

HARCNEWS

Newsletter of

Horsham Amateur Radio Club

Est. 1938



G4HRS

August 2006

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Notes From The Editor

I must apologise to all those who received the July edition of the newsletter a week after the last meeting! This was due to a printing error, which has since been resolved.

There has been some interest in receiving HARCNEWS by email and the offer is still open. If you would like this please let me know along with an address to send it to. Currently the responses are being evaluated and I will advise you further in due course.

Until then the printed version will continue to be sent out. Earlier this year I bought a new satellite receiver made by Technomate, unfortunately when it is powered up there are emissions on spot frequencies in the 160m amateur band!

When in standby you can actually hear the clock ticking at S9+ even though my rig antenna is some way from the receiver and the unit indoors

as opposed to out in the shack.

The best cure has been found to alter the RF output channel to a different frequency regardless of whether it is in use. This has the effect of sending the noise to a different frequency but from power on of the receiver this will vary for a few days then stabilise.

Using a portable receiver in the same room as the satellite box the noise generated does not appear to be very strong so most of it is travelling down the coax to the dish.

It has also been found that Panasonic DVD/hard disk recorders cause similar problems on Topband! If you suffer any type of EMC problem write to HARCNEWS and tell us about it and one of our readers may be able to advise.

See you in the Autumn!

David G4JHI

July Meeting Review:

More Codes, Ciphers and Steganography

by Alister Watt G3ZBU

Contrary to what Microsoft's spell checker thinks, steganography was correct for one of Alister's themes in this interesting and amusing talk.

It means 'covered writing' and ranges from the ancient practice of writing a message on someone's shaven head and then waiting for the hair to grow before dispatching the messenger, to a range of cunning methods used today that Alister, ably supported by Helen MODEY, explained and illustrated.

We heard about using the 1/300inch dot position discrimination of laser printers, hiding messages in the least significant byte of files such as MP3 and BMP, and in the 6 spare bytes of Internet messages.

Over radio, messages have been disguised using burst mode very high speed CW, spread spectrum, and a Japanese WW2 trick using two transmitters on different frequencies – one sending the Morse dots and the other the dashes.

The highlight of the evening was a very effective demonstration of a computer-model of an Enigma machine. The simulation was very realistic and the demonstration brought in the audience, to copy a typical Enigma radio message that Alister had recorded from an 80m GB2HQ transmission during the 60yr Enigma anniversary.

To go with that Alister demonstrated extracting a message hidden in an MP3

music (?!) file containing the Enigma rotor and plugboard settings. Helen acted the role of Enigma operator working under fire and a plain language message emerged. Brilliant!

Additional notes

The music used to hide the Enigma machine wheel and plugboard settings was a piece called Pull Harder on the Strings of your Martyr, and is by an American band called Trivium. The drummer, Travis, is so outstanding that I took an interest in their music.

There are plenty of very interesting musical ideas hidden in there and each track is quite different to the others in the same manner as Bach's 48.

One aspect I particularly enjoy is how the tempo will suddenly change in the middle of a song, only to return later; yet it all fits in and makes the music exciting by adding contrast. The lead guitars seem to put out some impressive solos and never hit the wrong note.

One small caveat is that the lead vocals may sound a bit like a sore throat. A lozenge manufacturer should sponsor them, but remember this is a genre called 'death metal'. Some songs in MP3 format may be freely and legally downloaded from the Trivium website.

The Enigma simulator used was called Enigma Simulator V5.3, written by Dirk Rijmenants. It is freely available on the Web, and runs under most versions of Windows. I have used both W98SE and XP.

For those who have not tried it, it gives a virtual machine on which one can click the mouse to open up the plugboard section at the front, and also open the lid to get at the rotors. What is not quite obvious is that you have to move the 3 rotors to a compartment at the front of the machine so all rotors are together.

One can then select the 3 rotors to be used. Each rotor can be placed at the right-hand side to have its initial key set up by clicking on the top half or lower half of the rotor.

Settings seem to be letters, numbers or both e.g. select left rotor as rotor type III, and start it on position C or 3, middle rotor type V starting at A or 1, right rotor type II starting at D or 4.

The compartment can be closed when the rotors are set up. Then the plug board may be connected up by opening the front of the machine. 10 leads were normally used. Simply click A then B to link socket A to socket B.

Close the front up.



Set the three rotors by clicking the knurled edge

They look a bit like chain cogs on a bicycle! The settings are either sent at the start of the message or looked up in a daily top-secret codebook.

Typing the keys with a mouse, or using the PC keyboard, runs the decoding software and the deciphered text appears in lamps lighting and in a text window (which was obviously not in the real machine!)

Photo showing an Enigma Machine

www.w1tp.com/enigmaMuseum

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Chain Home - Part 2

by Ron Polley G3PYC

The Arnold Wilkins 'Daventry' demonstration in 1935

The Germans in early 1939 had a good idea that the aerial masts being built along the East Coast of England were for radiolocation. On Thursday 3 August 1939, several days before the outbreak of WW2, the CH station 10 miles south of Aberdeen obtained a large echo exactly on their line of shoot at 114 deg, moving slowly towards them at around 60 mph.

The duty operator estimated between 50 and 100 planes at 120 miles range. Keep plotting was the instruction from fighter command control at Stanmore. At Bell Rock lighthouse, 8 miles out, it turned NE. The Royal Auxiliary Air Force at Dyce, Aberdeen, sent a Magister aircraft to investigate.

It came back with a picture of an Airship, bearing the name Graf Zeppelin and with the registration number LZ 130. This Airship, the first to circumnavigate the world, was the same length and width as the liner TITANIC.

Post war investigation showed that LZ130 was investigating frequencies used by our radiolocation. They drew a blank as they were looking in the VHF spectrum. They then assumed that these aerials were for broadcasting propaganda.

The Germans, post war, were astonished to find that they had been discovered 120 miles out. Their equipment was only good out to 50 miles. In the latter part of the war the CH stations helped

the Photoreconnaissance aircraft to locate target areas.

The CH station was able to approximate a planes position on its line of shoot, out to 350 miles at 32000 ft. It was lucky that CH started out on such a low frequency as it was found that the ground wave of these low frequency signals went further than anticipated appearing to bend a little with the curved earth.

Radio navigation systems; Gee, the forerunner to Decca navigation, was excellent within its limitations until the Germans started to jam it. Fixes were reliable for home coming planes in the home country.

For accurate bombing at distance, Gee was not good enough even with no jamming. Alec Reeves of STC designed Oboe. Oboe was accurate out to 300 miles and even calculated the precise time to drop a bomb that would hit a factory building.

To accomplish this, the speed of radio waves had to be assessed. They found that 186,234 miles per second was about right for transmission from ground to an aircraft flying at 30,000 ft. Modern Radar uses 186,240 miles per second. Light travels at 186,282 miles per second in a vacuum, as would a radio wave.

Please send contributions for the September edition of HARCNEWS to the editor by 19th August. Items received after the deadline will be held over until a later edition.

All input is subject to suitability and available space.

Any comments, letters or new ideas very welcome especially for all features of this newsletter.

Please send more photographs to create a better reading experience!

For items sent by email please send to this address:

harc.news@g4jhi.co.uk

RESULTS FOR HARC FOXHUNT HELD ON JUNE 27th by G3OGP

The foxes were G3OGP and G4LRP having won the previous foxhunt jointly.

The map was Landranger 187 Dorking Reigate and Crawley commencing from Mannings Heath at 19.30.

The foxes were located at fishing point number 25 at Slaugham Common Pond, some 5 minutes walk from the car park. The first intrepid hunters to be spotted by the foxes were G3WZT and Janet at just after 20.00 but after a lot of waving aerials around and a circumnavigation of the pond by both they failed to notice the foxes sitting in our chairs overlooking the pond even though they passed some 12 feet from the station.

The next on the scene were G3SWC and Eva and after coming across G3WZT and Janet proceeded around the lake and eventually came across the foxes together but G3SWC handed the envelope in first thus winning. I couldn't possibly repeat some of the comments made by G3WZT who rushed off with the sole intention of drinking all the beer at the pub so that there would be none left when the foxes eventually got there!

Next in were G3ZBU ably assisted by M0DEY fresh from university. G4KDR followed having done his first foxhunt solo for many years and next almost immediately after were G4TMC and G7EYL.

Timings

G3SWC & Eva	20.35
G3WZT & Janet	20.36
G3ZBU & M0DEY	20.50
G4KDR	21.06
G4TMC & G7EYL	21.07

We were joined by G3NPF & Anne and last but not least G4EFO, for a pleasant couple of drinks at The Victory at Staplefield.

73 de Robin

TV Addict

Those who like fly on the wall documentaries may well enjoy life at London Luton Airport. This is a light-hearted look at the day-to-day running of the airport and does not feature angry and shouting passengers!

Episode 5 saw Superman pass through check-in along with his buddies who were actually on their way to a stag night in Hungary.

Engineers had to solve oversize baggage that stopped the

carasouls and 10 winners of a spot the representative competition flew to Warsaw and the first to arrive in a hotel bar won £1000! The series airs at 1930 BST, Tuesdays, on ITV1 London.

On 18th July ITV1 Anglia started the current series from episode 1 at the same time and can be tuned in manually on Sky and other satellite receivers. Repeats are screened on Sky Travel but it is not known which series they are currently showing.

Radio Diary

Aug 3rd Club Night: WSJT, Modern data methods for EME and Meteor Scatter communication - G3WZT

Aug 10th Committee Meeting - QTH of G7EYL

Aug 13th Flight Refuelling ARS Rally

Aug 17th Social Evening: George and Dragon, Dragon's Green

Aug 27th Milton Keynes ARS Annual Rally

All above times are BST

Club Meetings and socials start at 8pm