse and somewhat inadequate information available to Amateur Radio Operators.

The meeting opens at 7.30pm on Tuesday 7th December, in the Marconi College, Arbour Lane, Chelmsford.

DATES FOR YOUR DIARY

- 4 Dec. C.A.R.S. CHRISTMAS DINNER - Marconi College.
- 7 Dec. CLUB MEETING - Radiation Safety - R. Kitchen.
- 11 Dec. ESSEX REPEATER GROUP BARN DANCE - Gt. Waltham.
- 16 Dec. COLCHESTER RADIO AMATEURS Cheese/Wine Buffet.
- 4 Jan. CLUB MEETING - The Annual Film/Video Show.

URGENT MESSAGE

Members attending the Clubs November Junk Sale will recall that amongst the many bargains and good humour there were some Sealed Lead Acid Batteries donated for auction to club funds.

Unfortunately we are receiving reports that some of these batteries have high internal resistance and will not accept charge current. So far we have been able to trace 7 of the 12 items sold, of which 5 are faulty and we are anxious to know the whereabouts of the rest.

IF YOU PURCHASED ONE OF THE BATTERIES WILL YOU PLEASE CHECK THAT IT WILL CHARGE BY APPLYING 13.5 VOLTS CONSTANT VOLTAGE FOR AT LEAST 2 HOURS AND REPORT YOUR FINDINGS TO A COMMITTEE MEMBER.

ALL PURCHASERS WITH DEFECTIVE BATTERIES WILL BE REFUNDED THE PRICE THEY PAID ON PRODUCTION OF THE FAULTY BATTERY.



CHRISTMAS DINNER



Just a reminder to those of you who are attending the Christmas dinner on the 4th December, we look forward to meeting all 38 members and their friends; this is probably a record number.

We offer our sincere thanks to two members who have kindly donated funds for us all to enjoy a glass of "House Wine" with our meal, however, if you wish to have wine of your own choice or extra "House Wine" this can be individually purchased as required.

See you all in the Telford Lodge Bar at 7.30pm on Saturday.

MEMBERS NEWS

Congratulations to Harry, G5HF and Pippa who celebrate their Golden Wedding Anniversary this month.



COMMITTEE MEETING

The December Committee meeting will be held at 7.30pm on Wednesday 15th December, you are welcome to join us.

PLEASE NOTE that we will be in the College this month because Telford Lodge have a party, however, drinks are available!

NEWS FROM COLCHESTER

Our Secretary has received a letter from Frank, G3FIJ on behalf of the Colchester Radio Amateurs, below is an extract:-

"CHRISTMAS CHEESE & WINE BUFFET,
16th December 1993 at 7.30pm., Staff Lounge,
Colchester Institute, Sheepen Road, Colchester.



The Chairman and members of the Colchester Radio Amateurs are pleased to invite members of the Chelmsford Amateur Radio Society to our Christmas celebration as detailed above. This gives an opportunity to thank members of local clubs for their support, particularly at our Annual Mobile Rally".

If you would like to attend please contact our Secretary, Charles, GØGJS, so he may let Frank know how many to expect.

LAST MONTHS MEETING - Andrew, G4KQE

To begin the evening, our President, Roy presented the Chelmsford DF Trophy to Philip Cunningham, as this years winner of accumulated points.

Our resident Auctioneer, Gwyn, was in fine form at our Annual Junk Sale; he started the evening by auctioning a bag of mixed new components, resistors, capacitors, switches and constructional goodies and got £1 for it. He then held up similar bag, "who wants this for a pound?" several people raised their hand. Never mind said Gwyn, here is another. By now, everyone was getting interested - whats in these bags for a pound? Excitement raised as more bags were sold, and soon all 15 had found new owners at £1 each.

Bidding was brisk for many items. At the beginning of the evening, Chairman John said bidding was to be in increments of not less than 10p, but some items, such as new 12V 6AH lead-acid rechargeable batteries were bided for in increments of 50p, and at one stage even a £1!

Used audio equipment was in abundance, and some xyl's/Junior ops now have their Christmas presents sorted out.

Just before tea, Gwyn took out of a box two new 2½" square 8 ohm loudspeakers which raised £1.20. I bided, but stopped at £1, it so happens said Gwyn, that there is another pair I could have for £1. Well I never, another pair - who wants these for £1, and once again fever pitch took over, and the 2 runners, Chris and Colin needed help from Dick to cope with the demand for speakers at £1 a pair. After about 20 pairs had been sold, demand slowed down, and to clear the last few, some members bid 10p for 2! Four loudspeakers for £1.10p - not bad!

After tea, bidding resumed with a vengeance, the punters having had a chance to examine the remaining goodies during the break. Component catalogues and computer books, disappearing for a few pence.

It is a sad sign of the times, when a hand-held transceiver, probably costing £200-£300, and not being able to be repaired by the dealer, is sold for £4.50 for spares. Surface mounted components means that amateurs can no longer fix their own gear.

New silver plated PL259 plugs were in demand, as were small steel project boxes to house all the new bits and pieces sold throughout the very enjoyable evening, perhaps to reappear at the next constructors' competition?

Many thanks to Gwyn, also to Chris, Colin and Dick for "running" and to Treasurer Brian, who reports that the club should benefit to the tune of nearly £180, as a result of this years junk sale.

BUILD YOUR OWN RECTIFIER - Harry, G5HF

In the early 1920s a number of young men, some still at school and later to become famous radio amateurs, started making their own Wireless sets. Many of the components were obtained from ex-WD shops which were selling off surplus from World War 1 at really knock-down prices, but some items could be made at home. I remember making lead acid accumulators for the 2 volt directly heated valves and 120 volt HT batteries, starting with sheet zinc for the cases and filling them with the necessary chemicals.

However, for the transmitter (10 watt maximum!) we needed a high voltage mains supply. Ex-WD transformers were only a few shillings and one I remember was 10,000 volts, oil filled and mounted in a steel case about 3mm thick. It weighed nearly a cwt without the oil! These transformers were fed from a home-made autotransformer to provide the required output, about 1000 volts. But how could we rectify the ac? The answer - make your own!

The recipe is as follows:-

Ammonium phosphate solution.

Aluminium and Lead sheet.

Suitable container, usually a boiling tube, which is a 1 inch diameter and 6 inch long test-tube.

The ammonium phosphate is dissolved in pure water, so that it is not quite saturated. The metal electrodes are cut into strips to fit the tube and supported by corks at the top so that they are held rigidly to prevent shorting. Then they are thoroughly cleaned by immersing them in hot caustic soda (sodium hydroxide, sold as oven cleaner) being very careful not to get this strong alkaline liquid on your flesh, particularly

in the eyes. When dissolving caustic soda in water make sure you add the powder to the liquid (NEVER THE OTHER WAY) because enormous heat is generated in the process and if you add water to powder, there is danger of the water boiling as it hits the powder and splashing in your face.

After thorough cleaning, the electrodes are washed in water to remove all traces of alkali and then immersed in the cell. The rectifier is complete.

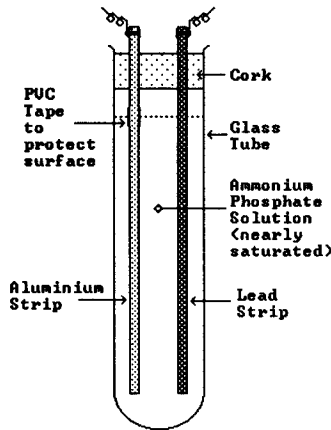
If you now connect a 12 volt battery to the cell with the positive connected to the aluminium electrode, the current passing through the cell will gradually reduce from several hundred milliamps to about one milliamp in a few seconds. You have now made an electrolytic capacitor, so long as the positive supply is connected to the aluminium. What happens is that by passing a dc through the solution, the water is split up into hydrogen (at the aluminium or positive surface) and oxygen at the lead surface. The oxygen bubbles off, but the hydrogen clings to the aluminium surface as it is formed and produces an insulating film over the surface. Someone worked out in 1924 that one square inch of aluminium gave a capacitance of about 1 mfd.

If you now reverse the connections and put the positive terminal on the lead electrode, the hydrogen bubbles off but the oxygen combines with the hydrogen film on the aluminium electrode and turns it into water. The cell conducts permanently, the current only being limited by the resistance of the cell. You have now made a rectifier, which conducts in one direction but not in the other. You can probably accept the theory so far, but you might query whether the rectifying action can take place fifty times per second. Well, it does, and what's more it works at 100 cycles as well.

In 1925, G2VW, E H Robinson, described how he tried the electrolytic cell as a rectifier at 500 cycles and it still worked, although with reduced efficiency. So, like all intrepid experimenters, he decided to go to a ridiculous extreme and try it at 1 million cycles (1MHz) and he found that it still rectified, but the efficiency was so low that it was useless.

A well made cell will withstand about 100 volts before breaking down the hydrogen film, so for higher voltages it is necessary to put several cells in series. With a bridge rectifier at 1000 volts, you need a total of 40 cells. The cells were usually mounted in test-tube racks and the whole collection immersed in a tank of water, because the cells cease to work if they get hot. I have a photo of G6TM's station in 1924 and the rectifier is as big as the rest of the station!

One final note of joy. G5RV and G6LJ, who both used chemical rectifiers in the 1920s, say that they got endless pleasure on dark nights from watching the aluminium plates of the rectifier glowing as they pressed the key - it was all CW then. This is true and I can vouch that the aluminium does glow when current is rectified by the cell. This is because oxygen and hydrogen are combining at atomic level in a series of continuous explosions. You can't hear it, but you can see it! Go, rectify yourselves!



SUBSCRIPTIONS

A reminder that subscriptions are due again, thank you to all members who have renewed so far, however there are still a few outstanding, if you have NOT RENEWED and wish to subscribe please let me have your cheque, (made payable to "Chelmsford Amateur Radio Society") or cash as soon as possible or regrettably this will be your last newsletter, due to production and postage costs. As mentioned previously subscription rates have been increased, they are now £5 and the Concessionary rate is £4. If you do not wish to renew we thank you for your support in the past.

THE CLUB NET

The response to recent nets has been very encouraging with many stations checking-in for a brief chat and the exchange of news, views and ideas.

For the benefit of new members, the Club Station G0MWT opens the net at 8.30pm on 28.325MHz, SSB, each Tuesday evening between the Club Meetings.

BARN DANCE

The Essex Repeater Group are organising a Barn Dance to be held at the Great Waltham Village Hall, profit in aid of the Essex Repeater Group Funds. The details are, date: 11th December 1993, time 8.00 to 11.00pm, Cost: £6, admission is by ticket only. Tickets are available from G4COU, G1UZC, G6ZVV, G3XVV, G1FOA or any other Committee Member.

MEMBERS ADVERTISEMENTS

Alan Smith, G0LSH wants some DENCO COILS, Dual Purpose, Green Former, Range 344.

Alan also wants an OLD AR-88 RECEIVER (to scrap for spare parts & valves).

Any information will be welcome, ☎ (0245)264045

Andrew Mead, G4KQE wants a MARCONI RECEIVER type ELECTRA or MERCURY for collector.

Andrew also wants a PYE CAMBRIDGE, any version, any condition, for collector.

QTHR, ☎ (0376)583094

Denis Whitbread, G4VGS wants a BRITISH POST OFFICE TELEGRAPH SOUNDER, (not the Australian version - he already has that one).

QTHR, ☎ (0277)624177

A Very Happy Christmas



To All Our Readers

73 from Roy & Ela Martyr,
G3PMX & G6HKM

☎ (0245)360545

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