

Institute of Physics

LONDON AND SOUTH EASTERN BRANCH REMS SECTION At Home Thursday 6th January 2005

This at home has been organised by David Pick

This "At Home" is held as usual at IOP HQ in 76 Portland Place London W1B 1NT. The cost for lunch and refreshments is £18 pp. There is no limit on numbers.

10.30 – 11.00	Arrive & Coffee	
11.00 – 11.05	Welcome and REMS Notices	
11.05 – 12.05	Steganography	Derrick Grover
12.05 – 13.05	World War II Cryptography in Bletchley Park	Tony Sale
13.05 – 14.15	Lunch on site	
14.15 – 15.15	Digital Imagery from RF to Visible	David Pick
15.15 – 16.15	Thinking of Buying a Digital Camera?	Lionel Baker
16.15 – 16.30	General Discussion / AOB	
16.30	Tea and disperse	

Steganography Derrick Grover

Steganography, the stuff of espionage and secret writing, is recorded from early history. Whilst cryptography is visible and declares itself to be a secret, steganography is hidden so that a censor does not even know it is there. Numerous methods have been devised and the challenge is to modify data in such a way that the method is not detectable. In addition to secret communication; proof of authorship, copyright protection and plausible deniability are further topics of interest.

Derrick Grover became interested in steganography for the protection of copyright while licensing computer software at the National Research Development Corporation (which became BTG). He founded the Technology of Software Protection Specialist Group for the British Computer Society and was its chairman for many years. Previously he was engaged in Research and Development of electronic systems in the UK and USA. He graduated at University College London and is a Fellow of the Institute. He is editor and contributor to "The Protection of Computer Software". Pub. CUP 1989 and 1992.

World War II Cryptography in Bletchley Park Tony Sale

Tony Sale will talk about the cryptographic attacks on the German Enigma and Lorenz ciphers. Starting with the Polish mathematicians before the War and involving Alan Turing and many others during the War, German communications became almost an open book to the Allies. There are cipher security lessons for today in how the Germans gave away their most vital secrets.

Anthony E Sale after National Service in the Royal Air Force joined Marconi Research Labs in 1952 to work on Doppler Radar systems. Joined Peter ("Spycatcher") Wright at MI5 in 1957, then in 1968 started Alpha Systems Ltd. one of the first software houses in the UK. Ran this for 12 years. Technical Director at the British Computer Society then Manager Computer Restoration Project at the Science Museum, London. Started the Computer Conservation Society 1989. With colleagues started the campaign to save Bletchley Park in 1991. Secretary to the Bletchley Park Trust 1992 - 1996, Museums Director, Bletchley Park 1994 - 1999. Started the Colossus Rebuild Project 1993. Numerous lectures and TV appearances, technical advisor to Mick Jagger's film "Enigma".

Digital Imagery from RF to Visible David Pick

This talk will show how by exploiting the physical properties of the atmosphere and using engineering ingenuity 2D and 3D quantitative digital images can be exploited in near real time. At the low frequency RF end (10kHz) the wave-guide properties of the atmosphere can be exploited to provide lightning maps over the whole of the Atlantic and most of Europe. In the IR 3D temperature, humidity and gas concentrations can be measured. Add a flash and topography and wind can also be measured. All you need is the odd thousand million euros.

David Pick has spent most of his career in the Meteorological Office involved in its various satellite programmes. He retired in 1999 as Head of Remote Sensing and was responsible for all the Office's Remote Sensing activities, which besides the satellite area included the weather radar network, lightning detection system and ground based radiometer and radar developments. He also spent 4 years at EUMETSAT in Darmstadt in preparing the specification of the new European Polar Orbit Meteorological Satellite and managing the initial feasibility studies.

Thinking of Buying a Digital Camera? Lionel Baker

This talk describes experience gained over the last few years in trying to understand the relation between film and digital cameras in terms of picture quality, facilities provided, ease of use and costs. The number of controls and functions provided by modern digital cameras presents a confusing picture to most new users. Image quality appears to be related to the number of storable pictures but in what way? You may read that to achieve better pictures you need more megapixels only to find that your new more expensive camera does not live up to expectations. Although your assessment of picture quality is necessarily subjective we do need some form of objective image measurement to understand the balance of camera controls that provides the result we seek. A metric called "Optimum Print Width" (OPW) that could form the basis of a new international standard is proposed.

The talk describes a simple, low-cost method for measuring OPW. Participants are invited to bring and use their cameras to record displayed images to be analysed for quality later.

Lionel Baker graduated in Physics from Imperial College in 1953. After a Research Fellowship at RAE, Farnborough he joined Sira in 1958. He was a founding member of the Sira Board of Directors and served from 1972 until his retirement as Technical Director in 1990 and since then has acted as a consultant. He is named in numerous patent applications including instruments for measuring image and surface quality and stress in structures. He is chairman of a BSI committee on optics and has been active in drafting several international standards. He was Executive Editor of the Journal of Modern Optics for 17 years and more recently served as an Associate Professor at Brunel University. Hobbies include photography, painting, cooking, wine making and DIY.

