

HORSHAM AMATEUR RADIO CLUB

# *HARCNEWS*

## *Coming Shortly*

Sept 1st Club Night, CAR v HARC Quiz

Sept 3/4th, SSB Field Day

Sept 18th Club Event 2m DF Hunt

Oct 6th Club Night Junk Sale

Oct 20th Social Evening Selsey Arms Coolham

## *September 2005*

*Sponsored by:*

**nevada<sup>®</sup>**

# *Fox Hunt*

The next Fox Hunt will be at 10:30am. Map to be Dorking/  
on Sunday September 18th Crawley etc.  
starting at Mannings Heath

## *HARC October Day Trip To France.*

Due to popular demand I have been asked to put together yet another day trip across the Channel. It has been decided that Saturday the 1st of October will be the day, and as usual it will be the now traditional early start from the Horsham area about 6:15 am, with a return ferry/tunnel crossing about 8 pm. This October visit will hopefully take in two WWII museums, both of which are near to Calais. And yes there will be time to do some shopping at Cite Europe on the way back home to stock up those essential items for Christmas!

Our first stop will be Le Blockhaus, a large concrete bunker built by the Germans for the construction and

delivery of the V2 weapon. This site would have become fully operational had it not been for a few visits from the Allies bearing gifts such as Barns Wallis's Tallboy bomb! The site has now been converted into a museum and contains much of interest (see the museum website at [www.leblockhaus.com](http://www.leblockhaus.com) not forgetting to click on the English icon).

Our second stop will be the underground V3 base at Mimoyecques, where it was planned to launch the much smaller V3 missiles. Again this site was paid several visits by the Allies to stop this underground fortress becoming operational. This has again been turned into a small museum.

# *PICs*

## *by Alister Watt G3ZBU*

The August talk was about the PIC microcontroller integrated circuit. Alister started off his Web-style presentation with the early days of computers from Charles Babbage, to the work that went on around the Second World War, when computers consisted of vast racks of valves.

One character of the time was John von Neumann, who should not be confused with A.E.Newman (try a Web-search on the latter). He came up with the idea of putting both programme software and data items in the same area of memory. This made it very easy to run different programmes as previously computers were hard-wired; it took a soldering iron to change a programme.

The PC we use nowadays uses this architecture. The 1970's brought along the ubiquitous microprocessor

and the personal computer. Intel's 8080 and Zilog's Z80 were the first, and the first Sinclair computer, the Mk14, presumably so that an unlucky 13 would not have to be sold! After Apples, Nascoms, PETs, TRS-80s etc came the IBM PC in 1982. This standardised software and caused previous designs to become obsolete.

For smaller applications, the microcontroller evolved. A microprocessor needed RAM (data memory), ROM (programme memory), input and output circuitry and logistics to make it run. This all takes up loads of pcb area, and cost. These extra components are fitted inside a microcontroller so the pins on the outside can be used for inputs and outputs

The PIC is a small microcontroller. Its designers saw a gap in the market for a

cheap device with only a few thousand bytes of programme memory and as little as 32 bytes of data memory.

Once it was published that they could decode analogue Sky broadcasts, for Season 6 Star Trek, many engineers were able to see the potential of this little chip.

Its performance is improved by using Harvard architecture, where different internal data and address data busses can simultaneously read programme and data, unlike the pc's von Neumann method. Harvard busses need up to 60 pins, but as they are completely internal, in the case of the PIC, no external pins have to be used so it doesn't cost any more to do this! Very clever!

Most have 18 pins, but a 6 pin device has recently been announced, and 40 pins are very useful if more inputs and/or outputs are needed. Pins can be programmed as input or output as required.

After the break Alister showed us the free MPLAB development environment but advised paying for a 'C' compiler (about 100 pounds from Farnell) to avoid brain damage as most of the hard work is already catered for.

The 18-pin chip to use is a 16F628 ( or 16F627 with less memory ) as they are instantly reprogrammable. 'A' versions exist but some commercial programmers may or may not like them. It is possible to build a Tait parallel port programmer with junk-box components and this works nicely.

Sometimes it needs a small capacitor on a pin. Its internal peripherals may be used as a frequency counter up to almost 50MHz and it can output serial data. A comparator can be used as a poor-man's analogue converter to measure dc voltages.

It has an internal 4MHz RC oscillator so one doesn't need to bother with a crystal and its two 22pF capacitors, unless

frequency stability is crucial. Maplins, and others, sell these for a few pounds.

The 16F877 is a 40-pin version with more memory and pins. It also has a real 10-bit analogue to digital converter, but cost £5 to £7 . It will run at 20MHz.

Older parts are normally OTP (one-time-programmable) and cannot be erased, so ceramic window UV erasable versions are available, but at high cost. The range also has surface-mount pinouts which are best avoided unless one has (and are prepared to lose) good eyesight!

## *SSB Field Day*

I hope to be able to put most of the station up on the Friday evening before with Pete (LKW) and David (FQR). We will be using the beam on a 30ft mast with the rotator and stub mast, a 40m dipole and the 80m dipole.

The tent should be in place, so there should not be too much to do on the Saturday morning other than testing the station and PC. The Linear and the rig should be there on

Saturday am ready to go.

Bryn/Pete would you be so kind as to ensure that all is set up and ready to go on the Saturday am, that is generator, rig, linear and PC etc.

I will collect the generator a few days after the contest.. Any queries, don't hesitate to give me a call. I will do a final run through at the club meeting on the Thursday prior to the contest. Thanks for your support..

# *HF Field day Rota*

Set-up : G3ZBU, G4FQR, G4TPO, G4LKW, G7EYL, G7DFV, G3SWC

<i>Time BST</i>	<i>Operating Team</i>			
14:00- 15:00	G3NPF	M1AIM	M0EPX	
15:00- 16:00	G3NPF	M1AIM	M0EPX	
16:00- 17:00	M1YAP	M3FSA	G7EYL	
17:00- 18:00	M1YAP	M3FSA	G7EYL	
18:00- 19:00	G3SWC	2E0FRZ	G4TPO	
19:00- 20:00	G3SWC	2E0FRZ	G4TPO	
20:00- 21:00	M0DEY	M3ICX	2E0AZV	
21:00- 22:00	M0DEY	M3ICX	2E0AZV	
22:00- 23:00	G4TMC	G4LRP	G7DFV	
23:00- 00:00	G4TMC	G4LRP	G7DFV	
00:00- 01:00	G4TMC	G4LRP	G7DFV	
01:00- 02:00	G4TMC	G4LRP	G7DFV	
02:00- 03:00	G4FQR	M0GJH		
03:00- 04:00	G4FQR	M0GJH		
04:00- 05:00	M1YAP	2E1IGA	M0EPX	
05:00- 06:00	M1YAP	2E1IGA	M0DEY	
06:00- 07:00	M0EPX	M3FSA	M0DEY	
07:00- 08:00	M0EPX	M3FSA	M1YAP	
08:00- 09:00	G4LKW	M0CUR		
09:00- 10:00	G4LKW	M0CUR		
10:00- 11:00	G3PYC	M0GJH		
11:00- 12:00	G3PYC	M0GJH		
12:00- 13:00	G3ZBU	2E0FRZ		
13:00- 14:00	G3ZBU	2E0FRZ		
Tear-down: G3ZBU, G4FQR, G4TPO, G4LKW, G7EYL, G7DFV, G3SWC, M1AIM, G3OGP				