



e-DEFENCE ELECTRONICS NEWSLETTER

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THE H2S ISSUE

eDEN 50 celebrates its golden anniversary by an issue totally focussed upon a single iconic system – **H2S**, the British navigation and blind bombing radar, itself developed from centimetric air interception radar (AI), and in its turn giving birth to centimetric air to surface vessel (ASV) radar. Two salient features of the history of this radar have frequently struck your Editor – first, that there is nowhere easily accessible the original views of the scientists working on these systems (*why* did they do what they did in developing the equipment?) – there is, for example, an excellent account by **Professor Sir Bernard Lovell** in his superb book “*Echoes of War*” but this was written 50 years later; and second, there is no account written by the scientists of the time to illustrate the **development of H2S from Mk I to the Mk 9 NBS** which aided the bombing of Port Stanley by the ‘Black Buck’ Vulcans some forty years later. Add to this the facts that no-one has ever published an account of how simulators and training systems were developed, the province of **Geoffrey Dummer**, whom the British credit with the invention of the integrated circuit; nor of how the scientists of the time saw the development of **centimetric AI and ASV**, and the answer seemed to be a full, book-length, celebration issue of **eDEN**. Straightforward descriptions of the systems themselves are also taken from the Training Publications of that time, more particularly **Air Publication 1093**, so that members may see how the system was introduced to those who had to use it. A word of warning to the historians amongst us – this issue of **eDEN** contains mathematics including calculus, and circuit diagrams!

Therefore, Part I of **eDEN 50** introduces the system as described in the end-war AP 1093D, which covers both H2S and ASV (with a brief recap on the metric ASV II); and then covers the counterpart ASV and AI systems in a series of papers from the **1945 TRE Journals**. **Dr Bernard Lovell**, as he then was, writes about **ASV and the Battle of Biscay as they were seen in 1944**; **Dr ‘Bill’ Burcham** takes us through the designs and development of centimetric AI; and **Geoffrey Dummer**, then in charge of radar trainers, describes, first, the H2S trainer, and then, how to simulate all manner of effects, with the circuits as used at the time – and hopefully this will stimulate more people to design simulators today, as for example **Norman Groom** has done so well at Pitstone Farm Museum.

Part II of **eDEN 50** opens with an interview with **our Restoration Award winner, Tatjana Joelle van Vark**, on her magisterial restoration of the system in its finest form – **H2S 9B**, perhaps best known as ‘the Vulcan’s NBS system’, and describes also her intriguing ‘**Miniature H2S**’. We then provide the answers to a question I am endlessly asked – “What is the difference between all those Marks of H2S?”; here Air Publication 1093C gives the reply just as it was given seventy years ago, in February 1945. We next focus upon H2S itself, and, taking a deep breath, listen to **Dr Thompson** explaining the **development of H2S through Marks I to III**, and **Mr Hinckley** describing its useful

night-fighter-spotting addition, **Fishpond**. Our own **Dr Mike Diprose** explains why the USA experienced such poor results when testing H2S in the States, a story not well publicised at the time for perhaps obvious reasons; and we reproduce various **US material on H2X**. Then **F/Lt Killip, AFC**, writes in 1945 of how H2S was received by the people who used it, the navigators, and how it changed their job (just as Fishpond changed the job of the wireless operators, part of whose role it became to operate Fishpond). We stay in the 1940s as **Mr J Smith** describes the new variants of **H2S, Mks IV to VI**; and then as **Mr Bradfield** describes for us the systems being developed for radar-sighted navigation and bombing, **H2S Mks VII and VIII**; the reader may well compare the illustrations with Tatjana's Mk 9 to see some remarkable similarities – and you might be shocked to discover just how much of the Mk 9 was already in contemplation and under active development in 1945! We do not forget the 'other side of the sky' – pictured in Part 1 are **Arthur Bauer's centimetric 'Berlin'** system, and this month's **Tailpiece** reminds us that in electronic warfare terms H2S could be regarded, for those who had a directional centimetric receiver, as hanging a 50Kw headlight on the front of every bomber, and the German units who tracked the bomber streams by those means with great effect to the very end of World War 2.

Normal service will be resumed next month, already in advanced preparation, with, for example, full information on the **Mandrel Mk 2 jammer** and much more, **including the full eDEN Index 1 - 50**.

As always, suggestions for improvements, offers of articles and all general comments to me at philjudkins@btinternet.com or info@dehs.org.uk.

Dr. Phil Judkins, DEHS Chairman.

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