



UK CHAPTER NEWSLETTER

June 2023

Back on the road

It is just over 3 months since I was elected as the President of the UK Chapter. I have spent some of the time having interesting conversations with fellow Board members, and also started travelling to events again for the first time since 2020. I have delivered my first lecture to an EW Community where I was able to add the title of "President, UK Chapter of the AOC" on the introductory slide. Consequently I was able to openly canvass for additional members.

I was also pleased to be able to travel to Bonn to attend AOC Europe 2023 (see below for a formal report). Apart from meeting up with many former colleagues, I was absolutely delighted to meet Jane Clifford, the widow of our former President, John Clifford OBE. Jane and I did our duty and manned the AOC Stand at the Conference venue. Jane knew many people and was definitely the best recruiter on the stand!

Dr. Sue Robertson has started to plan some visits for members. Leading the pack of options is a classified visit to 'Y' Squadron, Royal Marines, at Plymouth. We'll get details out to you as soon as possible.

AOC Europe 2023

The event was held in the impressive World Conference Centre in Bonn. The conference hall itself was pretty much what you would expect and was where the papers were presented! The associated exhibition was similar to that as previous events with many booths from lots of companies (large, medium, small and tiny). Some of the very large companies (i.e. the sponsors) were set-up in the spacious entrance hall so they were able to create larger, bespoke stands (although it felt that they were operating remotely from the busier conference and exhibition halls). The array of technology from all companies was, as always, impressive.

My attention was drawn to some of the 'new arrivals' - both in terms of companies and subjects. The common thread for me was Artificial Intelligence (AI) or Machine Learning (ML). Humans have always been able to find patterns in information and draw conclusions from them (think in terms of interpreting raw audio and other demodulated signals). Algorithms matching measured data to data libraries were also effective, but became voracious consumers of data, with ever more complex rules. It seems to me that AI and ML will allow future EW systems to combine rules-based algorithms for some aspects of operation with the ability to recognise complex patterns, and

underlying intent, of EM transmissions. However, the adoption of AI/ML sub-systems will require a lot of realistic data sets (real or simulated) to train them - much like we used the recorded raw audio of the past to train humans. The UK-based AI/ML newcomers to the EW field are not yet experts in the subject, so we need to find ways to engage and educate them. To this end, I was very pleased to be able to suggest that membership of the Chapter and the SME Working Group could be a way to do this (see later piece on the SMEWG).

From a social point of view, I also met up with Darren Nicholls, James Angove, Prof. David Stupples and Swaz Bramley from the Chapter Board. It was really good to catch up with a number of customers and with Dr. Tom Withington (a strong advocate of all aspects of EW who also supplies us with our news articles) and Richard Scott (who I have known for many years and wrote most of a history of EW in support of air operations that I commissioned while working at Selex). Collectively, I think we identified some interesting opportunities for some type of formal training and accreditation, aligning this with the main AOC initiatives where we can.

In terms of the formal aspects of the Conference, my main mission was to attend the meeting of the Region 1 Chapter Presidents, at which I was pleased to meet Erik Bamford, International Region 1 Director and many of the other Chapter / Roost Presidents. We were addressed by Brian "Hinks" Hinkley, the President of the overall AOC, who gave us an update of some of the activities going on in the USA. There was no doubt that the current political climate is allowing the AOC to increase its role in advocacy in the US system and is also leading some of the thinking about how EW, Cyber and Directed Energy Weapons (DEW) fit together.

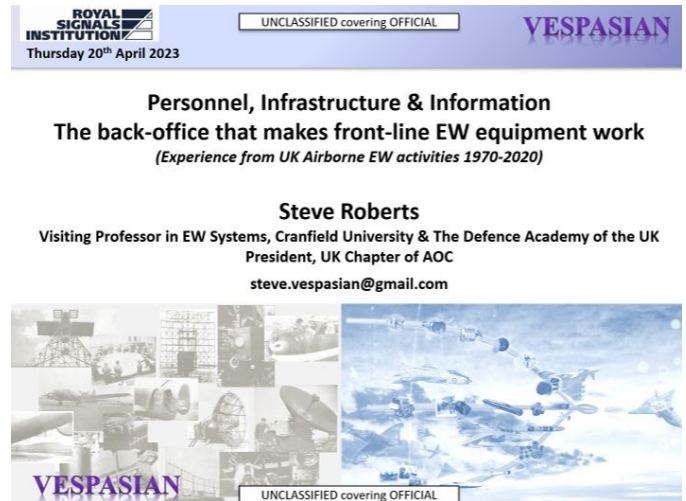
What's in a name?

Whilst manning the AOC stand, I took part in some discussions about the wider topic of 'Non-kinetic effects' and where EW, Cyber and DEW fit. Interestingly, it felt that the military view is about procurement and tactical control, so DEW is a 'weapon' and should be managed like a gun or a missile. It has always struck me that a Directed Energy Laser device can be used to Dazzle, Damage or Destroy its targets; is there actually a point where the laser is an EW jammer rather than a weapon? In general, 'Cyber' is seen as more about security of information and the EMS is a means for wireless communication of data in networks. Consequently, I think we will continue to see separate responsibilities for Weapons, Communications, Cyber and EW.

In the last newsletter, I noted that "we are passionate enthusiasts about this thing we call EW... or is it EMSO now? - or is it CEMA?". All the terms were in use at AOC 2023, but I was particularly struck by the prominent use of '**Electromagnetic Warfare**' as the expansion of EW on the back-drop of the AOC Stand. I rather like this as being capable of linking all the areas in which we work, but I suspect that EW will just be EW and there will be debate about what it stands for, just as there has been about ESM for as long as I can remember (does the 'S' represent 'Support' or 'Surveillance?').

UK Chapter of the AOC - Past, present and Future?

As I noted earlier, it was a great pleasure for me to deliver a lecture at Blandford, having been invited by the Director Royal Signals Institution to share my thoughts about the role of people, infrastructure and information in making complex EW systems work effectively. The motivation for this was to provide some insights that might be of relevance to Project Cornerstone, which will provide the British Army with new EWSI capability. Consequently, I had to look back over 50 years and try to link these experiences to what might happen in the next 50 years.



It was great to meet some of the current generation who are active in EW or undergoing training in EW. The invitation to go to Blandford also gave me the opportunity to research some of my family background at the very interesting Royal Signals Museum. I stayed overnight in the Officers' Mess and had a great breakfast - it had been many years since I last experienced that.

While travelling home from the event, I realised that the event was a good example of some aspects of the "Past, Present, Future" concepts which I mentioned in the last newsletter. The AOC Strategic Plan has 4 main strands: Advocacy & Education; Member retention & growth; Communications; Multi-lateral partnerships. Having a former EW practitioner communicating a story about the past, to present and future EW practitioners, suggesting that there are pointers from the past towards the future is definitely education, could form the basis of a partnership in the present between the AOC & the Royal Signals, and may have helped with membership.

My intention is to apply this sort of thinking to the main areas which are covered by our constitution and the AOC strategic plan. For each of the items, we will identify what we would like to achieve and then see what - if anything - we need to do about it.



Defence Electronics History Society

John Stubbington has introduced me to the Defence Electronics History Society (DEHS). I have joined and recommend the Society if you are interested in the history of Defence Electronics ([DEHS website](#)). The opening paragraphs from the website are:

"From its early beginnings at Bournemouth University in 1995, the Defence Electronics History Society (DEHS) comprises a membership of some eminent pioneers of radar along with others who contributed to path finding innovations of the 20th Century.

The aim of DEHS is to contribute to the study and public awareness of the history of defence electronics leading to a better understanding of the complex world of technology and its impact in the global marketplace."

The benefits of DEHS membership include:

- quarterly newsletter 'Transmission Lines';
- monthly electronic newsletter 'eDEN';
- seminars and symposia;
- discounts on publications and admission to events (including for AOC members).

As noted above, I have only recently discovered DEHS but am already hooked on the articles and history which they are exploring and exposing. Just to whet your interest, here are some of the topics covered in 2023:

February 2023

- Intercepting Lichtenstein 'Emil-Emil' – Gordon Whitehead
- Fritz X, Henschel 293 and 'Schmetterling' - Robert Soek
- To Restore or Not Restore: SYAM Lancaster Navigator's Station - Tony Waller
- On the subject of Lancaster Fuselages - Robert Soek/ Jos de Groot
- Board of Invention and Research to RN Scientific Service - Dr AB Wood
- Off Grid: the Silhouette System - Dr Phil Judkins
- Coastal Command In The Anti-U-Boat War TNA file AVIA 46/42
- Bombing and Radar WB 'Ben' Lewis, TRE Deputy Superintendent, 1944
- Radio Counter-Measures In The Allied Landing In North-West Europe RAF

April 2023

- Benito (Wotan II, Y-Beam) and Ally Pally - Gordon Whitehead
- 'Empire' and 'Golden Hind' Flying Boats and Early ASV Radar - Mike Dean
- British Microwave Radar 1939-41 - Denis M. Robinson
- Time, Frequency and Variance - John 'Jacey' Wise
- The Navy teaches CRTs - Paul Marks
- PPI Development The 'Unknown Researcher' via Clive Kidd
- History of IFF - RHA Carter
- The First Radar Loss Revisited - Mike Dean
- 'Red Queen' Operations - Mike Dean
- Post- War Transfer of British Naval Technology - Rear Adm T Engevall/ Mike Ellis

UK Chapter Awards

The 'AOC Award for Distinguished Service to EW by a Junior Rank' was awarded to Cpl Adam Castledine at the JEWOSC Awards Dinner on the 11th May 23 in Lincoln. 'Swaz' Bramley and Phil Davies represented us at the event, with Phil presenting Adam with the award. Cpl Castledine didn't know he had won the award until it was announced. The citation which was read out is as follows:



"Hitting the ground running in 2022, Cpl Castledine has represented the JEWOSC on a number of projects, including JANUS, SOCIETAS and Mission Data 23 (MD23). His selection to support these projects underpinned by the knowledge and experience he has gained as a programmer on the SG2000 Merlin Team. Showing technical competence above others he has been the mainstay of the team providing Level 2 QA supervisory cover for the Team as well as performing the training and mentoring of less experienced staff.

With a commitment to support the frontline he has actively supported APP TES trials providing advice and reprogramming assistance to the trials team to improve the Operator's tactical picture thus reducing crew workload. He is one of the committed and respected Product Owners for Project JANUS which will provide innovative and efficiency savings to the Mission Data Cycle and will provide a system that underpins assurance.

It is this technical competence in his primary in conjunction with the high-profile Project activities and bravery to brief to the highest ranks and industry partners experts that stands him out from his peers and sees him nominated for this award."

The Chapter Awards process is managed by [Jon \('Swaz'\) Bramley](#) and [Bill Preece](#), who are the primary contacts for nominations. However, you can also make suggestions or discuss possible nominations with any member of the Board.

[Link to UK Chapter Awards](#)

Latest EW News Roundup

(Kindly supplied by Dr Thomas Withington – Writer and analyst, editor of the Armada International EW webpage and newsletter)

Myanmar and China in Cahoots: SIGINT capabilities on Coco Island

The People's Republic of China is deepening her strategic presence in the Indian Ocean region by enhancing her cooperation with the Burmese military regime. These efforts have included developing signals intelligence gathering facilities in the Coco Islands.

<https://www.orfonline.org/expert-speak/myanmar-and-china-in-cahoots/>

The truth is up there: American spy balloons during the Cold War

While attention was firmly focused on Chinese spying balloons earlier this year, when several such inflatables drifted across North America, the United States was also noticeably interested in this technology during the Cold War, as this article illustrates.

<https://www.thespacereview.com/article/4568/1>

Unusual Failure! F-35 Jets Operating In 'Stealth Mode' & Helping Ukraine 'Failed' To Identify Russia's AD Systems

It appears that US Air Force F-35A Lightning combat aircraft are helping the collection of intelligence on Russian ground-based air defence systems deployed to the Ukraine theatre of operations. This article discusses some of the electronic intelligence challenges reportedly experienced by these jets.

<https://eurasiatimes.com/unusual-failure-f-35-jets-operating-in-stealth-mode-helping/>

Ukraine war: How old tech is helping Ukraine avoid detection

Analogue technology is proving to be particularly valuable for Ukrainian forces as they battle Russia's occupation. Wind-up field telephones, and even runners and motorcycle despatch riders are all helping Ukrainian communications stay secure in the face of Russian jamming.

<https://www.bbc.com/news/world-europe-65458263>

Meatgrinder: Russian Tactics in the 2nd Year of its Invasion of Ukraine

London's Royal United Services Institute has provided robust analysis of the ongoing war in Ukraine and its latest report looking at the lessons learned to date is no exception. This includes an interesting discussion of Russian electronic warfare tactics.

<https://rusi.org/explore-our-research/publications/special-resources/meatgrinder-russian-tactics-second-year-its-invasion-ukraine>

Bad News Travels Fast

The US Navy's E-6B TACAMO (Take Charge and Move Out) nuclear command and control aircraft are entering their twilight years. This article discusses the navy's options for replacing these platforms and the missions that new aircraft will undertake.

<https://www.armadainternational.com/2023/05/us-navy-tacamo-replacement/>

The EW SME Working Group (SMEWG)

UK Small & Medium Enterprises (SME) are well known for their creativity, innovation and wealth generation. UK Governments have acknowledged the importance of SME and attempted to provide economic environments that support the existence of SME, their growth and contributions. SME in the EW domain are passionate, innovative and driven by the desire to provide solutions to UK defence needs, often via the application of leading edge technologies and techniques originating in Academia and Government Research Labs. The SME Working Group (SMEWG) has operated for over 20 years, providing a forum for EW SME to meet, exchange information, explore possibilities for collaborations and engage with customers and larger companies. The SMEWG was created and operated in response to two of the UK's main R&D initiatives:

- The late 1990s saw the creation of the EWRCC (Electronic Warfare Research Consultative Committee) to engage with UK organisations in the EW domain, including Academia, Industry, Armed Services, MOD & DERA (who originally chaired the EWRCC). The SME Working Group was created at this time with its role being to coordinate the views, concerns and initiatives of the EW SME community and with its chairman representing them on the EWRCC steering committee. This provided a strong 'SME voice' within the EWRCC with equal standing to that of the Industry Primes.
- In 2004 the MOD launched their Towers of Excellence initiative to focus UK MoD and Industry defence research onto specific areas where national sovereignty was required - EW was selected as one of six such areas with the result that the EW Tower replaced the EWRCC. The SME Working Group was integrated into the Tower alongside other WG with specific technical interests. The EW Tower undertook some good projects with strong SME involvement and was building towards becoming a fully-funded 'Centre of Defence Technology' when the change in Government (and in the management of R&D) in 2010 sent it and its long-term plans crashing down.

The success of the SMEWG enabled it to survive the collapse of the EW Tower. It operates as an independent, self financed organization continuing to promote the interests and capabilities of 'SME-like companies' and providing a convenient forum for the big players to meet and engage with the complete range of SME. The SMEWG meets quarterly, providing a forum for easy engagement by MoD, the Services, Primes etc with 30 or so SME members. This has fostered many relationships to the benefit of UK EW and has allowed innovative enabling technologies to be promoted to an increasing UK client base. Dr. Sue Robertson created an SMEWG capability database, based upon each member's capability rating in each of the key EW domains - this is a highly useful source of information and guidance to potential customers and primes. In many ways the SMEWG operates like the AOC being domain focused, commercially independent via proportionate fee paying membership, enabling micro-SMEs such as sole traders to participate in full. Bob Andrews once noted: 'in my worldwide experience, the SMEWG is unique in the way it operates and the services that it provides'.



Membership of the SMEWG is open to EW groups that are 'SME like', are UK based and comply with the terms of the EW Tower SOU. The SOU requires that members and representatives are UK security cleared and compliant with the IPR terms and conditions contained therein. This has enabled free discussion between the membership in a truly meaningful, trusting and collaborative manner.

The SMEWG is managed by: Dr Sue Robertson (Chairman); Eddie Hill (Vice Chairman) and Russell Searle (Coordinator).

If you are interested in the SMEWG, please contact Russell Searle, 07811 406373 or by email rjsearle@cinnabar.ltd

Future Events/Visits

- **EW Symposium 2023**- Shrivenham, 28-29 November 2023
 - [EW Symposium at Shrivenham](#)
- **UK Chapter Xmas Dinner** - RAF Club, London - 8 December
 - **Save the date! More details to follow.**
 - *Phil Davies is leading the planning for us.*
- **Visit to 'Y' Squadron, Royal Marines** - Plymouth, Autumn 2023
 - *In planning stage at the moment, with Dr. Sue Robertson leading*
 - *Likely to be Classified with equipment demonstrations*
 - *Expressions of interest would be useful*
 - *More details to be sent out as soon as we know more*
- **AOC Europe 2024 – Oslo**, 13 - 15 May 2024
 - <https://www.aoceurope.org/>

Bottom-line message

I've included a few references to external websites and sources of information in the last two newsletters - let me know if you find these useful. I would also like to add some presentations and articles written by members either to the newsletter or to the website (John Stubbington and I have both got some 'ready to go') - please let me know if this would interest you (or not).

Steve Roberts

AOC UK Chapter - President - Email: steve.vespasian@gmail.com

Keep Checking out the UK Chapter website at: www.ukaoc.org