

## REMS At Home – A Miscellany

74 retired members and friends gathered on 5 July 2012 at 76 Portland Place to listen and learn from 5 speakers, a harpsichordist and a harpsichord constructor on a variety of subjects. Once again George Freeman organised the meeting and persuaded the speakers to perform. Not that they needed persuading, judging by their enthusiasm, and one of them, John Belling, our hard working Secretary, really did perform or rather demonstrated a point on the harpsichord. The meeting was chaired by Mike Quinton, who kept the timing well enough to ensure that there was time for questions.

**Michael Callaghan** (picture 1) gave us “**More Tales from the Cockpit**”, his third such talk. He calmly told us of some hair-raising flights in his Mark 4 Meteor jet. Lag in the gyroscope and the artificial horizon didn't help matters in conditions of low visibility. At least he could see his flight plan (example in picture 2). Flying at night was made more difficult on one occasion, when an airfield he was due to turn at had no lights. Short of fuel he attempted to land at the next airfield into the rising sun but was ordered to go round again.

**Peter Mercer** (picture 3) related “**A personal History of Computing**”. He started with examples of analogue calendars: Stonehenge, a suitable range of hills to mark sunrise and sunset at each month of the year and he told us about the priests in Egyptian temples predicting the flow of the Nile. Then there was the ingenious Antikethera from 90 BC Rhodes used to predict the movements, eclipses and phases of heavenly bodies and when the next Olympic Games should be.

The question of computer security arose during the war; the Dam Busters' plans to use the device to line up the dams' towers to get the correct distance fell into German hands. From 1948 to the early 1960s the Doodson – Légé tide predicting machine (picture 4) allowed for the influence of the moon, the sun and Jupiter.

Peter's personal experience began with projects concerned with differential equations of flight of the TSR2 and P1, the prototype of Lightning, which was initially on analogue computers, but later on digital.

Much earlier there was rivalry between the two forms of computation, illustrated in “The Calculating Table” in Margarita Philosophica in a 1508 book by Gregor Reisch, in which an algorist and an abacist are being instructed by Arithmetica, algebra slowly becoming more dominant between the 12<sup>th</sup> and 16<sup>th</sup> centuries. We saw slides of a Chinese abacus and even a Roman one – very confusing!

We were brought nearly up to date through Enigma and the Bombe and Lorentz and Colossus at Bletchley Park and Dollis Hill. Then there was Turing at Manchester and Joe Lyons and the EDSAC at Cambridge, Sirius Autocode and The Elliot 803 with its magnetic core memory.

**John Belling** (picture 5) started his talk on “**Temperamental Music**” and I am sure that we shall hear more another time. Attempting to cover the history, the mathematics, and the practice in one lecture was ambitious. However, we were introduced to the need to temper the scale for fixed pitch instruments, like the harpsichord and organ, so that chords can be played in different keys.

We moved rapidly from Pythagoras being inspired by workers hammering on an anvil to the possibility of doubling the number of black notes on a keyboard by splitting them (picture 6). **Ian Shaw** (picture 7) demonstrated several points as well as playing several pieces of music during the lecture, while we filed out for lunch and then gave a wonderful recital after lunch. **William Mitchell** (picture 8) built the harpsichord and he was there with us in the audience.

After lunch **Tony Watts** (picture 9), Professor of Marine Geology and Geophysics in the Department of Earth Sciences at the University of Oxford, revealed the “**Mountains in the Sea**” that were first hinted at by the voyage of HMS Challenger (1872-76), when her captain took many more soundings of the seabed than was usual, using only a hemp wire and weights. Echo sounding made the job much easier and by 1911 the Mid Atlantic Ridge was mapped. During World War 2 in the Pacific, Admiral Henry Hess of the US Navy discovered the first mountain of the sea. It was flat topped and he called it a “guyot”. It turns out that guyots were once volcanoes whose tops sticking out of the sea were flattened by wave action and they were then submerged as their continental plates moved (picture 10).

**Stephen Hall** (picture 11), of the National Oceanography Centre at Southampton and Chairman of the Society for Underwater Technology, showed how the depths of sea are being explored by “**Autonomous underwater vehicles**”. One of these is Autosub 2 (picture 12), which operates normally at a depth of 2000m on torch batteries. It floods freely, using seawater to lubricate the moving parts and moves very slowly driven by a one bladed propeller to reduce drag. It is launched from RRS (Royal Research Ship) Discovery to measure depth, salinity, fish levels, manganese content, oxygen etc. It can go under ice, although that is more difficult. Communication is by text message via satellites. In fact it uses mobile phone technology.

He talked about other underwater vehicles, such as the glider, which follows thermals within the sea, and Alvin the manned submersible used for recovering torpedoes, and sunken ships and aeroplanes.

Stephen mentioned the possibility of a separate talk about Alvin and his exploits. Meanwhile, we already look forward to another full programme for the At Home on 10 January 2013 with an environmental miscellany.

Mike and Kate Quinton

Pictures by Mike Quinton:

1. Michael Callaghan [MichaelCallaghan5696]
2. Flight Plan [FlightPlan5699]
3. Peter Mercer [PeterMercer5702]
4. Tide Predictor [TidePredictor5704]
5. John Belling [JohnBelling5722]
6. Split Keyboard [ExtraNotes5718]
7. Ian Shaw [IanShaw5725]
8. William Mitchell [WilliamMitchell5726]
9. Tony Watts [TonyWatts5741]
10. Guyots [Guyots5736]

11. Stephen Hall [StephenHall5746]
12. Autosub 2 [Autosub2 5750]