



# Chelmsford Amateur Radio Society

Affiliated to the RSGB  
President: Harry Heap G5HF  
Secretary: David Bradley M0BQC

Club Call Sign: G0MWT  
Chairman: John Bowen G8DET  
Treasurer: Brian Thwaites G3CVI

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Newsletter No. 436

May 2002

## Next Months Meeting. Merchant Navy Radio Operating by Donald Imber G3VIS.

Due to unexpected pressure of work Sam Elsdon G4TUH cannot now deliver his scheduled talk on weather satellites. Instead Donald Imber G3VIS, at very short notice, has very kindly agreed to present a talk he has been preparing for the July meeting. Donald has now retired but, and as you may know, was a professional marine radio operator for many years. He will be presenting an illustrated talk about his experiences. He will talk about his training, operation of a wide variety of ship's electronic equipment, marine operating and a host of other aspects as well. He will also cover less well known aspects of communication such as diversity operation.

His talk should be most interesting and is a subject, which we have not covered before, and certainly not a meeting to be missed. As usual our **Chairman John G8DET** will open the meeting at **7-30pm**, usual venue on **Tuesday 7th. May**. Geoff G7KLV will be doing the raffle assisted by Colin GOTRM

## Dates for Your Diary

May 7	CARS Meeting. Marine Radio Operating by Donald Imber G3VIS.
May 12	Dunstable Downs RC Rally, Stockwood Park, nr. Luton.
May 15	CARS Committee Meeting. 7-30pm, Danbury Village Hall.
June 11	CARS Meeting. Constructors Competition.
July 2	CARS Meeting. Setting Up an Amateur Radio Station

## The Constructor's Competition.

There are certain fixtures in the CARS calendar and they go back to time immemorial! There are two, one being the AGM in October and the other is the Constructors Competition in June. Over the years Members have displayed a great deal of ingenuity in their entries. For instance, how can one enter an aerial array? Simple! Use a video. How can one enter the building of a radio shack? Easy! Use still photographs!

As we explained last time the rules are virtually non existent. In the past we have set up a committee of judges. Now we call upon the assembled Membership to exercise their judgement. Much more democratic you would surely agree! On arrival Members will be issued with a voting form. There are three cash prizes and the fourth is for the most promising first time entry.

Entries for the competition should, ideally, be something to do with amateur radio. However, anything electronic is acceptable. Have a few written details available including a circuit diagram or some such. Be prepared to say a few words about your entry. Don't let that put you off though!

## The Club Nets.

**Tuesday Nets.** Starting 8-30pm, 2nd Tuesday, Two on 145.375 MHz.; 3rd. Tuesday Top on 1945kHz.; 4th. Tuesday Ten on 28.325MHz.; 5th. Tuesday (if there is one) Two on 145.325 MHz.

**The "21 "Net.** Mondays to Saturdays starting at 8-15am(ish!) on 145.525 MHz.

**Slow Scan TV Night.** Every Thursday at 8pm on 28.68 MHz. Temporarily suspended during Foundation Courses

**Backnang Net.** Every Tuesday at 12-00 midday on 7.078 MHz. Every Sunday at 9-30pm on 3.750 MHz.

Frequencies are +/- QRM and all times are local.

**Congratulations** to Charlie Davy on passing the 5 WPM Morse test! He is now 2E0PZT.

## **Last Month's Meeting. Amateur TV by Ian Waters G3KKD.**

Ian said he had been employed by PYE Cambridge for 44 years. He reminded us that John Logie Baird was the real inventor of TV using a 30 line mechanical system based on a spinning disc rotating in front of both the camera and the receiver

Baird was a great publicist for television and gave demonstrations with the help of the amateur fraternity. In 1928 G5KX obtained a licence from the GPO and was able to transmit signals to New York using a 1KW transmitter on 7Mhz and was the first TV amateur. The BBC started using the two new Brookmans Park transmitters, one for sound and one for vision, for experimental transmissions at night using a similar 30 line mechanical system from a Baird studio. In the 30's some built mechanical televisions, using a disc in the front spinning at 1500rpm. It is fairly certain that some amateurs were transmitting signals carrying TV, contravening their licence conditions

Earlier Swinton proposed an electronic scanning system and both EMI and RCA took it up and developed it and it is the basis of what we use today. The high definition 405 line B&W system was first transmitted from Alexandra Palace by the BBC using Marconi transmitters and EMI studios. In 1939 Phillips of Eindhoven produced the ubiquitous EF50 valve for use as a high gain RF amplifier and PYE designed a 45Mhz. amplifier strip for their TV receiver using this valve. This later became the IF strip used in many radar and communication systems and took a large share of the credit for the superiority of the wartime systems.

The TV service was closed down during the war. Afterwards there was much surplus radar gear. After the war the TV service resumed and TV sets were in the shops, but the era of build your own TV was with us. Cheap VCR 97 green screen radar tubes were available and many sets were home built in these days as "real TV tubes" were expensive and unreliable. Camera tubes were very large, complicated and out of reach. A flying spot scanner was introduced to enable a still picture to be produced for test or transmission purposes, incorporating a small CRT and a transparency, read by a photosensitive device. Photo-multipliers were available from the surplus market ex. radar jamming equipment).

In 1949 G2DOS Ivan Howard imported a small 5527 iconoscope tube from the US and produced what was probably the first Amateur TV camera. The new 70cms band had just been allocated and had 50Mhz of space available between 400 and 450 MHz with plenty of room to accommodate a 6Mhz AM signal. After some tests TV transmitting licences were granted. The first QSO was with G5ZT in Plymouth

In the 1950's Mike Barlow G3CVO started the BATC (British Amateur Television Club) with their magazine CQTV which is still published quarterly. The videcon camera tube became available in the mid 50's requiring modest volts and scan power. With good lighting they produced good pictures. About this time Grant Dixon constructed a colour camera using a spinning colour disc to provide sequential frames of colour for both the camera and the receiver using an Emitron tube. This was the first amateur colour camera. Jeremy Royle's father G2WJ and Jeremy G3NOX set up the gear at Gt.Canfield and sent signals to Mike Barlow's QTH near to Gt.Baddow church. Ian was himself engaged in this historic event of the first live colour amateur transmission by checking the colour synch at Canfield and then transporting the monitor to Baddow to view the received pictures. Colour monitors were as rare as hen's teeth in those days

Ian started at Pye in 1948 and managed to scrounge an iconoscope tube and make his own test card generator. He eventually obtained a second faulty tube and then built second camera and was transmitting to his friends, Ivan Howard and the Royles. The RSGB asked Jeremy and Ian to provide a demonstration at the National Radio Show at Earls Court and Ian was able to borrow a development tube from Pye. During the show the dealers were very pleased to have a second picture source as the programs from AP were only on for some periods of the day. Two gentlemen from the BBC noticed that it had a black level clamp. Their noses were well and truly out of joint, wanting to know why amateurs were using gear the BBC could not buy! The amateur exploits made the News Chronicle, "Tin Can TV Thanks to Adolf".

ATV could no longer continue in the 70cms. band as the band was now reduced and the signals were needing 16 MHz bandwidth each so a shift was made to 23cms and above where there is much more spectrum available.

It was decided to use a low deviation FM so that the two signals can be suitably separated. This is the system that is now in use. Faulty camcorders, obtainable from rallies are now available as the basis for cameras. 70cms is still used in the Cambridge area for narrow band (2Mhz wide) B&W contacts and Ian and Howard have duplex video QSO's to sort out computer and faultfinding problems. The range of the repeaters around the country is typically 15 to 20 miles depending on the terrain. Ian says that he can see the repeater with binoculars from the end of his road and access it with the simple dipole and reflector aerial but needs the 40 ft. mast and the 20dB aerial due to tree attenuation between his QTH and the repeater.

The gear that Ian and Howard demonstrated used a homebuilt receiver fed to a domestic TV via a scart input. The half watt transmitter being fed with Ian's camera built out of an old camcorder.

Ian said if you want to get involved try to find activity in your area, listen on the 2m talkback channel 144.750. Join the BATC and make or buy the bits with the wealth of information contained in CQTV.

Thanks Ian and Howard Slater G0AYE for a most interesting and informative presentation, a truly fitting 25 year anniversary for an ATV talk, and very nostalgic for some of our long standing Members

Report by Tony G4YTG

## First Impressions of PSK31 by Brian G3CVI.

The easiest way to try out the mode is to tune the transceiver to one of the frequencies shown (1.83815, 3.58015, 7.03515-Reg 1&3, 7.08015-Reg 2 & USA ,10.14215, 14.07015, 18.10015, 21.08015, 24.92015, 28.21015 MHz) and, after running the program watch the waterfall diagram to learn to recognise a PSK signal. Audio in from the receiver is via the "mike" port on the computer (or "line" if it is better.) Audio out is via the "aux.speaker" port or the "phone" socket if required, thence to the mike pin on the transceiver albeit via an intermediate switch-cum-gain box. Care is needed because stereo and mono ports are often not too obvious.

Dozens of PSK signals may be "fitted" into the bandwidth of the transceiver and usually very little tuning is required. The actual frequency is selected by dragging the diamond marker with the mouse and as soon as it settles on a PSK signal the text will appear in the upper field. With careful use of DSP one can see the bandwidth close down till only the wanted signal is decoded and even very strong adjacent ones are so far down as not to degrade the text. Occasionally a character or two is lost due to the general noise level but there are so many "gadgets" on modern rigs that much can be done to eliminate such troubles.

There are several pre-existing messages already available by clicking on the fields which place their contents in the lower or transmit area ready to be sent when the T/R button is clicked...remembering to have the rig in TX mode or VOX which I found was desirable. A quick return to RX is the Esc key. If the callsign of a station is typed in the space provided it will automatically be entered into the pre-existing messages in the correct positions so as to call the other station or BTU or sign off etc.

A very interesting property of the program is that it shows when asked for it, the IMD levels and recommends that -25db should be achieved by the other station. An over driven signal will soon show on the waterfall diagram with the signal occupying excessive bandwidth. Ones own IMD can also be shown although I have yet to discover how to use the command!!!!!!

Once a message of any type has been sent it cannot be sent again by clicking the T/R button; but it can be placed in the TX window again and then it will go out

as often as it is re-placed in the lower field. During the transmit mode the characters are seen to be spreading out left to right in the upper or RX field hence confirming they are being sent IF, of course, one remembers to switch the transmitter to TX mode. There is facility to control it via the interconnecting cables but I did not utilise this for my early experiments. My VOX functioned perfectly.

There are several other facilities as yet untried e.g. a log file which can be recalled easily at any time. But the one I found so useful was to create a sort of standard message "My rig is .....and my QTH etc. etc" which frequently is needed but so tedious to sit and type out every time. If given a message number or ident it can be called up at the appropriate place in a QSO and out it goes

In all I found the mode very good fun to use and the replies from the "other" stations appear to share my opinion. The auto CQ calls, DE phrases, auto insertion of the other chap's callsign and sign off etc made it a pleasure to try the mode. Some signals were so weak as to be almost invisible on the waterfall yet yielded clear text from the other side of the world with 10 W.PEP.....HAVE A GO AND LET ME KNOW!!!

## Going Digital by Wally G3MCO

"Everything seems to be going digital", complained my XYL last year. I could see what she meant; digital TV, digital radio, digital clocks, even a new kitchen timer was labelled 'digital'. So I seemed to be out of kilter in my shack with my faithful FT102 whose only digital facility was its frequency display. The introduction of a PC only emphasised the gap between the old analogue and the new digital worlds. The PC has been useful for keeping the station log, designing different QSL cards and keeping track of award scores but seemed to have little direct bearing on my amateur radio activities.

Then I read an article describing how easy it now was to go digital on the air with a PC. My professional experience of digital radio communication was RTTY back in the days of chattering teleprinters, perforated tape, analogue modems and complex error-correcting systems. Now it seemed there was downloadable PC software to filter and decode digimode transmissions. A PSK31 program was borrowed and sampled by simply clamping the PC microphone within the rig headphones. Transmissions were soon on the screen after and I was copying stations from Shanghai, Manila, Cambodia and Japan; and that was on the first evening!

Most stations I read gave details of their software and I noticed that many were using DigiPan. This seemed a good time to explore the Internet; entering 'PSK31' on my search engine, more in hope than expectation, I was surprised to find a number of hits. I found a site offering DigiPan as freeware. I downloaded it and soon found it a very user-friendly program in terms of display, macros and its logging

facility. From another site I gathered that PSK stations are grouped within a USB channel on a spot frequency for each band. e.g. 14070, 21070 and 28120 kHz. By setting the rig to USB on one of these frequencies the DigiPan 'waterfall' display showed all the PSK stations being received. One snag is that a strong signal can capture the AGC and reduce the overall RF gain. Either a good notch filter or narrowing the bandwidth to 'CW' can alleviate this effect.

I then decided to try transmitting using an equally simple system of placing the rig microphone next to the PC speaker. While I made a few contacts it was clearly unsatisfactory in the long term. So I set PSK to one side for a while and with 10 metres SSB conditions improving through the winter months I reverted to that mode for DX working with my recently acquired FT840. Then came the February meeting when Ian, G0OZS described and demonstrated PSK31. I brought home a copy of the club CDROM from Trevor AKA and downloaded from it Win PSK. Using the same 'heath-robinson' trial set-up I found it superior to other programs I had tried. It has two channels enabling the monitoring of one station while searching for another. It has an excellent range of Macros whereby one can compose the frequently used calls and phrases and I reckoned this was 'the business'.

Also on the CDROM was a link to G3LIV who supplies a range of opto-isolated interface units which he custom-designs to suit a customer's rig. I decided to invest in one which interfaces the audio signals between the FT840 and the PC Sound Card and also makes a PTT link from the 'Com 1' port of the PC to the PTT relay on the rig. Having adjusted the levels both ways the system worked like a charm. A word of warning though: before transmitting either PSK or RTTY reduce the power to about 1/3 max as the carrier is on continually during transmission but the PA of most rigs are only rated for intermittent operation, i.e. cw or ssb.

So I have now 'gone digital'. My PC and FT840 sit next to one another and communicate rather than glowering at each other across the room. I am beginning to enjoy chatty PSK QSO's, never having been very proficient at CW and easily frustrated by noisy, fading SSB contacts. The dx I have worked on 10m with just 30watts and the band apparently dead has been amazing; HF0POL in the Antarctic, any number of South Americans, Korea, Taiwan, Thailand to name but a few. So if you have a PC and want to try something different on HF; have a go.

## Foundation Course News by Trevor M5AKA

We have two evening courses at Danbury planned, one starting on Thursday 16<sup>th</sup> May and the other one starting Thursday 27<sup>th</sup> June, each will run for 6 weeks

Those passing the assessment at the end of the Course will be able to apply for their Amateur Foundation Licence which permits the holder to operate all modes in the Amateur L.F., H.F. (except 28 MHz), VHF and UHF Bands.

Thanks to the many CARS members who were also involved in the running of our last course. They carried out a range of activities including on-air contacts, additional tuition, making of teaching aids, course assessment and the tea making duties.

Anyone wishing to either join or help run a course should contact the CARS Sec. David, M0BQC

Tel: 01245-602838 E-Mail: [cars@g0mwt.org.uk](mailto:cars@g0mwt.org.uk)

### Requirements for a Foundation Lead Instructor.

There seems to be some confusion among Amateurs as to who can be the Lead Instructor for a Foundation course. A Lead Instructor must hold one of the following Amateur licenses - Full Class A or B or Intermediate Class A or B. In short anyone except Foundation license holders can be a Lead Instructor and there is no minimum time for which you need to have held the license. Note: Class B Lead Instructors cannot do the Morse Assessment part of the Foundation course, a Class A will have to be found to help with that.

Registering as a Lead Instructor is really easy, all you do is ring the RSGB on 0870 904 7373 and they will send you a simple form to fill in – that's it.

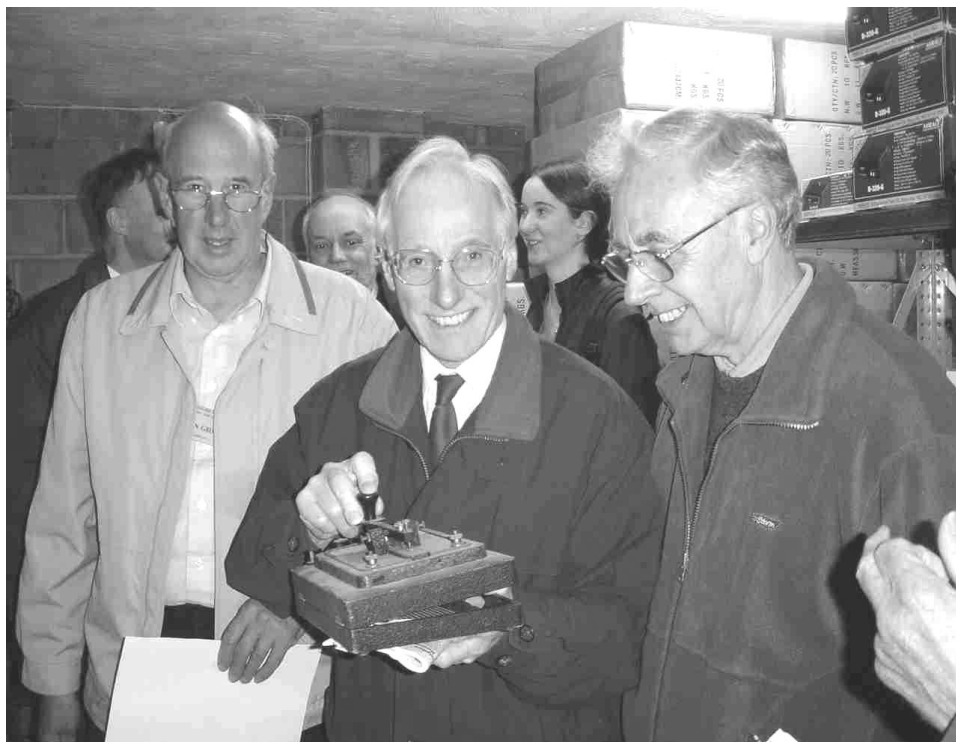
The Foundation course itself can be held in any building you like and at any time you like with any number of candidates – you can just teach one person if you want. The only restrictions on the room apply to the sitting of the Assessment paper at the end of the course. Then you must ensure that there is sufficient space between candidates so they cannot see each other's paper.

## Visit to Waters & Stanton.

A visit arranged by Trevor M5AKA to the local emporium produced a very full party of Club Members to sample the delights of this well-known establishment. After a brief welcome and introduction by Mark Francis, a tour of the Warehouse and Museum gave some idea of the enormous stock held, enabling in most cases, a rapid response to requests. The requests for a large variety of equipment come from shop visitors, telephone calls and by letter. On visiting the out going order department later, we were to discover some 150 items are dispatched daily. The Museum collection gave rise to many expressions of passed experiences of ownership or familiarity, with some of the fine examples of an earlier generation on display.

An excellent, very well equipped service department caters for most repairs that can be rectified by a team of three well-known experienced, engineers. Apart from the usual faults, their skills are tested from time to time by faults induced by inexperienced customers misusing equipment. Switched mode

power supplies can give a few headaches and Bob Boddy's advice is to leave them switched on permanently as this helps to avoid many of the problems that arise to component ageing. Any equipment new to the market is also widely tested



and trialled by the service staff to judge its suitability for sale.

After a break for some excellent food and drink we were shown the in-house facilities for producing all the copy and photographs required for advertising leaflets etc, as well as the excellent colour brochure we all know and love. Director Peter Waters then demonstrated some new products to us and talked proudly at length about the Company as a whole and how they are the leading suppliers in the Country and have recently won an award for the best growth. After which, time was taken to talk to all the staff present and ask questions and in some cases spend some hard-earned cash.

Summing up Mark thanked us all for coming and invited us back in a year or two to see how well their planned expansion to their stores and dispatch areas are progressing, which will be in keeping with the recently enlarged shop and excellent working equipment display areas. On leaving we were all presented with a quality Kenwood mug with which to quench our thirsts during long nights on the radio. From my point of view it was a most enjoyable and worthwhile visit. Many thanks to our hosts and to Trevor M5AKA for arranging it.

*Report by Colin GOTRM.*

## **Expedition to Darkest Harlow by Trevor M5AKA**

Although I'd been in Essex several years I'd never been down to the Harlow and District Amateur Radio

Society. To rectify this I checked their website at <http://www.gsl.net/g6ut/> and found they met on Tuesday evenings at the Mark Hall Barn, a grade II listed building in First Avenue. Well Harlow isn't renowned for having many old buildings so I reckoned this one should be easy enough to find.

I set off one dark Tuesday evening in the pouring rain. It only took 20 minutes to get to Harlow then the fun began. Evidently the council had at some point in the past decided to rename First Avenue either to make some kind of political point or because they were fans of the BBC programme "Only Fools and Horses" and had decided to rename it after the Trotters tower block. The result was that the road signs had two names on them a move clearly designed to catch out unwary visitors but it wasn't going to fool me!

The next step was to find this old Grade II listed building. I drove all the way along First Avenue until I got to the end; no sign of it. Well it was dark and raining heavily so perhaps I'd missed it. I turned around and went along the road again, still nothing. Fortunately the rain was easy off now, I tried again this time slowly going up and down all the little side turnings; no old buildings to be seen anywhere. It was at this point I remembered that the Harlow clubs web site gave a mobile phone number for people to contact; had I bothered to put this number into my mobile before leaving, No!

I was heading back towards when Chelmsford I then spotted a group of teenagers so pulled over to get directions. I was in luck they knew of Mark Hall Barn, "That's the Scout place" said one. She wasn't sure she was any good at giving directions but she had the phone number of one of the Scout Leaders in her mobile. Within seconds she had rung him and he gave me detailed directions to find the Barn. I headed back to First Avenue and following the directions to the letter I saw through the gloom the shadowy outline of the barn. My big mistake had been to expect Mark Hall Barn to have road access from First Avenue, it didn't. It was set well back from the road and to get to it I had to drive over the kerb, over some grass, over a footpath then over another stretch of grass.

I got out of the car and squelched through the mud. To the left of the barn was a modern single storey extension, clearly the scout hall, on the barn itself was the callsign G6UT; I was at the right place. The old wooden door was slightly ajar, on entering there

was a large room to my left full of coax cables, antennas, old computers and bits of junk. I went up the stairs on my right, past a 40 foot telescopic mast stored along the staircase and there at last I found the main meeting room with the meeting already in progress.

The secretary Chris M5IMI apologised for the poor state of repair of the club house which was having repairs to the roof after a major leak. I was, however, quite impressed with it, the meeting room had a large bench area for either constructional work or HF/VHF/UHF operating using the array of antennas that are permanently installed at the site. The tower at the back can apparently go up to 70 feet.

Towards the end of the club meeting one of the members said they were popping out to check some wiring. 30 seconds later I realised what wiring he was referring to when all the lights went out. Power was restored after a couple of minutes. The Harlow members do a lot of building work on the barn themselves one of their latest additions being a toilet!

I found Harlow to be a very friendly and active club and they are certainly very lucky to have the Mark Hall Barn as a permanent base.

## **Falklands 1982 by Geoff G3EDM.**

I was recounting, to John G8DET, a radio contact I had with a VP8 station in Goose Green in the Falkland Islands on the day of the invasion by the Argentinians in 1982. I had spoken to this ham on numerous occasions, usually on the 20m band. The islanders close ties with Scotland were such that it was viewed as an off-shore island, 6000 miles or so offshore! I believe, however, that the majority of UK citizens who were not hams had never heard of the Falklands, let alone knowing that they were located in the South Atlantic. A number of the VP8's that I worked definitely had Scottish accents.

While I was speaking to the ham in Goose Green, in the centre of the island, he mentioned that about 40 planes had flown overhead and he could only guess that they were going to bomb Port Stanley, the capital. Later this was confirmed in our news bulletins in the UK and war had started. Goose Green was the centre of much fierce fighting later on.

My nephew, Lt. Keith Mills, was the son of my late brother Alan (EA7BA & GW3NNF) and was a Royal Marines officer on board their ship Endurance in the South Atlantic at the time. The Marines were down in Antarctica on training missions at the time and the object being to get experience of under-water diving and working at low temperatures. One of their jobs was to rescue Lucinda Buxton and her friend who were on a filming expedition in South Georgia; so Keith and his 21 Marines were sent to Grytviken. During their visit they were attacked for two hours by several hundred Argentinians when an Argentinean corvette sailed into the harbour. The Marines shot down a helicopter, damaged another, and using a

rocket launcher, blasted a hole in the side of the corvette. One British Marine was slightly injured and between 10 and 15 Argentine soldiers were killed. Only when they were completely surrounded did Lt. Mills order his men to cease fire. His actions were rewarded with a DSC and having a mountain in South Georgia named after him. Another mountain has been given the name Buxton.

After capture by the Argentinians my brother GW3NNF and myself kept daily contact with Edwin, CX1DDI in Montevideo and just across the river from Argentina. A newspaper journalist rang me every day from Newcastle to be updated. After three weeks, and just 3 hours before the Foreign Office notified my brother of the release of the Marines, we heard from Edwin that Keith was well and on his way home. So ham radio worked again! And before the official channels.

On one occasion when Keith was in the South Atlantic my brother and I had a sked with a ham in Port Stanley. We kept the sked for 3 hours with that station waiting for Keith's arrival in order to speak with him. We could not understand why he had not appeared on time.....and then he turned up ashore in Port Stanley at the ham's station. We learned that the ship's radio officer had told Keith it was pointless going ashore earlier as the radio stations in Port Stanley could not get through to London as there was no propagation!

Keith afterwards worked as a training officer for the Marines on Merseyside. He has now retired from the Marines and runs an old people's home in Colyton, Devon. He says his memories of the two hour battle are vivid but he most remembers the peace and tranquillity of South Georgia.

On the more pleasant side Keith returned to be best man at the wedding of the daughter of the Island's Governor about a year on.

## **Editor's Note.**

With so many articles on offer this month we decided to make this a three sheet issue. We will return to two sheets next month.

Your views on the Newsletter would be most welcome. Is the present font size acceptable or would you like it one size up? What else?

We can never please everyone all the time, but we do try!

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**Deadline for the June N/L is Wednesday 15th. May.**