

HORSHAM AMATEUR RADIO CLUB

HARCNEWS

Coming Shortly

Jun 3 Club Night Enigma by Claire Greer

Jun 17 Social Evening Fountain Ashurst

July 1 Club Evening Travel Log by Adrain G4LRP

June 2004

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PW Contest and SSB Rota

From: Helen Watt M0DEY

Coming up, on Sunday 13th June will be the 21st PW 2m QRP contest. The transmitter output power limit is 3 watts, it takes place from 09:00-16:00 UTC. That is all the information I can currently obtain as WHS are “sold out” of PW magazines where the full rules are to be published.

We have permission to participate in this contest near the trig point at Sharpenhurst. If you are interested in joining in please feel free to come along - the more the merrier, but please leave your car as far away as possible so as not to upset the owner.

I am also drawing together a rota for the SSB field day on

the 4th and 5th of September. Please keep these dates free as it would be nice to have the participation of as many members as possible.

This year we will be entering the restricted section for a change and a challenge. If you are not used to operating and want to have a go, or watch on the sidelines please let me know.

Experienced operators are also welcome - the HARC juniors can't do this alone! Beware, unless you contact me to suggest otherwise you may find yourself operating at 3am..73 & 88!

M0DEY (contest manager)

May Meeting: A History of Police Communications, by Jason G6KNE & Mark G7DEL

This talk was in two parts. In the first half we heard from Jason about how the first communications device was a rattle. He would have brought along the Police museum's only rattle but it is considered too rare!

This was superseded by the whistle which was in use until the 1960's when the first portable radios became common. In the past, special lamps were placed at traffic intersections. When illuminated, a passing patrol would return to HQ to collect new orders. The time delay was obviously rather large!

While the American's were busy experimenting with these lamps, our Police concentrated all their efforts on a major crime wave of missing dogs...There was plenty of humour in this talk!

The Americans then started a radio station KOP which transmitted music interrupted by the odd message to patrols.

After that crime wave, the Dr Who style Police box became the mainstay in keeping in touch. A telegraph was used with something like 11 positions for example riot, burglary, moral turpitude, missing dog. More than 11 positions might confuse the policeman.

Of course we are more interested in the radios. Jason had some 1960's Pye Pocketphones complete with their cardboard boxes. The receiver was mounted on the officer's lapel so he could easily listen to any messages, and the internal antenna is therefore at a reasonable height.

When he had to transmit, a

separate transmitter was taken from a trouser pocket and its telescopic antenna extended.

Different techniques had to be employed if an officer lost either transmitter or receiver; a dog handler or long transmission and listen for the audio respectively. One channel was provided. Ultimately one channel was found inadequate especially when different forces had to cooperate, so the next generation of transceivers had more channels and longer battery life.

Unfortunately, being much heavier, they had to be belt or harness mounted with a microphone on a coiled cable. Even more unfortunate was the excess length of said cable which could be used to strangle the policeman. The belt fitting caused problems getting into vehicles comfortably, but major discomfort to say the least when sprinting after a criminal!.

One version had 99 channels and the ability to invert the display. Channels 69 and 96 could not be used! The latest transceivers have come almost full circle and are lapel mounted like the original

Pocketphones. But unlike them, they run both Tetra and GSM modes with full encryption and text messaging, but every call will now be charged! Jason is an operator and had many amusing anecdotes about some of the tricks used by criminals nowadays.

The second half was about the network transmission side called quasi-sync. Mark sets up and maintains the transmitters. The basic idea is to put plenty of transmitters on hills to minimise areas without radio coverage.

Each transmitter has GPS locked frequency standards to keep the transmitter frequencies to within 10Hz of each other. A demonstration of two handhelds showed the problem of beat frequencies. Audio is fed from the operator via BT's leased lines and audio delay at various frequency bands has to be equalised.

This is the difficult part, and can take a week to make all the necessary adjustments. However it can all be thrown into disarray when BT decide to re-route one circuit via Stockholm!

Overlap areas do cause problems so the system is set up to try and place these areas over lakes where hopefully the police cars would never venture! This is a VHF system and each patrol car has a VHF/UHF repeater so the officer's UHF low power transceiver can effectively talk back to base when away from the car.

These repeaters were seen for sale at Kempton recently. Most are AM but there is a Burndept AM/FM set. Generally they provide 25Watts around 2m. Handsets are also available, though all ex-police equipment should be destroyed. Some handsets need a Motorola RIB interface to programme the channels.

One rig is the Motorola HT600.

It needs a track cut and resistor mod to drop the VCO frequency. One then sucks out the programme with RIB, edit with WordPad etc, and reload.

The Pye PFX was particularly recommended as all you have to do is buy a prom, set the VCO with a voltmeter and off it goes. There is a link to obtain 10 or 100 channels. Excellent value for 5 pounds or so.

Two caveats: it is not worth buying equipment that needs special new crystals and sometimes the handhelds suffer a bit of rough handling!!! so the brass pins on the top plate sometimes need resoldering. An excellent talk.







New Look For SSB Field Day – Antenna Aspects

A few years ago, HARC participated in National Field Day (the CW contest) using batteries for power supply, wire antennas only, and a 100W transceiver. Everyone who participated agreed this format was a refreshing change.

At the beginning of September we are entering the SSB Field Day as a Restricted Section station which implies similar conditions and we are expecting to have a lot of fun then also.

The Rules stipulate a single wire antenna, with a maximum height of 15m, using only two supports.

A doublet is the natural choice and a nice refinement would be to have a PicATune remote auto tuner installed in the centre at the top of a mast. But David G4FQR's example is not suitable for outdoor use in typical English summer weather so he declined the invitation to hire it out! At home it is used in just the way desired but housed in the loft

So instead we are proposing to use an Extended Double Zepp (EDZ) cut for the 80m band, supported at each end from Christ's Hospital's trees, and fed in the centre with 450ohm ribbon from PicATUne in the tent.

This design should well satisfy the trusted guidelines of getting as much wire in the sky as possible and getting the high current sections as high as possible. The two legs of the EDZ should be 0.64 wavelengths each according to the ARRL Antenna Book.

So the antenna is rather longer than Two Half Waves in Phase. (We have used that design previously on the 40m band). The overall length will be a little over 100m for the 80m ssb band. The centre is low current so the inevitable sag, accentuated by the weight of the feeder, is not regarded as detrimental.

Provided enough tension can be set up in the end supporting ropes, the two current antinodes should be close enough to the Rules' 15m height maximum.

The book says that the broad-

side gain from the EDZ is 3dBd which will give a useful boost towards Europe on 80m since the support trees are oriented north and south at Christ's Hospital. A four leaf clover pattern should arise on 40m and ever more complicated ones with lobes trending more north and south, as the frequency increases. Let's hope we're lucky!

PicATUne is very versatile and can match a very wide range of situations but we must be prepared for the installed antenna/feeder presenting an unmatchable impedance on some band or frequency.

This will be dealt with on the day by adding length to the feeder (preferably) or antenna. PicATUne comes with a computer diagnostic utility to aid this process so we will have a laptop PC available during the PicATUne "training" phase.

The antenna will be prefabricated from hard drawn copper wire and 2 1/2" ribbed Pyrex glass insulators but cannot be set up and tested before the event. Come along to CH on Saturday 4th September to join in the fun and games!

June Meeting: The Enigma Machine, by Claire Greer

An enigma machine (all 14kg of it) will be displayed and presumably operated providing we can find a sufficiently sturdy desk! The machine, for those who have yet to learn about it, was developed by the Germans just before the start of the Second World War.

It is simply a machine like a typewriter or telex terminal, that encrypts and decrypts secret messages. Rotating code wheels and plug board scramble each letter to generate another character. The designers thought it would be impossible to crack the code.

The Polish managed to smuggle an early machine to Britain, but it may not have been much use. A mechanical machine called a Bomb was built; it tried all permutations of coded messages sequentially until a sensible result appeared. It wasn't until Colossus (the

World's first electronic computer) was built at Bletchley Park that decryption took a quantum leap forward.

Many German forces (but not all) used Enigma for communications around the world. The encrypted message was sent by Morse code. The German's efficiency meant that full details of a unit's strength were regularly sent to headquarters. This gave the Allies a wealth of information when the code was finally cracked.

During the war, the machine was modified with extra code wheels, but whether this was because they knew the code was insecure or not is a question to ask. This is a professional talk run by the enigma project, so it will be well worth while coming along, and bring friends, neighbours etc too!

HARC Spring 2m Fox Hunt

The evening of the 20th May appeared to be fine but as the evening went on it turned to rain, but this did not dampen the six teams enthusiasm (too much!) to find the fox.

The fox was located up on the hills at 240m ASL just north of the village of Ewhurst. Running just 1 watt from the mobile good signals were re-

ported by most hunters.

One or two hunters found themselves in very poor signal areas (caused by the shadows from the North Downs), this caused a few challenges. But at the Bulls Head in Ewhurst for the traditional 'debrief' all agreed it was a fun evening.

First transmission was at 7:30 pm on the club channel.

1st G3SWC Bryn and Eva at 37 minutes

2nd G3OGP Robin and Pat at 1 hour 4 minutes

3rd G3WZT John and Jan at 1 hour 7 minutes

4th G3ZBU Alister and team (M0DEY, 2E1IGA, M3FSO and M3EUR) at 1 hour 14 minutes

5th G7DFV Gavin and Anne at 1 hour 37 minutes

6th G4TMC Paul and G7EYL Marilyn, just run out of time...

My thanks to all that took part, we will look forward to the next Fox Hunt (G3SWC

will be the fox) later on in the summer. 73's G4LRP alias The Fox!