

ERG NEWS

GB3DA

GB3ER

GB3CMS

GB7EP

WELCOME

Welcome to the first edition of this news letter which is being produced by the Essex Repeater Group to help keep the membership informed about the group and for members to pass information and views to other members. We hope to produce this news letter quarterly and hopefully to coincide with rallies that the group attend. Any members who wish to contribute anything to later editions should send them to the editor G6ZVV (QTHR) either in hard copy or on a floppy. The closing date for the next edition will be the end of May ready for the early summer rallies.

Nigel G6ZVV

CHANGES

Recent comments about how there are fewer people on GB3DA recently have made me think about the changes in my life since I was a fresh new voice on DA myself.

There I was on my daily trip to the salt mine, giving out my first "G8JCV" over DA and being welcomed in by Alan G7ABL. I remember it well as the repeater was busy (was it not always?) but I was made instantly welcome as though an old hand. Besides Alan there was Terry G7DNS and I all going towards the Dartford Tunnel (remember the traffic jams before the bridge was built?).

At that time (1989) I was driving up to Woolwich daily, but about a year later the firm moved to new premises on the M25/A2. It meant I could

leave home a bit later and talk to a different set of people.

After a period of unemployment (when I could be heard much of the day on DA) I worked in Felixstowe. This was great as I was in range of DA for more than half my journey. I am presently working in Surrey and travel by train. No chance for chats on DA now, more likely an extra bit of sleep (when I can get a seat on the train).

Where are all the people who I used to speak to? Some are still there. Others have changed their work patterns too. With the recession and less full time jobs (more contract), and those who are working usually worked harder, the amount of leisure time has decreased.

I used to work in photography, for a company making products for home developing and printing. When their market started to decline, an investigation showed a trend away from more creative hobbies, the rise of CB, video recorders and home computers taking over. So as newer interests come along, some of the others become less popular.

Although RSGB membership has increased this year for the first time in years, it is only necessary to look at rally attendance last year to see a considerable downward trend. With the variety of aspects of amateur radio increasing (satellite, microwave, digital and fax communications) there are more things to do than "just" talk into a microphone (flames to /dev /null or the editor please!). I would not agree with those that say these new modes stopped voice communication. I know of people who only got an amateur license to do these modes bringing a greater number into the hobby. Some will use voice as well (why not, they are licensed for it). Those who used to do

more voice communication may not be doing it now for other reasons (like me).

My personal view (and you can disagree with me) is that there are more people interested in radio than years ago, but they are interested in several aspects and have other hobbies too. The recession has meant that there is less time and money than there was, so it is spread thinner.

The ERG has done fairly well through this, particularly compared to some other clubs. Membership has not taken a dive (although at one rally a loss was made..... the table cost more than the one subscription received!). Unfortunately it is only entropy that always increases!

I wish you all the very best, and hope to hear you on the air soon (whatever the mode).

Chris G0PAE

RECENT TECHNICAL PROBLEMS

During 1994, both repeaters enjoyed a long period of relative calm. We had the usual co-channel interference from users of GB3SN holding DA's squelch open, either due to lift conditions or due to the use of omnidirectional aerials when operating in the overlap of the two service areas.

During October, however, we experienced a great deal of interference with GB3DA. The problem was only apparent when the repeater was in use and, even then, not continuously. Due to the intermittency, a great deal of time was spent on the site, trying to "catch it in the act". A well known law, brought to our notice by an Irish gentleman, dictated that the interference would only occur when nobody was in a position to monitor the event on site. A certain amount of "clutching at straws" took place at this stage. We were suffering from a surfeit of pressure to get things working and an even bigger surfeit of red herrings supplied by well intentioned members. We gave the alternative "box" a good going over in the workshop and then put it into service in place of the one having the problems. Another blank...the problem was worse. This did, however,

convince us that the problem was external to the transceiver.

During the site visits, a great deal of wide band noise was observed on the spectrum monitor, spreading over the whole of two meters. Various users of the repeater also reported a great deal of interference to their mobiles when motoring through the Danbury area. This wide band noise seemed to emanate from a local paging transmitter. Just after the group AGM, we fabricated a co-axial stub filter in an attempt to prevent the interfering source RF reaching DA's front end. The filter did what it was supposed to do as far as filtering out the suspect RF was concerned but, alas, the problem was still apparent. Back to the drawing board.

Many more hours were spent scanning the spectrum whilst listening for the interference. At last, something started to show itself. The interference only seemed to occur when TWO paging signals appeared on the monitor at the same time. (neither of them was from the originally suspected transmitter) Time to take the test gear back to the site. Was this going to be an IMP problem?...it certainly looked like it. It was decided to take a good look at the spectrum either side of two meters and try to ascertain which signals were present when the interference was active. This was done with DA's main aerial connected to the spectrum monitor, while DA was operating on the standby dipole. During two hours of sitting in front of the test gear, watching signals pop up and down all over the scanned range, the interference remained absent. Having become both very cold and very hungry, we decided to call it a day. We restored DA to it's main aerial and started to pack up the test gear. Within a few minutes of this, we heard the interference on a conversation in progress through the repeater. We quickly set up the test equipment again and swapped the aerials over again. The interference stopped.....We connected DA back to the colinear and put the dipole onto the spectrum monitor. Once again, the interference manifested itself whenever both the previously observed signals were "up". Reverse the aerials and no interference even when the signals were there. We checked the VSWR on the collinear (for about the 10th time) and, as before, 15 watts forward power and less than 250mW reflected. A table of the findings would look like this:-

Colinear + Both Signals = Interference
Colinear + One Signal = No Interference
Dipole + Both Signals = No Interference
Dipole + One Signal = No Interference

This brought us to Christmas. It was decided to have a session up the mast after Christmas to eliminate the main aerial system from the equation. On the Friday after Christmas we took down the colinear, the main feeder cable and the two tails. We removed all the connectors, cut back the cables and reterminated them. We then reinstalled the feeder and tails and, just to make sure all was well before it was put back in the air, we checked the aerial by connecting it to DA via a ThroughLine and 3 meters of cable. At first all seemed well but then Nigel moved the aerial whilst I was still hanging on to the feeder. We all heard a crackle from DA's receiver. A great deal of pulling, pushing and poking eventually proved a poor joint, inside the base of the aerial, between the coaxial tail braid and the bottom of the matching stub. The cable clamp had lost its ability to grip the cable and had obviously allowed the joint to be stressed. We grossly over tightened the clamp nut but still no satisfactory grip. It was decided to strap things up with tape to provide a temporary, stress free situation and put the aerial back into service whilst we approached the manufacturers for a solution. The manufacturers were unable to give us a satisfactory answer to the problem so it was agreed, at our January committee meeting, to investigate the provision of a new, better aerial. The suppliers of our cavities made us the best offer. A heavy duty, 3db colinear with integral mast clamp and terminated with a female "N" connector. Normal price, 148 pounds plus VAT...to us 100 pounds, if we collect. The views of the committee were sought and the majority decision was to go ahead. The aerial has been collected and we now await a few hours, during daylight, without high wind or rain to allow us to install it. The temporary strapping of the old aerial seems to be holding out (at the time of writing) and the interference hasn't manifested itself since 30th. December. (The day we made the temporary repair).

The Prologue.

With hindsight, we now appear to have the solution to the problem.
The two interfering signals, although outside the

two meter band, were sufficiently strong that their combined blocking effect was sufficient to drive the front end of the receiver into non linearity. It was therefore wide open to IMP's. When the receiver was connected to the dipole, the bandwidth of the aerial was sufficiently narrow as to reduce the interfering signals' strength to a manageable level. The faulty colinear was unable to give that first stage of filtering and therefore allowed the interfering signals to do their worst. Once the new aerial is in service, we should be able to look forward to a long period of trouble free operation of GB3DA.

GB3ER hasn't been without it's problems but these have been very recent and easily detected and solved. The large swings in the site hut ambient temperature has caused drifting of the xtal oscillators. We are going to prevent this happening by fitting xtal ovens. The existing crystals will not tolerate the use of ovens as their specification is for temperatures up to 70 degrees F. The ovens that are to be donated to us have a temperature setting of 50 degrees C. New crystals have been ordered with a spec to 50 degrees and these will be fitted as soon as they arrive.

Malcolm G3XVV

Thoughts Of A New Licence Holder ...

I finally decided that I would sit the RAE over Christmas 1993, after toying with the idea for many years. I had 'almost' registered to sit the RAE on numerous previous occasions, but something always seemed to get in the way. I registered to sit the May 1994 RAE at Chelmsford college, and bought the excellent RSGB RAE manual with which to prepare for the exam. Having had a deep interest in electronics/radio for many years, studying related subjects at college and working in a technical role meant that I really didn't have too much work to do for the RAE. But, at the same time I couldn't afford any complacency! A fail would have meant waiting until December for another go

It seemed to take forever to get the results of the RAE! It took so long that I decided that I had to be up and ready by the time they did arrive. and that. They also told me which spots along the coast to fish from, and what bait to use. I caught

I went to as many rallies as I could, and started to collect ex-pmr equipment at an alarming rate. I re-crystalled a PYE PF2 handheld for use on the GB3DA repeater and started to listen in to the local chit chat. This time really was well worthwhile, as it soon became clear to me what made a good operator and what made a poor operator. Some of the locals seemed to time-out on the repeater an awful lot; Surely I would never do that?

The results arrived, and much to my relief I had gained credits in both papers. I sent off my licence application form in the next post that same day and awaited the arrival of my validation document. Again, the wait became unbearable and I acquired a synthesized ex-pmr radio and set about aligning it for 2m. How I longed to replace the dummy load with an antenna! Because I also intended to operate upon packet, I also built up a TNC having acquired a PCB designed by John G8STW. Many thanks to John, and Malcolm G3XVV, for their help in getting the TNC up and running. I was ready to go.

Eventually, in late August, the validation document arrived! I suddenly lost my nerve a little. I put my mag-mount 1/4 wave antenna on the kitchen cooker and powered up the radio. After listening in to the repeater for a while, I decided to give it a go and made a contact with Brian, G7MOY. It was great to actually work through the repeater, after just listening to it for so long. The new, empty log book I had bought months ago, suddenly began to fill up at a steady rate. The local amateurs were welcoming, polite and very encouraging and I really felt that the whole thing had been worthwhile. I also timed out three times that week!

I took my family on holiday down to Devon in September, and I took the radio along with us in the car. It proved so useful to us, as the locals were extremely useful in advising where to find this and that. They also told me which spots along the coast to fish from, and what bait to use. I caught many more fish than most of the other holiday makers! The journey was also made much more interesting, and I found that S22 really is monitored in some places!

I soon found that talking about packet radio over the repeater was an effective way of making

myself unpopular with some people. I found this a little frustrating at times, as I really needed the help setting up my station and the repeater was not normally being used by other stations at the time. I appreciate that packet is not to everybody's liking though, so I do try to avoid any deep conversations regarding the mode now. Anyway, G3XVV only lives down the road to me so I just go and bang on the shack door!

I have now become a committee member of both the Essex Repeater Group and the Essex Packet Group, and am looking forward to these activities during 1995. I have already attended a few committee meetings for the ERG, and have found them to be very interesting. There are many different opinions around when issues are discussed, but at the end of the day the whole committee always remember that they are there to serve the membership. I hope that my short account has been of interest to you. I am often around on the GB3DA repeater, or can be contacted via packet at GB7ESX.

Steve G7TAV.

GB3CMS - The 10GHz Microwave Beacon

Following a further round of engineering, Dec.3 1994 saw the return to service of GB3CMS, after succumbing to the elements earlier in the year. Whilst its keyer/PSU unit resides in the relative comfort of the hut, its microwave head is by the antenna, making its situation rather more exposed. The antenna had let water in and the power had declined as the waveguide flooded. It was most pleasing then, when on Xmas Eve a tropo opening resulted in a 539 report (via Internet to G6JYB) from G4BRK at Highworth in Wiltshire. Pretty good for our ~50mW into an omnidirectional aerial !

ERG is now fairly confident that the extensive modifications that the beacon has received since 1990 should lead to greatly improved coverage and availability. Over that time every aspect of the The callsign GB3ER was issued to the group and G3WCO obtained a Pye OFR. we all had a hand in modifying it for amateur use. I cannot remem-

masthead side has received attention, helped by the very best of a well known Chelmsford company's facilities. It has received replacement rf and microwave units courtesy of G4DDK, new weatherproof (hopefully this time !) truly omnidirectional antenna, reconfigured box, retuned coax-waveguide transition, new semirigid cables and diagnostics connector internally, and a new moisture proof waveguide antenna feeder. The antenna pattern has been measured in an anechoic chamber, the VSWRs and insertion losses checked on an HP8510C network analyser (ú130K worth!), and the output stability checked by computerised power meter and frequency counter. All very hi-tech and expensive for ERG you may think ? Well no - Cost to ERG - Nil !

As for the future the immediate priority is to improve its frequency accuracy. Locking its source to Rugby MSF is a possibility turning it into a 'national standard'. Beyond that we have some other ideas, both on this band and others, but we would certainly welcome your input. We certainly would like to stimulate more local interest in the band. Megabit datarate packet /TCP-IP links anyone ?

Murray Niman, G6JYB

PS Sceptical about microwave operation ? From GB2RS on 29/1/95...

Two world records have recently been broken on the microwave bands. On the 10GHz band, VK5NY has worked VK5KZ/VK6 over a distance of 1,911km. And on the 145GHz band - that's 145 Gigahertz, not Megahertz - OZ9ZI and OZ1UM exchanged reports over an 11km path. They used 47GHz for talkback. The February edition of Radio Communication, features the Danish Microwave Activity week and the record-breaking work on 145GHz.

When the Essex Repeater Group Began

I think it was in 1974 that G8ELM and I, whilst operating mobile on 144.75 AM as we used in those days, were complaining that we were not within range of either of the new-fangled repeaters, GB3PI or GB3LO. Wouldn't it be nice

if we could have a repeater in Essex we thought. We soon found out that as we were within 100 miles of an existing repeater, we could not have a 2m repeater in Essex (those were the rules in those days).

So we would have to have a 70cms repeater and thus GB3ER was conceived. The idea was broached at the Chelmsford Club (I was a member in those days) and yes, a steering committee was formed.

An inaugural meeting was held in the then Chelmsford Library Committee Rooms and if my memory serves me well, about 60 licensed Amateurs turned up. The Essex Repeater Group was formed at that meeting with (yes, you guessed) a committee!

Amongst others the following were on the committee :-

John Rollason	G3WCO	Chairman
Bill Petchey	G4CUE	Secretary
Dave Elwell	G8CVI	later G4MUS
Ted Jewell	G8ELM	later G4ELM
and of course		
Geoff Blake	still G8GNZ	

G8ELM and I spoke to the site manager Marconi Reseach and then G4CUE concluded the initial agreement with the Marconi Company to use what proved to be one of the best sites in mid-Essex. I no longer have the original log book, but I remember it was a summery Sunday in June 1975, that G8GNZ/A was put on the air for the site coverage survey from Danbury. We used my old Pye Vanguard base station as the test transmitter with a 5/8 over 5/8 mobile aerial for the site tests which were planned to coincide with those carried out by the Suffolk Group from Clare in Suffolk.

This turned out to show lack of judgement by the Suffolk Group as the coverage from Danbury was such that the GB3WS mobiles were getting better signals from us , even a few miles from Clare. With about 30W of RF we were getting better signals from all over Essex, Suffolk and North Kent. We even got a good report from a guy using a Pye Pocketphone on the beach at Herne Bay!

The callsign GB3ER was issued to the group and G3WCO obtained a Pye OFR. We all had a hand in modifying it for amateur use. I cannot remember who it was who built the original "logic" for the repeater, but I do remember that it bore an uncanny resemblance to some PCM equipment built by a large local company.

The "10 stacked sleeve dipoles" 70cm aerial was designed by committee and later achieved notoriety in an edition of the RSGB VHF Manual. I am not sure that it ever really worked properly as in the early years the system operated using vertically separated TX and RX aerials.

One of the largest problems in those days was the lack of equipment to use to access the repeater. Icom, Yaesu and Kenwood were names unheard of in the U.K. at least in the amateur sense. Most amateurs used the Pye PFI "Pocketphone" as a portable, the UHF Cambridge was popular as a mobile, I had a UHF Pye Vanguard which drew 23 amps on transmit for about 15W output! Some lucky (?) people managed to get some GEC Envoy solid state rigs, but they were notoriously unstable (perhaps that's why they were never a success commercially) or even F15U Wessies, but they cost ££££'s in those days.

Due to the onset of Children, a change of job and other reasons, I lost touch with the repeater group and amateur radio in the later 1970's and it was not until I rejoined the Committee in 1992 did I revisit the Danbury site. On a clear out of the site hut a year or two ago was found, sitting unloved and unwanted in a corner, behind neat racks of radio equipment running 'DA' and 'ER', the GB3CMS

beacon and the 'EP' packet nodes, was the original logic controller, hand wired and using TTL SSI logic, the last relic from the days "When the Essex Repeater Group Began".

Some readers may know that GB3LO is now known as GB3SL and that GB3PI was originally located at Cambridge thus not infringing the 100 mile rule. A third repeater GB3NB was established at Bacton, Norfolk, all totally impractical for mobile use in Essex. Because of the much shorter ranges available at UHF (?), 70cms repeaters were allowed at (I think) 30 mile spacing. As we all know, these rules were later relaxed.

Geoff G8GNZ

Well that's all for this edition folks, thank you to all those who have contributed articles. If you wish to add anything to any of those articles that have appeared in this edition, you have something to share with everybody or want to ask a question to do with the hobby or the group then let me have them for future editions. If we have a budding cartoonist out there perhaps we could have a regular cartoon strip in each edition. Any suggestions will be warmly received (either by me or the fire Hi) regarding this issue and further ones.

Nigel G6ZVV

If you wish to join the Essex Repeater Group please fill in this coupon and return it to P. Franklin, G1FOA, 84 Bodmin Road, Chelmsford, Essex. or come along and see us at any of the Essex Rallies at the groups table.

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