



# ***e-DEFENCE ELECTRONICS NEWSLETTER***

The e-NEWSLETTER OF THE DEFENCE ELECTRONICS HISTORY SOCIETY  
No 83: June 2019 Part I



## **ANNIVERSARIES**

Members in Europe and the USA will likely be aware that June represents the 75<sup>th</sup> anniversary of the D-Day landings of Allied forces in Normandy; there will be many commemorative events in the period around that date and after. In this issue of *eDEN*, we print the paper '**Confusion's Masterpiece**', delivered at the DEHS Spring Lecture Day at STEAM, which distils as many as possible of the contributory events which made those landings possible, from the double agents controlled by '**Tar** **Robertson** to the radar decoys and jamming developed at **TRE Malvern**, and from the practice beach landings - and their casualties, in **Exercise Tiger at Slapton Sands** - to the work of **Ivan Lock**, a young GPO wireman in a bunker under Godlingston Hill, Swanage.

Our header image is, however, of a different scene whose anniversary also falls this month - the crash of **Halifax V9977** on **7 June 1942**, with the deaths of all aboard - its crew and many of the scientific team working on **H2S**, a reminder that research and development also have their tragic casualties; war, and all the preparations for the use of military force, are not without risk, and carry their human cost, whose anniversaries are sometimes widely known and commemorated, sometimes almost completely unknown, or forgotten.

Our very successful **Burns Lecture Day** will be fully covered, with photographs, in the June issue of **Transmission Lines**, our Journal of record, in which we will print **Dr Jonathan Ayles**'s paper on his outstanding 2019 Burns Lecture, **From Cold War to Coal Trains**.

Our busy year for DEHS members continues, with **Bawdsey Radar Trust's** special events on **4 July** and **4 August**; **IEEE's HISTELCON** on **18/19 September** in **Glasgow** immediately followed by **IET's History Weekend** in **Dublin** on **21 September**; and then our 'autumn of secrecy', with **Arthur Bauer** and the **Cryptomuseum's** ever-popular '**Secret Communications**' events in **Arthur's museum** in **Duivendrecht, Amsterdam** on five dates - **16 & 23 November, 7 & 21 December, and 12 January 2020** - and of course **DEHS's Security and Intelligence Conference** at the **Science Museum's Dana Centre, London** on **27 November**.

This month in **eDEN**, we record the sad death of **Dr Ralph Benjamin**, the outstanding defence scientist, and set on record some of his achievements in an obituary. We then continue our practice of a wide range of articles, beginning once again with a series of articles and requests for help stimulated by our recent issues. First of all, in **Indicator 6B and Friends**, **Tatjana Joëlle van Vark** and **Professor Simon Watts** carry forward discussion on Tatjana's excellent restoration of Indicator 6B with information on several Indicators in the Ind 6 series and modifications into Test Sets, while in **XED 12A - Atomic Proximity Fuse?** I take the opportunity to correct an impression I wrongly gave last month of the XED 12A in Tatjana's possession when I used a stock photo of an APS-13; the photos of Tatjana's XED 12A, on which we'd love more information, are now published, as is an article on the original **APS-13** by **Hans Jucker**. In **The Radar of Graf Spee**, we cull from German sources more information on the use of Graf Spee's radar at the Battle of the River Plate, and **Clive Kidd** kindly provides **eDEN** with a scoop in the first publication of the **original drawings of Spee's radar office and aerial**, by **Bainbridge-Bell**, the British radar scientist sent on a spying mission to Spee's wreck. **Richard Moore** then provides us with an excellent note to expand our knowledge of dates and rationales for the **Rainbow Codes**, while **Tony Waller**, who received a query on **AI 8 Beacon/ Homing** at **STEAM** just as the afternoon session was starting, provides a response together with information from **Air Publications 1093 Part II**, and an offer to help further if needed. Your Editor also found a few brief minutes to read the two Kew files on the operational use of the **Bathythermograph**, a query raised, as readers will remember, by **Paul Marks**, and provides the relevant information in this issue; the device may well have been of value to USN colleagues in the Pacific, but would appear to have been rather too late to have had any significant effect in the Atlantic or in the Russian convoys. Does any member have any further information to confirm or deny this assessment?

Our longer articles this month are two - **Confusion's Masterpiece: The D-Day Deceptions** as already mentioned, and as our Part II, **Lloyd V. Berkner's 'US Naval Airborne Radar'**, which gives a comprehensive review of the USN's approach to airborne radar, right down to handbooks and the design of cases! This month's **Tailpieces** look at the humble **TID, CHANT** and **VIC D-Day** vessels, and **Prof Tony Davies** considers academe in yesterday's Russia and today's West under the title **Forward into the Past!**

Particular thanks this month to **Mike Dean** for his invaluable help, and suggestions for improvements, offers of articles and all general comments to me at [philjudkins@btinternet.com](mailto:philjudkins@btinternet.com) or [info@dehs.org.uk](mailto:info@dehs.org.uk).

Warmest regards all

Phil

Dr. Phil Judkins, DEHS Chairman.

# DEHS CONFERENCE ON SECURITY & INTELLIGENCE

WEDNESDAY 27 NOVEMBER 2019

The Science Museum will be opening a new exhibition, '[Top Secret: from ciphers to cybersecurity](#)', from 10 July 2019 to 23 February 2020.

Tickets are free but can be booked at <https://www.sciencemuseum.org.uk/see-and-do/top-secret>

- From the trenches of the First World War to the latest in cyber security, *Top Secret* explores over a century's worth of communications intelligence through hand-written documents, declassified files and previously unseen artefacts from the Science Museum Group's and GCHQ's historic collections.
- Trace the evolution of the gadgets and devices used to conceal crucial messages and to decode the secrets of others. Hear from GCHQ staff doing top secret work to defend against terror attacks and serious crime and discover the challenges of maintaining digital security in the 21st century.
- Explore the story of Alan Turing and the team of Bletchley Park codebreakers who broke the Enigma code in 1941, uncover spy-craft from 1960s Cold War espionage and challenge your friends and family to become codebreakers in our interactive puzzle zone.

**Top Secret** coincides with the 100th anniversary of GCHQ, the UK's Intelligence, Security and Cyber agency.

The exhibition has been curated by **Dr Elizabeth (Liz) Bruton, Curator of Technology and Engineering at the Science Museum, and DEHS committee member**. She is also a committee member of the IET History of Technology Network.

**To coincide with this exhibition, the Defence Electronics History Society (DEHS) is organising a conference with the title 'Security & Intelligence'.**

The Science Museum has kindly allowed the DEHS to hold the conference in the Dana Centre, located in Queens Gate, which is only a short distance from the main museum building. The only cost will be for refreshments and will be approximately £25.

Although it is early days, we already have seven confirmed speakers and two others who are probable.

1. The Keynote Address at the conference will be given by **Tony Comer, the GCHQ Departmental Historian**.
2. **David Kenyon, the Bletchley Park historian**, will give a talk on the History of Bletchley Park.
3. **Dr Helen Fry** will give the talk 'Listening-in: what was discovered from senior German POWs in WW2'.
4. A senior representative from the National Cyber Security Centre who tell us of the present-day cyber threat.
5. **Olga Topol, of the Pilsudski Institute in London**, will give a talk on the Enigma Double Machine.
6. **Dr Edward Stansfield**, previously a senior manager at Racal Research, is an expert on speech coding and will outline the workings of vocoders
7. I will give a talk on the Fullerphone which was used to provide secure Morse communication across the battlefield in the two World Wars.

Both the Newcomen Society and IET History of Technology Network are co-sponsors.

The conference will conclude at 4 p.m. and Liz will then take us through to the exhibition and give a conducted tour.

We are looking for a good turnout of our DEHS members together with colleagues from the Newcomen Society, the IET, GCHQ, Bletchley Park, and from related organisations and colleagues.

**PLACES FOR OUR LONDON SCIENCE MUSEUM  
CONFERENCE WERE FILLING UP RAPIDLY AT OUR  
BURNS LECTURE DAY – USE THE ATTACHED FORM  
AND BOOK QUICKLY IF YOU WANT TO BE THERE!**

Email: [kthrower@waitrose.com](mailto:kthrower@waitrose.com)

**INDEX**

Editorial: Anniversaries	1
DEHS Conference on Science and Intelligence <i>Keith Thrower/ Liz Bruton</i>	3
Index	4
IEEE HISTELCON 2019 <i>Professor Tony Davies</i>	5
Ops Board	6
Dr Ralph Benjamin 1922 - 2019	7
Indicator 6B - and Friends! <i>Tatjana Joëlle van Vark/ Prof Simon Watts</i>	9
XED 12A - Atomic Proximity Fuse? <i>Tatjana Joëlle van Vark</i>	13
APS-13 <i>Hans Jucker</i>	15
The Radar of Graf Spee <i>Phil Judkins/ Clive Kidd</i>	19
Rainbow Codes <i>Richard Moore</i>	26
AI 8 Beacon/ Homing <i>Tony Waller</i>	28
WW2 Use of Bathythermograph <i>Paul Marks/ Phil Judkins</i>	31
Demonstrating the Properties of Aerials <i>School of Signals via Clive Kidd</i>	42
Confusion's Masterpiece: The D-Day Deceptions <i>Phil Judkins</i>	52
DEHS Publications	94
Tailpiece: TIDS, CHANTS and VICS	95
<b>Part II:</b> US Naval Airborne Radar <i>Lloyd V. Berkner, I.R.E.</i>	97
Tailpiece 2: Forward into the Past <i>Prof Tony Davies</i>	158

# HISTELCON 2019

18th-19th September 2019

Technology and Innovation Centre, Strathclyde University, Glasgow, Scotland

[www.histelcon2019.org](http://www.histelcon2019.org)

**HISTELCON** is an IEEE Region 8 conference covering topics in the area of Technology History, held about every two years.

**The primary theme is 'historic computers'** including papers on those inventions and developments which have not already been the subject of extensive historical publications, and to include the contribution that special purpose processors have made to the development and use of advanced digital signal processing methods in many applications areas. Sessions to cover other aspects of technology history in the electrical, electronic and related fields will be provided for.

Among the computer topics which may be included are, for examples, the history of the F100L and the Viper microprocessor, and the impact of digital signal processing microprocessors including the TMS 320 for the implementation of very sophisticated signal processing algorithms.

**Invited Keynote speakers** include **Nina Baker** (WES Historian) on the work of Dr. Winifred Hackett, **Peter Grant** (University of Edinburgh) on standardisation of electrical units, and **Simon Lavington** (computer historian, emeritus professor of University of Essex) on Ferranti Computers for UK defence and GCHQ uses) and may include two others (on signal processing with microprocessors and on ultrasonic obstetric scanning).

The aim will be to keep the conference affordable, with reduced registration fees for IEEE members and students and members of co-sponsoring organisations.

Paper acceptance notification - 6th May 2019

Final paper submission - 23rd July 2019

Information is available via the website: [www.histelcon2019.org](http://www.histelcon2019.org)

Papers accepted and presented by an author at HISTELCON 2019 may be submitted for inclusion in IEEE Xplore and in some cases, the author(s) may be invited to prepare a revised or extended version for IEEE Xplore. Submitted Papers should be of two to four sides (A4) and preferably prepared in accordance with the conference template using Microsoft Word. The template is available to download on the conference website. Authors who have difficulties in complying with this requirement or who wish to write a longer paper or have difficulty in using the on-line review system are recommended to contact the organisers as soon as possible to request special arrangements.

Suggestions for or questions about papers or other aspects should be sent to the organisers. E-mail contact to: [conference@histelcon2019.org](mailto:conference@histelcon2019.org).

On the 17th September there will be an unveiling ceremony for an IEEE History Milestone at the Hunterian in Glasgow to recognise work done for the standardisation of the unit of electrical resistance (the Ohm), to be followed by a free-to-attend technical seminar 1500-1700 on the nearby University of Glasgow campus (registration via Eventbrite).

# OPS BOARD

Thursday 4 July & Sunday 4 August Bawdsey Radar Trust; 4 July D-Day deceptions with radar. 30-minute talk, repeated during the day, about the various schemes involving radar to help the Allied invasion forces; 4 August Secrets and Spies; How the German spies in the Zeppelin flights lost the Battle of Britain (Talk of 30-45 minutes repeated during the day).

Wednesday/ Thursday 18/19 September IEEE HISTELCON 2019, Glasgow – see article above.

Saturday 21 September IET History Conference, Clayton Hotel, Bullsbridge, Dublin, will examine historical engineering and technological innovations created on and from the island of Ireland, examples being the gateway of transatlantic cables in the west coast of Ireland in the 19th and early 20th century, Harry Ferguson's original tractor design, John Boyd Dunlop's invention of the pneumatic tyre, Ulster's maritime and heavy engineering heritage, the more recent evolution of Ireland as one of Europe's leading research centres in ICT hardware, the centenary in 2019 of Marconi's first east-west radio call from Ballybunion, Co. Kerry and the first transatlantic flight by Alcock and Brown landing near Marconi's wireless station at Clifden, Co. Galway. Details at <https://events.theiet.org/conference-on-the-history-of-technology/>

Saturdays 16 & 23 November, 7 & 21 December, and Sunday 12 January 2020 'Secret Communications' events Duivendrecht, Amsterdam. Arthur Bauer and Paul and Marc of the CryptoMuseum present their ever-changing and ever-popular displays of crypto and secret communications devices of all vintages, up to very recently indeed!



*The events are to be held:*  
*Kloosterstraat 23-25*  
*1115BJ Duivendrecht*  
*The Netherlands*  
*www.cdvandt.org*

*On Sats.*  
*16 and 23 Nov 2019*  
*07 and 21 Dec 2019*  
*On Sun. 12 Jan 2020*  
*Opening time from*  
*10.00 to 17.00 h.*

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COMMUNICATIONS 3