



UK CHAPTER NEWSLETTER December 2021



Season's Greetings

The UK Chapter Board of Directors would like to take this opportunity to wish all our members a very merry Christmas and a most prosperous, happy, and healthy New Year. It is sincerely hoped that 2022 will allow us all to return to something bordering 'normal' when we can once again resume our frequent gatherings, events and of course friendships. Please keep monitoring the website for any updates on such issues for the coming year, specifically, the next AGM is planned for Friday 25 March 2022, RAF Club.

Latest EW News Roundup

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

New Royal Navy EW Contract

On 9th November, the Ministry of Defence awarded a contract worth £100 million to a consortium comprising Babcock, Elbit Systems and QinetiQ. The contract covers the provision of new electronic warfare systems for the Royal Navy. This acquisition is dubbed the Maritime Electronic Warfare Systems Integrated Capability (MEWSIC) Increment-1. A press release announcing the news promised that the new capabilities to be acquired via MEWSIC Increment-1 will eclipse those available to current Royal Navy surface ships. <https://des.mod.uk/electronic-warfare-royal-navy-des-mewsic-babcock-elbit/>

US Army Electronic Warfare Enhancements

Lockheed Martin has been awarded a contract worth \$9.6 million to equip several of the US Army's General Dynamics M-1133 Stryker armoured fighting vehicles with new

electronic warfare systems. The company will deliver these systems to satisfy the US Army's Terrestrial Layered System-Brigade Combat Team (TLS-BCT) requirement. The TLS-BCT is a vehicle-mounted combined electronic and cyber warfare system which will support US Army brigade combat teams.

<https://www.militaryaerospace.com/rf-analog/article/14213407/electronic-warfare-ew-armored-combat-vehicle-cyber>

IAI Unveils Scorpius-T EW System Family

Israel Aerospace Industries (IAI) has unveiled its Scorpius-T electronic warfare system family. Scorpius-T is designed to equip sea, land and air platforms and uses Active Electronically Scanned Array (AESA) architecture. Scorpius-G is designed to equip land forces and is deployable onboard a vehicle. Scorpius-N is optimised to help protect warships against radar-guided anti-ship missiles. It can also identify and attack hostile airborne and naval surveillance radars, and the radio frequency links relied upon by uninhabited aerial vehicles. IAI has also developed an airborne pod for combat aircraft using the Scorpius-T architecture which can enhance an aircraft's existing integrated self-defence systems.

<https://www.forbes.com/sites/pauliddon/2021/11/11/israel-unveils-revolutionary-new-scorpius-electronic-warfare-system/>

Space Force SATCOM Jammer Upgrade

In late October L3Harris was awarded a contract to upgrade the US Space Force's Counter Communications System Block 10.2 apparatus operated by the US Space Force. Known as the CCS Block 10.2, the deployable system performs electronic attack against hostile satellite communications links. As per the terms of the contract, L3Harris will upgrade 16 of the CCS Block 10.2 systems operated by the Space Force. These systems are based at Peterson airbase, Colorado and Vandenburg airbase, California along with several undisclosed locations outside the US. The company is expected to complete the work by 2025.

<https://www.militaryaerospace.com/rf-analog/article/14212833/electronic-warfare-ew-space-satcom>

J-16D Commences Testing

Reports in early November stated that the Chinese People's Liberation Army Air Force (PLAAF) has begun testing its Shenyang J-16D fighter. The J-16 series is based on Sukhoi's Su-27 (NATO reporting name Flanker) combat aircraft. The J-16D takes the existing J-16 airframe but adds internal and external pod-mounted electronic warfare systems. The aircraft is thought to be configured to support air defence suppression missions. The recent testing reportedly saw the aircraft's participation in military exercises. No details have been made public on when the aircraft will enter service with the Chinese PLAAF.

<https://www.globaltimes.cn/page/202111/1238277.shtml>

EC-37B First Flight

The US Air Force's new EC-37B Compass Call electronic attack aircraft has performed its maiden flight, it was reported in early October. The aircraft is scheduled to replace the USAF's existing Lockheed Martin EC-130H Compass Call planes which are tasked with

the electronic attack of hostile communications systems. The EC-37B will use the EC-130H's existing systems but house these in a Gulfstream G-550 airframe augmented with fuselage fairings to accommodate the aircraft's antennas. L3Harris is leading the development of the EC-37B. A total of ten aircraft are expected to be delivered with the first two entering service in 2023. <https://www.thedefensepost.com/2021/10/07/usaf-electronic-warfare-aircraft-maiden-flight/>

Latest UK Chapter Awards

The EW Operational Award 2021: EW Solutions Ltd, Field Services Representatives

Well Deserved Recognition - Since November 2018, EW Solutions Ltd (EWS) Field Service Representatives have provided mentoring and training support to the African Union Mission in Somalia as part of a Route Clearance Platoon (RCP) capability. This role has required them to deliver technical training, equipment maintenance, threat definition, mission fill and mentoring support for the Counter RCIED Electronic Warfare (CREW) systems that protect the RCP teams when securing the Main Supply Routes. The award was made at a lunchtime event at the EWS premises on Tuesday 2 Nov. The presentation was made to members of the FSR team by the UK Chapter President, Chris Howe MBE



EW Job Advertising on UK Chapter Website

<https://www.ukaoc.org/ew-job-vacancies>

I would like to continue to make all aware of the initiative to provide a low-cost EW Job Advertising section on the UK Chapter website which has continued to be popular with UK EW Industry. Why not take a moment to see what your next challenging role in EW might be in 2022?

Any companies/organisations interested in taking advantage of this low-cost job advertising facility, simply contact the UK Chapter President Chris Howe MBE for more

RAF 100 Group during WW2 and Thereafter

(By John Stubbington, Wg Cdr ret'd - Past-Chairman of the RAF 100 Group Association)

The operational history of RAF 100 Group remains largely obscure within various official archives and a short list of well-informed books by several authors. It was therefore very appropriate that the RAF Museum selected a Trenchard Memorial Lecture online talk on 27th May 2021 about RAF 100 Group and the birth of Electronic Warfare. That talk by Tom Withington attracted a large audience, many of whom may have had little prior knowledge even of the existence of 100 Group. That wider visibility was very welcome.

It was however unfortunate that the talk focussed extensively on some aspects of the radio countermeasures (RCM) activities and thereby covered only a slice of 100 Group's operational activities. My purpose now is to draw attention to some of those other aspects. The air battle over Germany had by 1943-44 become so intense and complex that it must be doubted whether the bomber or night-fighter aircraft from the earlier phases of the war would have stood the slightest chance of executing a successful mission. Air superiority was eventually achieved by the bomber force, from the later months in 1944 until the end of the war. It had – in view of the immense effort by the German AF to destroy the bombers – only been achieved by a comparable effort and an even greater degree of skill by the Allies, the research establishments, and the industrial support ¹.

The important organisational RCM decision during WW2 was to establish a specialist RAF unit to become responsible for the operational development, application, and co-ordination of all RCM programmes, from the air and from the ground. No.100 Group became operational in December 1943 and subsumed No.80 Wing, with Air Commodore Addison as the AOC. The Group began with the somewhat vague directive that it was under the administrative control of Bomber Command but under the technical control of the Air Ministry. This was clarified in March 1944, when Bomber Command set down the principal tasks as being:

1. To provide direct support to the bomber offensive, by the use of night fighters.
2. To exploit air and ground RCM.
3. To investigate and report enemy development of radar and radio equipment.
4. To build a body of knowledge as a basis for planning future operations.
5. To make use of immediate information about enemy fighter movements.

The nature of day-to-day operational missions by 100 Group may be seen from a SECRET IMMEDIATE Operational Intentions order issued from 100 Group HQ to all 100 Group stations, copy to HQBC, all Bomber Groups; AI4(f), Y-Service Canterbury and Cheadle [Note that AI4(f) is the Air Section at Bletchley Park]. That Operational Intention had the

¹ PRO, Air 14/1394

following details for the specific day in question ²:

- To screen the approach of Nos 1 and 6 Groups: A MANDREL screen at 15,000ft will be disposed between 1750hrs when the first bomber is at 0330E and will continue until 1940hrs when the last bomber is approaching liberated air. The MANDREL screen will move forward when the last bomber of the second main force has passed through it. This is to create confusion in enemy plotting and jamming of ground and airborne radars.
- To present the enemy defences with a diversion: A WINDOW force at 20,000ft will break off from the first main force at 0530E (East) and proceed on the same track to 0710E when it will return as far as the Front Line on the reciprocal track dropping WINDOW heavily the whole time.
- Fighter Bombers will break out from the WINDOW force and attack Shark airfield.
- To jam HF and VHF communications and enemy SN2 AI with Nos 1 and 6 Groups, using JOSTLE and PIPERACK.
- To jam Würzburg radars throughout the Target area and the Spoof Target area thus rendering ineffective that part of the Early Warning system, GCI of night-fighters, searchlight coning and Flak gun laying.
- To harass enemy night-fighters by patrolling assembly areas on the way to the real and spoof targets; by covering the real and spoof target areas during the bombing attacks; intercepting the enemy night-fighters when recovering to their landing airfields; and covering the activities of No 3 Group by fighter support.

That close interaction between 100 Group HQ at Bylaugh Hall, HQBC, Bletchley Park and the RAF Y-Service paid enormous dividends not least in the detailed planning at HQBC for all main bombing operations, with the closely integrated operational support missions flown by 100 Group. The timing and routes for these missions was crucial to their successful outcome. The Group produced daily Intentions Orders to all Bomber Groups, consistent with the Main Force operational planning for the night's raids - which by October 1944 were using low level approach tactics under radio silence. For the first time, the other Groups became fully aware of the protection and support that 100 Group was providing; and one perhaps unexpected outcome was that some Groups claimed that others were being 'better treated'.

During the major raids into the Ruhr during November, the enemy adopted the practice of keeping his night-fighters in that area regardless of spoof operations and therefore the 100 Group Special WINDOW Force was used to invest the whole area with vast quantities of WINDOW. Throughout the year the Fortresses of 214 Sqn and, later, the Liberators of 223 Sqn, had been providing their radar and communications jamming support from within the Main Force bomber streams. By December, they were of even better value by being fully equipped with CARPET jammers against the enemy Würzburg radars and PIPERACK against the SN2 AI radars. It was also during December that 192 Sqn Mosquitoes provided inbound Y-recordings of enemy R/T traffic, then provided PIPERACK jamming of the enemy night fighter SN2 radars until well after the main force attack had

² PRO, Air 14/2971, 29 Dec 44, 1210A

finished, to protect any 'stragglers' on their return to UK airfields.

As the depth of main force raids into Germany was increasing, the effectiveness of the WINDOW screen diminished, and more use was made of multiple spoof raids with MANDREL jamming and WINDOW. On one night, not having heard a Recall message, one Fortress from 214 Sqn completed the planned sortie alone and was plotted by the enemy as a force of 20-30 aircraft.

No.192 Squadron was not mentioned in the talk. It was one of the first two squadrons to join the newly formed 100 Group in November 1943, becoming the first unit to fly an operational mission. The role was airborne signals intercept, and this entailed the identification and recording of enemy radar and radio signals - we have for many decades known this as ELINT and COMINT – collectively as SIGINT. The operational role of 192 Squadron was as part of the RAF Y-Service.

There were many other ways in which 100 Group, the Y-Service and Bletchley Park were coordinated. The following example is indicative of the extent of the coordination. Bomber Command Signals Instruction No 23, dated 1st July 1944, detailed the actions to be taken by 214 Sqn aircraft JOSTLE operators, under the control of the RAF Kingsdown Y-Service intercept station.³ The instruction is referred to in "The War in the Ether"⁴ and also in the "Despatch on War Operations"⁵. JOSTLE was a very high-power radio jammer working in HF and VHF bands; in the VHF band it was able to cover all or most of the enemy frequencies with barrage jamming; but in the HF band, it was necessary to select the HF frequency(cies) for jamming. These frequencies were monitored by Y-Service stations in UK and passed to the aircraft by Kingsdown in real-time during the sorties.

With the advent of the V-1 and V-2 weapons, No.192 Squadron aircraft were also kept on stand-by for immediate take-off in order to determine if there was any radio control system. In the initial stage of V-2 launches, the squadron maintained a 24-hour patrol.

Within 100 Group, the Bomber Support Development Unit (BSDU) had been formed in April 1944 at Foulsham to develop, test and produce a wide variety of radar and radio equipment.⁶ Apart from the technical development and production facilities, there were also nine Mosquito aircraft for flight trials work related to fighter equipment. That aggregate task was most impressive. By no means least, the assorted aerials had to be mounted on the aircraft so as to provide the required coverage for the various narrow-band and wide-band receivers. It was a matter of great importance that the equipment fit for a particular sortie could be changed at very short notice. Within the online talk there were some errors either of fact or interpretation; the more important include:

- The use of SERRATE certainly preceded the formation of 100 Group, but it by no means dominated the activities through the rest of WW2.

³ PRO, Air 14/1350

⁴ War in the Ether: An Account of RCM conducted by Bomber Command in the War 1939-45, paragraph 363-4

⁵ Despatch on War Operations, by Sir Arthur Harris, Appendix E, para 87

⁶ Air 14/2968: BSDU Report No. 40 covering April 1944 to April 1945

- 100 Group did not have Lancasters and 101 Sqn was never part of the Group.
- The jamming programme for OVERLORD did not serve as a template for subsequent 100 Group operations, which were progressively adapted to meet the evolving threat as presented by the German Air Defence system.

At the end of WW2, 100 Group was transformed and re-named as the Radio Warfare Establishment (RWE) at RAF Watton. Soon afterwards, with expanding activities, RWE was disbanded and became the Central Signals Establishment (CSE). There was a heavy flying schedule in support of the Berlin Airlift. It was becoming appreciated that the Russians were not so technologically inferior and there was pressure on CSE to advance their work on Radio Warfare equipment and technology. There was considerable political sensitivity in the early 1950s about the resumption of the so-called 'Radio Proving' or 'Ferret' Flights. There is much correspondence up to and including the Prime Minister which covers these issues.⁷ During March 1954, the Prime Minister Mr Churchill approved a series of Radio Proving Flights into the Caspian, Black and Baltic Seas, to obtain Intelligence on the Russian Air Defence organisation.⁸ These flights were regarded as the major source of accurate and up-to-date information on:⁹

- The organisation and efficiency of Soviet Air Defences.
- The Order of Battle of the Soviet Air Force.
- Soviet radar countermeasures.
- Developments in various technical fields, especially Guided Weapons.

CSE was disestablished in July 1965 and was re-formed into the new Electronic Warfare Support Unit at RAF Watton. This Unit moved to RAF Wyton in 1971 and subsequently to RAF Waddington in 1993 where it remains today within the Air and Space Warfare Centre.

The signals intelligence collection work by 192 Sqn and the coordination with Bletchley Park and the RAF Y-Service formed a significant aspect of the work by 100 Group. It would have been illustrative if the Trenchard Memorial Lecture had said that 192 Sqn continues to operate today, having been re-badged to 51 Sqn in 1958 and now based at RAF Waddington using RC-135W RIVET JOINT as dedicated electronic surveillance aircraft that can be employed in all theatres on strategic and tactical missions. In effect, the purpose and spirit of 100 Group lives on. Skipping backward in time to 1959, there was a most significant statement by the Commandant of CSE. At that time, he wrote:

"The importance of Electronic Warfare as a modern weapon of war is not always appreciated by operational commanders for whom that weapon is designed. Of one thing we can be reasonably certain. Any future war is likely to come swiftly, and we must therefore be capable of making our best moves from the beginning. Without effective EW, for both offensive and defensive forces, we will not succeed."

⁷ Air 19/1105

⁸ Air 19/1105: Note to the Prime Minister dated 8 Mar 54, bearing the initials WSC.

⁹ Air 19/1105: Note to the Prime Minister, dated 6 July 1955.

Letters to the Editor

Once again, I invite any UK Chapter member to consider sending any feedback you may have on any aspect of this Newsletter, the UK Chapter, or indeed the AOC. If you have a comment, a suggestion or observation to make, (hopefully positive) then please contact me direct at cahowe500@gmail.com when I will be only too pleased to respond and consider your thoughts for change or indeed items of interest for future newsletters. Thank you.

Future Events/Visits

UK Chapter Christmas Awards Dinner – Friday 10 Dec 2021, RAF Club, London – see Flyer below. I have been encouraging more members to attend this year; let us all try to get attendance up higher than in recent years! Please consider joining us; witness the award presentations, enjoy some fine dining, good company, and have some festive fun.

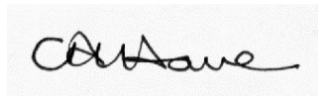
AOC Region 1 Chapters' Virtual Presentations – This series of presentations has proved to be very popular, and it is hoped to continue into 2022. The next presentation will be announced in due course. To take part you simply need to register with the AOC Region 1 Director, Dr Sue Robertson @ sue@gpl.co.uk

UK Chapter AGM 2022

A date for your diary - The UK Chapter AGM for 2022 will be held in the RAF Club, London on Friday 25 March 2022, start time 1800. A cash bar will be available, and a finger buffet will be provided. It is hoped to see many of our members in attendance. Further details for registration will be forthcoming and will be announced in the next newsletter due in February.

AOC Europe 2022 – Montpellier, France 10 – 12 May 2022

Full details here: <https://www.aoceurope.org/>



Chris Howe MBE
AOC UK Chapter - President

Keep Checking out the UK Chapter website at:

www.ukaoc.org



CHRISTMAS AWARDS DINNER 2021

Royal Air Force Club, 128 Piccadilly, London W1J 7PY

Friday 10 December 2021

The AOC UK Chapter Board is pleased to confirm that the annual AOC UK Chapter Christmas Dinner will be held in the Royal Air Force Club, Piccadilly (Hyde Park end) on **Friday 10 December 2021**. All AOC members, their partners and guests will be most welcome at this very enjoyable festive occasion. Let us make this a grand occasion with as many as possible attending as we will also recognise the achievements of Chapter members and units.

The outline programme for the evening is:

1800: Pre-dinner drinks in the Victoria Bar.

1900: Christmas Dinner in the President's Room.

Carriages as required.

Dress: Gentlemen, Black Tie & Miniatures preferred; Ladies, as appropriate.

The Dinner will cost £50 per head, including wine and port at the table, this cost includes a substantial subsidy from Chapter funds. Members wishing to attend should complete the proforma below and send it by e-mail to Phil Davies (or simply send Phil the information via email), early notification is appreciated for planning purposes. The preferred method of payment is by bank transfer to the UK Chapter account. Payment details will be provided on submission of attendance details. All payments to be made no later than Friday 3 December. Having made a commitment to the RAF Club, we regret that payment for the dinner will still be due in the event of a late cancellation after Monday 6 Dec 2021.

To: Phil Davies E-mail: phildavie@aol.com Mobile: 07387 200554

I wish to attend the AOC UK Chapter Christmas Dinner on Friday 10 December 2021.

Name: _____ AOC Membership No: _____

Guest(s): _____

Telephone: _____ E-mail: _____

Any special dietary requirements (e.g. vegetarian)? _____