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## SELECTED GLOSSARY

| | |
|---|---|
| AAR | air-to-air refuelling |
| ACHQ | Air Contingent Headquarters |
| ACSC | Air Council Standing Committee |
| ACSEA | Air Command South East Asia |
| AFBSC | Air Force Board Standing Committee |
| AID | Aeronautical Inspection Department |
| ALARM | Air Launched Anti-Radiation Missile |
| AMP | Air Member for Personnel |
| AMSO | Air Member for Supply and Organisation |
| APOD | Air Point of Departure |
| ASOC | Air Support Operations Centres |
| ASRAAM | Advanced Short Range Air-to-Air Missile, |
| ASWDU | Anti-Submarine Warfare Development Unit |
| ATO | Air Tasking Order |
| BAWA | Bristol Aerospace Welfare Association |
| BD | Bomb Disposal |
| BDA | bomb/battle damage assessment |
| C2 | command and control |
| CAOC | Combined Air Operations Centre |
| CBLS | Carrier Bomb Light Stores |
| CDE | Collateral Damage Estimate |
| CENTAF | USA Central Command |
| CENTCOM | US Central Command |
| CFAAC | Combined Forces Air Component Commander |
| CFLCC | Combined Forces Land Component Commander |
| CIS | communications and information systems |
| CJO | Chief of Joint Operations |
| CONOPS | Concept of Operations |
| DCAS | Deputy Chief of the Air Staff |
| DF(R&D) | Director of Flying (Research and Development) |
| DGO | Director General of Organisation |
| DOB | Deployed Operating Base |
| DofO&AP | Director(ate) of Organisation and Administrative Plans |
| EAW | Expeditionary Air Wing |
| EOD | Explosive Ordnance Disposal |
| FLC | Front-Line Commands |
| FLOT | Forward Line of Own Troops |
| FSCL | Fire Support Coordination Line |
| GBAD | ground-based air defences |
| GPS | Global Positioning System |

| | |
|---|---|
| GSE | ground support equipment |
| HQ BAFSEA | Headquarters Base Air Forces South East Asia |
| HQSTC | Headquarters Strike Command |
| IO | Information Operations |
| ISR | intelligence, surveillance, and reconnaissance |
| JFACHQ | Joint Forces Air Component Headquarters |
| JFHQ | Joint Force Headquarters |
| JSOA | Joint Special Operations Areas |
| KI/CAS | Kill-Box Interdiction/Close Air Support) |
| MAEE | Marine Aircraft Experimental Establishment |
| MAP | Ministry of Aircraft Production |
| MEF | Marine Expeditionary Force |
| MEZ | Missile Engagement Zone |
| MOTU | Maritime Operational Training Unit |
| MSC | Mission Support Cell |
| NBC | Nuclear Biological and Chemical |
| NCC | National Contingent Commander |
| NCHQ | National Contingent Headquarters |
| NFZ | No-Fly Zone |
| NTISR | non-traditional' ISR |
| OPLAN | operation plan |
| PJHQ | Permanent Joint Headquarters |
| PR | Photo Reconnaissance |
| PSAB | Prince Sultan Air Base |
| PTSD | Post-Traumatic Stress Disorder |
| RE | Royal Engineers |
| RLC | Royal Logistic Corps |
| ROE | Rules of Engagement |
| RSU | Repair and Salvage Unit |
| SF | Special Forces |
| TAOC | Tactical Air Operations Centre |
| TBM | Theatre Ballistic Missile |
| TD | targeting directive |
| TIALD | Thermal Imaging And Laser Designator |
| TWCU | Tornado Weapons Conversion Unit |
| UK ACHQ | UK Air Contingent Headquarters |
| UKACC | UK Air Contingent Commander |
| UKLCC | UK Land Contingent Commander |
| UNMOVIC | UN Monitoring, Verification and Inspection Commission |
| VCAS | Vice-Chief of the Air Staff |
| WMD | weapons of mass destruction |

**Our Guest Speaker, following the Society's Annual General Meeting at the RAF Club on 12 June 2019, was**

**Air Commodore Peter Gray BSc LLB MPhil PhD FRAeS**
**Professor of Air Power Studies**
**at the University of Wolverhampton**

## T E LAWRENCE: HIS SERVICE IN THE ROYAL AIR FORCE

T E Lawrence, as the 'Uncrowned Prince of Arabia', has been described as the most 'glamorous figure produced by the First World War'.[1] Although such extravagant statements are open to debate, there can be little doubt that Lawrence did achieve legendary status both during and after the war. As Brian Holden Reid has pointed out, public interest was whetted, rather than lessened, by Lawrence's decision in 1922 to join the Royal Air Force as an airman and not as an officer. In the event, he spent two periods of time in the RAF with an intervening spell in the Royal Tank Corps. This paper will concentrate on Lawrence's service in the RAF.[2] Like the formal presentation delivered to the RAF Historical Society Annual General Meeting, the paper will focus on issues for which there is evidence and leave the conjecture, which is inevitable with Lawrence, to the discussion period. The paper will examine a number of issues including why Lawrence wanted to join the RAF and why he was determined to enlist in the ranks. The paper will also look at the question as to how he got away with such a radical move (if indeed he did so) and finally reflect on what we can learn about the RAF in the inter-war years through the Lawrence lens.

Lawrence gained fame, promotion and formal decorations (CB and DSO) for his service in Arabia and featured in the movie *With Allenby in Palestine and Lawrence in Arabia* in 1919.[3] He gained considerable expertise in Middle Eastern affairs in general, and the Arab Revolt in particular, and then acted as a Political Adviser to the Colonial Office. Lawrence then set about his literary career with *Seven Pillars of Wisdom* which was later re-issued in a shortened version as *Revolt in the Desert*.[4] His depiction of life in the RAF was eventually published as *The Mint* and will be discussed below.[5] As will also be seen, Lawrence was a prolific correspondent, writing frequently to George Bernard Shaw and his wife Charlotte; to the

Chief of the Air Staff (CAS), Sir Hugh Trenchard and a number of his staff officers; to Basil Liddell Hart; and other authors such as Thomas Hardy.[6] Part of the enduring conundrum that is Lawrence remains that, in many instances, he has been his own literary and academic source with corroborating evidence in short supply.

The difficulty in sorting source material has not, however, prevented a 'torrent of biographies' from 'simpering hagiography to heartless hatchet job'.[7] The first substantial work was a deliberate sequel by Lowell Thomas and was followed by more substantial work by Lawrence's friends Robert Graves and Basil Liddell Hart.[8] The volume of material that has followed has generated its own bibliographical industry![9] The Lawrence of Arabia mythology has come to the point where authors in many disciplines deploy the name as an instant shorthand for the archetypal hero without necessarily delving further.[10] What is almost invariably missing from this wider literature is Lawrence's time in the ranks. His attitudes towards air power have been examined by John Alexander in the *RAF Air Power Review* and by a special edition Cross and Cockade publication.[11] Although Lawrence, in conducting his operations through the Middle East, understood intuitively the tenets of guerrilla warfare, the indirect approach and the potential that air power could offer, these factors are not enough to explain his actions in seeking to join the RAF in the ranks.

An absolute account of Lawrence's motivation cannot be reached. But there is broad agreement on a number of factors that will have either directly influenced him or will have been there in the background. The first of these is that Lawrence had experienced a very unusual war with none of the form and function of life in the trenches and the very irregularity of dealing with the Arabs against the Turks evidently appealed to his personality. The other side of this coin was his known impatience with the traditional military formalities; as Holden Reid has commented, this did little to endear him to his conventional seniors.[12] A career in the peacetime army therefore seemed unlikely and the known relative informality of the RAF would have suited him. This became the case once he was clear of the Depot at Uxbridge.

Some consideration must be given to Lawrence's mental state, both in the long term and in the immediate aftermath of the First World

War. Throughout his life, Lawrence was known as an ascetic with little thought of his own comfort. He did not drink and rarely smoked. His pre-war long-distance walking expeditions through Syria studying Crusader archaeology are well attested and demonstrate his stamina and endurance.[13] Irregular operations are, by their very nature, stressful, especially when the enemy has put a price on an individual's head. Furthermore, he had been captured by the Turks, beaten and raped in captivity.[14] Although the conventions of the time precluded active acknowledgment (especially in officers) of Post-Traumatic Stress Disorder (PTSD), it is probable that Lawrence was suffering from that condition. A contemporary, Christopher Isherwood, described him as someone who, 'suffered in his own person, the neurotic ills of a whole generation.'[15] More recent evaluations describe the main symptoms of PTSD and conclude that Lawrence suffered from 'many, if not most.'[16] The nerves were evident to the doctors at his pre-entry medical examination.[17]

Having had an active war, the prospect of returning to Oxford as an academic was unlikely to appeal.[18] Similarly, a prolonged period of working as a Colonial Office official was hardly likely to appeal to someone of Lawrence's temperament, especially as the grand strategic level politics of the post-war era were very different to how he saw the outcome of the Arab Revolt.[19] In the event, he became a civil servant on 18 February 1920 and immediately became involved in planning the agenda for Churchill's upcoming conference in Cairo. Lawrence's advice, as a political adviser, specially chosen by Churchill for his expertise in the region, was straightforward: 'You must take risks, make a native king in Iraq, and hand over defence to the RAF instead of the Army.'[20] Korda has stated that this stemmed from Lawrence's conviction that air power in the desert could have a disproportionate effect on the tribal forces. In his opinion 'boots on the ground' would be a waste of time, manpower and money in dealing with a nomadic (or semi-nomadic) population.[21] The Cairo Conference took place in March 1921 and was attended by Churchill, Trenchard, Sir Percy Cox (British High Commissioner in Baghdad), Gertrude Bell (Oriental Secretary to the Commission) and Field Marshal Allenby (High Commissioner of Egypt). The move to air policing was hotly debated and Lawrence's quiet intervention in support of the CAS that, 'Sir Hugh is right and the rest of you are wrong', was decisive.[22] It was in

*Lawrence in the rear cockpit of one of No 14 Sqn's Bristol Fighters at about the time of the Cairo Conference.*

the margins of this Conference that Lawrence first mooted his desire to switch from the Colonial Office to the ranks of the RAF. Trenchard promptly agreed, but as an officer or nothing.[23] There can be little doubt that Trenchard was deeply indebted to Lawrence for this vital support for the fledgling RAF.

Lawrence returned to the charge in January 1922, writing to CAS reminding him of his desire to join the ranks. He admitted that he would need senior support as, at 33, he was too old and furthermore, was unlikely to pass the medical.[24] Trenchard effectively agreed to Lawrence joining the RAF, subject to the CAS mentioning it to Churchill and clearing it with his own Secretary of State (Captain F E Guest).[25] Churchill eventually agreed to release Lawrence in July 1922 and, having asked to meet the CAS, he was invited to spend the night at Trenchard's home – hardly a typical start for an airman recruit![26] Lawrence met Trenchard again in the Air Ministry on 14 August where he was told that the arrangements for his enlistment would be in the hands of the Air Member for Personnel, AVM Sir Oliver Swann. The AMP was less than happy being *ordered* [emphasis in original] to get him into the RAF with 'its secrecy and subterfuge'.[27] Lawrence was duly told to report to the London Recruiting Office on Henrietta Street in possession of two references and was given the name of the officer responsible for admitting him (Flight Lieutenant Dexter).

When John Hume Ross reported to Henrietta Street, Dexter was not there, and Serjeant-Major Gee showed him through to the Chief Interviewing Officer – Captain W E Johns. They concluded that they had a potential criminal on their hands who had none of the requisite paperwork. Lawrence was then sent off to acquire the necessary documentation while they consulted a selection of photographs of

those wanted by the police.[28] Johns (author of *Biggles*) also checked the Register of Births at Somerset House and failed to find Ross listed. Lawrence returned with the references which, presumably, he had written himself. Not surprisingly, he was peremptorily dismissed, only to return some short while later with an Air Ministry Messenger carrying a 'minute signed by a very high authority ordering his immediate enlistment'.[29]

Lawrence still had to pass his medical examination; the medical officers immediately noted his nerves and the evidence of a flogging along with malnutrition. Despite being told by the Air Ministry, with whom they were dealing, the doctors refused to pass Lawrence as fit. Eventually, a civilian doctor was brought in who did sign. Johns subsequently chatted to Lawrence who knew that his fragile alias had been blown. Johns subsequently warned his opposite number at RAF Uxbridge and according to Montgomery Hyde, the presence of Lawrence of Arabia was common knowledge in the Officers Mess.[30]

Lawrence spent just over two months at the RAF Depot among what he described as, 'a fair microcosm of the unemployed of England.'[31] His fellows included ex-servicemen from all ranks along with men from all backgrounds. His letters were mainly on the publishing and editing process for *Seven Pillars* and at various times he worked on the proofs – again hardly usual activity for an airman recruit. In a similar vein, he wrote to the AMP addressing him as 'Dear Swann' and excusing himself along the lines that he could hardly ask the hut corporal how an aircraft hand should address an air vice-marshal![32] Lawrence expressed himself as being delighted to have made the move that he did, even though it was evident that he found Uxbridge tough going. Whether this was despite knowledge of his true identity, or because of it is just not known.

During his time at the Depot, Lawrence started making notes for *The Mint*. Montgomery Hyde has described it as, 'disjointed but brutally frank.'[33] Lawrence used the language of the barrack room in a totally unrestrained manner, especially when describing the sexual appetites of his hut mates. He was also particularly harsh in his treatment of the Commandant of the Depot, Wing Commander (later Air Commodore) Bonham-Carter. Lawrence does not give his name but when *The Mint* was published, there was considerable resentment towards him and in defence of Bonham-Carter from former coll-

*Lawrence as an airman.*

eagues. Where *The Mint* does strike a real chord is in the universal approval with which the recruits viewed Trenchard. Lawrence described him as the 'pole-star of knowledge' who 'steers through all the ingenuity and cleverness and hesitations of the little men who help or hinder him.'[34]

To the disgust of his instructors, Lawrence was posted early, and without finishing his recruit training, to the School of Photography at Farnborough. Lawrence duly wrote to AMP thanking him for getting him away from the Depot and genuinely looking forward to his training as a photographer, which he modestly admitted to already being very good at. He asked that his regards be passed on to the CAS, informing him that his fellow recruits had all been 'devout worshippers' of him.[35] Lawrence also asked AMP to intervene on his behalf to start training earlier than Farnborough intended. When the telephone call from the Air Ministry duly arrived the Commanding Officer wanted to be told who Ross really was. He went to inspect for himself and recognised him as Lawrence of Arabia.[36] Word of his 'deception' slowly percolated out from Farnborough, culminating in headlines in the *Daily Express* and a large contingent of press in evidence outside the station gates.[37] Eventually, the fuss grew out of proportion to the benefit of keeping Lawrence in the Service and he was discharged.

As Montgomery Hyde makes clear, Lawrence effectively transferred back to the British Army, making full use of old contacts from the desert war.[38] It is beyond the scope of this paper to discuss this period of Lawrence's career, but it should be noted that he never gave up on the prospect of a return to the ranks of the RAF. In 1924, Trenchard invited Lawrence to settle down as the 'chosen historian' to write the official history of the Royal Flying Corps; the CAS was, 'dispirited by the promptness with which Lawrence looked this gift horse in the mouth.'[39] He later admitted to his old Oxford mentor that

he had only thought about it for a single night before declining.[40] In the meantime, he continued with his annual letters to Trenchard asking, even begging, to be let back into the RAF.[41] Whether genuinely, or as a publicity tactic, Lawrence started to threaten suicide. Trenchard brushed this aside during a visit to his home by telling Lawrence that he had better go into the garden so as not to make a mess of his carpets.[42] Others, however, took the threats more seriously and George Bernhard Shaw and John Buchan, with whom Lawrence was in regular correspondence, took up his case with Prime Minister Stanley Baldwin.[43] At the heart of the matter was the senior politicians' desire to avoid a further round of publicity around Lawrence. The prospect of suicide seemed to be a more damaging prospect.[44] Even Sir Samuel Hoare's opposition eventually crumbled and it was agreed that he could re-join the Service.[45]

Lawrence, this time in the guise of Aircraftman T E Shaw, re-entered the RAF, again through Uxbridge and was posted to the RAF College at Cranwell in Lincolnshire. He settled in well to the routine of preparing training aircraft and became very well respected for his work ethic, sense of humour and willingness to take on routine duties. Lawrence was quickly recognised by the Commandant, Air Commodore A E Borton, whom he had known in the desert war. Borton was furious with Trenchard for not having warned him that Lawrence was going to appear as one of his airmen.[46] Borton entertained Lawrence on many occasions, although always discretely.[47] Towards the end of 1926, *Seven Pillars* was printed and ready for distribution; as previously noted, it was privately printed and various copies were distributed or sold. The College library was given a copy which it still has and where Lawrence did a lot of useful work on a voluntary basis. He also sent Copy Number 1 to Trenchard with the salutation, 'Sir Hugh Trenchard from a contented admiring and, whenever possible obedient servant.' This apparently gratified and amused the CAS as coming from, 'the most disobedient mortal I have ever met.'[48] Coincident with this, Lawrence was posted to India, a move with which he was content, as it would remove him from potential press interest which would have been inevitable with the publication of his book.[49]

Lawrence sailed to India on 7 December 1926 and inevitably continued to write letters to his various correspondents and some work

intended as a tailpiece to *The Mint* describing the overcrowded conditions on the troopship. John Buchan later remarked that Lawrence's ability to depict squalor was 'uncanny'.[50] Although Lawrence's attitudes to his own comfort have been mentioned, there remains a degree of ambivalence over just how much discomfort he could tolerate. He was clearly content with life in RAF huts, but did not adapt well to shipboard life. His promotion to colonel was effectively engineered by Allenby to enable Lawrence to enjoy a better standard of accommodation on his return journey to the UK at the end of the First World War.'[51]

While in India, *Seven Pillars* received many positive reviews, which meant that the abridged version, *Revolt in the Desert*, sold very well when published in March 1927.[52] From the royalties, Lawrence was able to establish a £20,000 trust for the RAF Memorial Fund (later the Benevolent Fund). It was known as the Anonymous Education Fund and intended to produce an income for the families of deceased or disabled officers. Montgomery Hyde has postulated that, in making the distinction between officers and airmen, Lawrence acknowledged the reality that the bulk of the flying, and therefore the fighting, was done by the officers.[53] Again he seems to have kept his head down, volunteering for unpopular duties and writing on every possible occasion. This gave rise to some concerns that he was a 'headquarters spy'. As his identity became better known, his penchant for the pen was largely overlooked.

In March 1928, Lawrence completed the final draft of *The Mint* and sent it back to England for safe-keeping to Charlotte Shaw and then for onward transmission to his publishers.[54] He also felt that he had to inform the CAS of his actions.[55] Trenchard's response was characteristically measured; he acknowledged the veracity of the conditions that Lawrence had described, the language used and the calibre of the men. But he lamented the consequences should the press ever get hold of the work and the effect that their criticism would have on such a young Service.[56] Lawrence promptly replied to Trenchard emphasising that the copyright remained with him and that he had absolutely no intention of publishing the work.[57] Lawrence was relieved that the incident had not caused his dismissal and that Trenchard did not 'hate him'. At first sight, it is tempting to question why Lawrence proceeded laboriously to type up the draft and to send

it home when he had no reason, or pressure, to do so. It is possible that it was a cathartic process and, once clear of the work, he could turn his thoughts to other things. The cynic, however, may have argued that *The Mint* was a possible insurance policy against a possible dismissal; but there is no evidence in any of his voluminous correspondence to support this and it would be very much contrary to the nature of his close relationship with the CAS.

The interchange of correspondence also allowed Lawrence to comment on the state of the RAF. It is significant that his relationship with the CAS was sufficiently mature for him to be able to do so. For one thing it shows that, while Lawrence wore the insignia of an airman, he in no way entertained any distinction between himself and the upper officer corps. It also showed his utter self-belief, notwithstanding his protestations of relief that he had not been sacked. Lawrence commented that he had been enlisted in the Army twice, the RAF twice and had seen inside the Turkish and Arab armies. He considered that the RAF was:

> 'streets finer, in morale and brains and eagerness. Agreed it is not perfect. It never will be. We grumble – over trifles, mainly customs of dress which you've inherited from the older services.'[58]

As Trenchard's 'most experienced A/C', Lawrence went on in this letter to describe the RAF as the 'finest individual effort in British history' and that this achievement was down to the CAS himself.[59]

In the meantime, Lawrence had applied for a posting up-country because he was concerned that, as his identity became ever more widely known, he could be exploited or bullied and that his disciplinary record could be tarnished.[60] He was sent up to Fort Miranshah in Waziristan. During his time there Trenchard informed him that his request for an extension of service had been granted.[61] On the negative side, the press had got hold of the fact that Lawrence was close to the border and, in parallel with Soviet propaganda, he was blamed for instigating a local uprising. Despite initial reluctance from Salmond, there was no alternative but to send him home.[62] He set sail home, in less discomfort than on the way out, in January 1929.

When Lawrence got back to England, he was met by just the sort of press scrum that he, his military overlords and political masters

*Lawrence at Mount Batten.*

loathed. At the base of the reporting was total disbelief that there was no more to the story than that he was a straightforward airman and not on some secret mission. The situation was compounded at the political level by Labour interest in his false name and possible espionage roles. Lawrence ended up going to Westminster to explain, in person, his personal background (including his illegitimacy) and that he was trying to avoid embarrassment to his mother.[63] Not for the first time, Lawrence made matters worse by accepting invitations from the great and the good, appropriate to his background, but not what would be expected of an airman of those days – in this case dining with Sir Philip Sassoon. The catch phrase 'backing gracefully into the limelight' certainly rang true.

Lawrence then entered what was probably one of the most productive periods of his service. He was posted to Cattewater (Plymouth – later renamed Mount Batten) where Wing commander and Mrs Sydney Smith were in command; Lawrence was already well known to them and became a firm family friend.[64] He continued to correspond with Trenchard giving him a 'worm's eye view' of simple changes that would make life easier from the viewpoint of the airman. These varied from the abolition of bayonets at church parades to no longer having to carry swagger sticks. His problem with not avoiding the limelight cropped up a number of times, varying from being photographed with Lady Astor to hobnobbing with ministers during the Schneider Trophy races. Lawrence also displayed his capacity for action when an Iris III flying boat crashed in Plymouth Sound, diving into the water in an attempt to rescue some of the crew. In the event nine of the twelve were killed.[65] The subsequent Coroner's Inquest again propelled Lawrence into the limelight, but his, and Lady Astor's, attempts to keep the CO out of trouble worked well. The process also highlighted the urgent need for reform of the air-sea rescue system and its equipment.[66] Lawrence threw himself into this

work, becoming an expert in launch design, equipment procurement and the trials and testing business. This work took him first to Felixstowe and then to Bridlington, where his responsibility and status were well beyond what could be expected for his rank. That said, he turned his hand to whatever needed doing without presumption.

Lawrence was finally discharged on 26 February 1935 and was killed in a motorcycle accident soon after.

**Assessment**

As was clear from the insatiable press appetite for Lawrence stories, no-one at the time could comprehend why such a romantic and legendary figure should want to hide in the lowest ranks of the RAF for so long. In the quite extensive correspondence between Trenchard and Sir Geoffrey Salmond over his return from India, the latter expressed the view that Lawrence had 'taken refuge' in the RAF. To some extent, the question remains unanswered. Part of the issue may have been his mental state and the possibility of PTSD; the stability offered by [relative] anonymity in the ranks may have had, first, a cathartic benefit and subsequently a real healing effect. As the years passed, his hopes, if indeed he really did aspire to anonymity of remaining in the shadows, receded. As was clear from his earliest contacts with Trenchard and his AMP, Lawrence never really attempted to do more than act the masquerade: he never really internalised the persona of an airman, even though he adequately performed the tasks. This is evident from some of his 'supplication' letters which Lawrence signed as 'T E Shaw ex TEL TER'.[67] In other correspondence with Trenchard he used 'T E Lawrence' and 'TE?'.[68] His remarkable habit of attracting attention by 'backing into the limelight' is ample evidence of his avoidance of anonymity, as was his never-ending stream of correspondence; it was improbable that he would ever be lost from sight.

Sir Samuel Hoare, as Secretary of State for Air, could not work out the Lawrence enigma, going to the point of inviting him alone to dinner to see if he would accept a more senior appointment. Lawrence refused and left, stating that, as he had no money, he would spend the night on a seat on the Embankment. Hoare has admitted that he did not know whether or not Lawrence did so, but very shrewdly concluded that, 'he wished to appear, the man of mystery whose mind

was not to be explained by ordinary standards, and who delighted in shocking the Philistines by the unexpectedness of his actions.'[69] Others were more dismissive; Sholto Douglas commented that he was little more than a nuisance.[70] Trenchard would not have agreed, fully realising the debt he, and his fledgling service, owed to Lawrence for his preparatory work on Churchill before Cairo and his interventions during the Conference. It was for these reasons primarily that Churchill, some time after Lawrence's death, when a memorial stone was unveiled at his old school stated that:

> 'King George the Fifth wrote to Lawrence's brother "His name will live in history." Can we doubt that that is true? It will live in English letters; it will live in the traditions of the Royal Air Force; it will live in the annals of war and in the legends of Arabia.'[71]

**Notes:**

1 Reid, Brian Holden; 'T. E. Lawrence and Liddell Hart', *History*, Vol 70, No 229 (June 1985), p218.

2 For a detailed description of Lawrence's time at Bovington see H Montgomery Hyde's *Solitary in the Ranks: Lawrence of Arabia as Airman and Private Soldier* (London: Constable, 1977), ch 3.

3 Directed by Lowell Thomas.

4 Lawrence, T E; *Seven Pillars of Wisdom: A Triumph* (privately printed in 1926 and then London: Jonathan Cape, 1935) and *Revolt in the Desert* (London: Jonathan Cape, 1927).

5 Lawrence, T E; *The Mint* (first published as a limited edition by New York: Doubleday, 1936 then London: Jonathan Cape, 1955).

6 See the introductory text to Malcolm Brown (Ed.), *The Letters of T. E. Lawrence* (Oxford: Oxford University Press, 1991).

7 Justin Marozzi, review of Neil Faulkner's 'Lawrence of Arabia's War: The Arabs, the British and the Remaking of the Middle East in WW I', in *The Spectator*, 16 April 2016. The author is grateful to Gp Capt John Alexander for using this reference in his excellent article 'Hot Air, Aeroplanes and Arabs: T E Lawrence and Air Power' in *RAF Air Power Review*, Vol 22, No 1, Spring 2019, p88.

8 See Brian Holden Reid, 'T. E. Lawrence and his Biographers' in Brian Bond (Ed.) *The First World War and British Military History* (Oxford: Oxford Scholarship Online, 2011).

9 See Jeffreys Meyers, *T. E. Lawrence: A Bibliography* (London: Garland, 1974) and P M O'Brien, *T. E. Lawrence, A Bibliography* (Newcastle DE: Oak Knoll, 1988).

10 See, for example, the article on Private Militarized Security Companies in Afghanistan graphically titled 'Drinking Vodka from the 'Butt-Crack: Men Masculinity and Fratriarchy in the Private Militarized Security Company' in

*International Feminist Journal of Politics* 14.4 December 2012, pp450-469. The irony with this article is that *The Mint* would have struck a number of chords with the main theme had the author gone beyond the stereotypical.

[11] See Alexander, 'Hot Air, Aeroplanes and Arabs' and Cross and Cockade International's *Lawrence of Arabia & Middle East Air Power* (Complied by the Society, 2016).

[12] Holden Reid, 'Lawrence and his Biographers', p3.

[13] He walked 1,100 miles over 11 weeks – see Andrew Norman, *T. E. Lawrence: Tormented Hero* (London: Fonthill, 2014) p21.

[14] See Norman, *Tormented Hero*, p46 and Lawrence, *Seven Pillars*, p452.

[15] Holden Reid, 'Lawrence and his Biographers', p.5.

[16] Schneider, James J; 'A Leader's Grief: T. E. Lawrence, Leadership and PTSD' in *Military Review* January/February 2012, p78.

[17] Montgomery Hyde, *Solitary in the Ranks*, p51.

[18] Korda, Michael; *Hero: The Life and Legend of Lawrence of Arabia*, (London: Aurum, 2012), p492

[19] See, for example, Korda, *Hero:* p512.

[20] Korda, *Hero*, p514.

[21] Korda, *Hero*, p541

[22] Montgomery Hyde, *Solitary in the Ranks*, p43.

[23] *Ibid*, p44.

[24] RAF Museum MFC76/1/134, Letter Lawrence to CAS dated January 1922. Brown, *The Letters of T. E. Lawrence*, p192.

[25] Boyle, Andrew; *Trenchard* (London: Collins, 1962) p429.

[26] *Ibid*, p429.

[27] Montgomery Hyde, *Solitary in the Ranks*, p49.

[28] *Ibid*, p50. See also W E Johns, 'How Lawrence joined the RAF', *Sunday Times*, 8 April 1951.

[29] *Ibid*.

[30] *Ibid*.

[31] Lawrence, *The Mint*, p46.

[32] RAFM MFC76/1/134: Letter Lawrence to AVM Swann dated 1 September 1922. Brown, *The Letters of T. E. Lawrence.*

[33] Montgomery Hyde, *Solitary in the Ranks*, p57

[34] *Ibid*, p64. See Douglas, Sholto; *Years of Command* (London: Collins 1966) pp144-145. Douglas called *The Mint* 'mean enough in spirit' but described Lawrence's depiction of the Commandant as being viciously unfair. He also decried Lawrence's propensity for writing to the AMP and CAS from the ranks.

[35] RAFM MFC76/1/134: Letter Lawrence to Swann dated 9 November 1922.

[36] Montgomery Hyde, *Solitary in the Ranks*, p71.

[37] *Ibid*, p73.

[38] *Ibid*, p80.

[39] Boyle, *Trenchard*, p515.

[40] Letter Lawrence to Hogarth dated 9 May 1924: Brown, *The Letters of T. E. Lawrence*, p266.

[41] February was traditionally referred to as 'supplication month' See RAFM MFC76/1/134: Letter Lawrence to Trenchard dated 1 March 1924 and 6 February 1925 as examples.
[42] Boyle, *Trenchard*, p516.
[43] *Ibid* and letter Lawrence to Buchan dated 19 May 1925: Brown: *The Letters of T. E. Lawrence*, p280.
[44] Boyle, *Trenchard*, p516.
[45] Letter Lawrence to Charlotte Shaw dated 4 July 1925: Brown: *The Letters of T. E. Lawrence*, p284. See also Viscount Templewood (Sir Samuel Hoare), *Empire of the Air: The Advent of the Air Age 1922-1929* (London: Collins, 1957) pp.255-258.
[46] Montgomery Hyde, *Solitary in the Ranks*, p111.
[47] *Ibid*.
[48] *Ibid*, p127.
[49] RAFM MFC76/1/134: Letter Lawrence to Trenchard dated 20 November 1926.
[50] Montgomery Hyde, *Solitary in the Ranks*, p133.
[51] Korda, *Hero*, p440.
[52] Montgomery Hyde, *Solitary in the Ranks*, p136. The reviews included a very positive thank you note from Trenchard.
[53] *Ibid* , p139.
[54] Letter Lawrence to Edward Garnett dated 16 February 1928: Brown: *The Letters of T. E. Lawrence*, pp366-367.
[55] RAFM MFC76/1/134: Letter Lawrence to Trenchard dated 17 March 1928: Brown: *The Letters of T. E. Lawrence*, p368 -370.
[56] Montgomery Hyde, *Solitary in the Ranks*, p159.
[57] *Ibid*. Letter Lawrence to Trenchard dated 1 May 1928 RAFM MFC 76/1/230. Letter Lawrence to Trenchard dated 3 May 1928 RAFM MFC76/1/230.
[58] *Ibid*.
[59] *Ibid*.
[60] Montgomery Hyde, *Solitary in the Ranks*, p163.
[61] RAFM MFC76/1/135 Telegram Trenchard to AVM [Sir Geoffrey] Salmond HQ RAF India dated 29 November 1928. *Ibid*, p170.
[62] Montgomery Hyde, *Solitary in the Ranks*, p179.
[63] *Ibid*, p184.
[64] *Ibid*, p187.
[65] *Ibid*, p205
[66] *Ibid*, p207
[67] RAFM MFC76/1/134: Letter Lawrence to Trenchard dated 6 February 1925.
[68] *Ibid*: Letter Lawrence to Trenchard dated 28 March 1923 and undated letter from Bovington.
[69] Templewood, *Empire of the Air*, p258.
[70] Douglas, *Years of Command*, p145.
[71] Winston Churchill's speech at the Unveiling of the Plaque to Lawrence of Arabia, *The Times*, 5 October 1936.

## DISCUSSION

**Hugh Thomas.** Two questions. First, was the name Shaw connected with George Bernard Shaw? And, secondly, from a medical viewpoint, I've heard that his head injury, from which he died, actually prompted a lot of interest in neurosurgery. There was a general feeling that our knowledge wasn't very good, and this was a classic case of an injury that could have been treated with better immediate care and improved surgical techniques.

**Air Cdre Peter Gray.** You are absolutely right about the head injury, and the fact that it was T E Lawrence who had been injured did stimulate research on the subject. Had it been some ordinary man in the street, possibly less so. And yes, Shaw was named after George Bernard and Charlotte Shaw. Ross was an indeterminate name, but it had been sculling around people he knew – it was easy to write and thus to sign consistently. So 'Yes' to both questions.

**Wg Cdr Jeff Jefford.** I'm curious about Lawrence being fully functional at the Cairo Conference in 1921 but a year later he's a gibbering wreck at an RAF Recruiting Office in London. Is there some speculation on what happened during that interlude?

**PG.** Jeff, there is speculation about every bit of his life. There is some suggestion – which Montgomery-Hyde tries to destroy – that he spent a lot of the intervening time in the company of a German-run masochism circle in London. But there is no concrete evidence to support this. Relevant correspondence, that is alleged to exist, has never actually materialised. It isn't in the Bodleian and never was; that is to say that it hasn't been removed. If I were to venture an opinion – and I'm reluctant to do so – I suspect that he was having a nervous breakdown of some description.

**Jefford.** PTSD perhaps?

**PG.** Probably – yes. He was such an ascetic. He didn't mind hard conditions. He didn't eat for the sake of it – like a lot of us do. He didn't drink at all and rarely smoked. He just wasn't interested, and he probably failed to take care of himself properly. For instance, when he was standing outside the Recruiting Office in Henrietta Street, desperate to go the loo, he had only fifteen pence in his pocket

and he was concerned that if he spent one, he'd have only fourteen! So, he had got himself into a pretty wretched state, which is reflected in the letter from W E Johns and what was recorded on file at the time – it's why the medics refused to pass him. What he had actually been up to, I don't know but, clearly, not looking after himself.

**Chris Pocock.** It's been very interesting, but I don't think that you've really told us what his motivation was for joining the Service – and as an airman . . .

**PG.** Because all we can do is speculate on it – that's the problem. I, obviously, don't *know*. I think he wanted somewhere to hide. I think he was a bit lost. He was, by nature, something of a savant, an intellectual, who had almost been part of the Bloomsbury Set. That was the kind of society within which he felt comfortable, which contrasted sharply with the unwelcome fame that went with Allenby and Palestine and 'Lawrence of Arabia'. He did not like his photograph being on every wall. He did not like being followed by the press. He just wanted to hide.

**Gp Capt Jim Beldon.** Having heard your presentation, and some of the questions it has raised, I wonder whether, in conjunction with some of the less savoury aspects of his character, there was a self-destructive side which drove him to seek discomfort and, eventually, his tragic end. Whilst I take the point that he was trying to hide, do you think that his enlistment in the ranks, and the relatively Spartan conditions that that involved, might have contributed to fulfilling a wish to be in professional and personal discomfort, as well as physical discomfort.

**PG.** To an extent. Again, what I tried to do in my presentation was to stick to what was *known*. I identified areas where that was debatable, or where we have to rely on Lawrence as a source. Yes, undoubtedly, there is an element of self-destructiveness – there was a masochistic aspect, unpleasant to read about and unpleasant to discuss, but it was undoubtedly a factor. For instance, according to Montgomery-Hyde, while Lawrence was at Bovington, he sent away for a whip and commissioned somebody to beat him and report to the alleged owner of the whip how he took the punishment. That is hardly normal behaviour.

**Andy Tait**. Do you have any sense of what Shaw's obvious presence in the RAF did for the public's perception of the Service? Was it good PR, or was it somehow seen as a disgrace that we were allowing this rather unusual thing to happen?

**PG.** I have found no real evidence in the material that I have looked at thus far to suggest that there was any significant sense of public outrage. There was a degree of curiosity – 'Why as an airman?' That raised itself up to House of Commons level, as I described, but I don't think that it did the RAF any harm, whereas publishing *The Mint* certainly would have done. The press just loved the 'Lawrence' thing.

**Sqn Ldr Bob Hall.** Was there any suggestion that he was trying to hide as a reaction to Sykes-Picot and the post-WW I agreements in Arabia that he didn't really agree with?

**PG.** Yes, that's another possibility. He thought the Arabs had been betrayed. He was very naïve in believing that he could have delivered a long-term peace along the lines that he had, effectively, promised them. The various accounts of his treatment by the Turks, which involved serious beatings and some sexual mistreatment, could also have contributed to his mental state. Fortunately, they hadn't realised who he was; if they had it would probably have been worse. So, PTSD alone was reason enough to hide. I think that he had simply had enough, and he certainly did not want the kind of high-profile government appointment – in the Colonial Office, perhaps, or as Governor of Mesopotamia – that Churchill had been promising him. Could he have been comfortable with a middle ground job such as Trenchard had suggested – CO of an armoured car squadron or something like that? Possibly – but he would not have been at all comfortable with a diplomatic post.

**Richard Bateson.** Could you say something about his liaison with Sir Philip Sassoon, who was US of S for Air twice during Lawrence's time? He was the Air Commodore of 601 Squadron and had his own private airfield at Trent Park. He also owned the land on which Lympne airfield was built and he was, of course, very influential in air force affairs. Lawrence used to visit him at his Park Lane house – and he always went on this motor-cycle, in uniform, complete with puttees and cycling gear. Some of the last letters he wrote, from Bridlington,

are in the National Archives at Kew and he mentions Korda who was attempting to get him to agree to having a film made. *Lawrence of Arabia* happened eventually, of course, but not until after the war.

**PG.** Yes, there was a considerable correspondence with Philip Sassoon, but there was with a lot of people. He was an avid letter-writer. When he would go to see Trenchard, at Trenchard's home in Hertfordshire, he would always go there in uniform too, or in his motor-cycling kit. His excuse was that he didn't have any decent clothes. By the later stages, he could have afforded a decent wardrobe, but he just didn't want the bother of having to buy it. He *liked* his blue uniform and he liked either being identified in it – or perhaps *not* being identified. But he didn't dress up for anyone; he would turn down dinner party engagements or anything that would have involved a black tie.

**Air Cdre Graham Pitchfork.** You briefly mentioned his involvement in the high speed launches. It has always been my impression that he got far too little credit for the work that he did. He was way ahead of his time and, without those early launches, the WW II rescue service simply would not have developed in the way that it did. But his contribution seems to be largely glossed over.

**PG.** I think that pales into insignificance in terms of some of the areas of speculation that there's been on other aspects of his career. His exploits in Arabia, with the Arabs, and the Arab Revolt – his part in the Arab Revolt is a stellar moment. At the other end of the spectrum, his involvement in the ranks, is enough of a talking point in itself. So, it seems that writers have tended to neglect to consider what he actually *did* as an airman, so his work with marine craft does tend to be overlooked. So, you are absolutely right, he did not get enough credit, and he doesn't feature prominently in the annals and traditions of the Royal Air Force for that reason.

**AVM Nigel Baldwin.** Time to close the proceedings, I think. It only remains to thank you, Peter, for fielding the questions. Suitably massaged, they will go down very well in the Journal as a supplement to the publication of your very interesting presentation.

# SUMMARY OF MINUTES OF THE THIRTY-THIRD ANNUAL GENERAL MEETING HELD IN THE ROYAL AIR FORCE CLUB ON 12 JUNE 2019

**Chairman's Report.**

AVM Baldwin noted that the recently published Journal 71 contained last year's AGM minutes and the address by our President, Sir Richard Johns, who, drawing on his experiences as Chief of the Air Staff, spoke of 'Defence, Money, Politics and Technology'.

There had been two seminars since the last AGM. The first, in October at the RAF Museum, Hendon, under the chairmanship of AVM George Black, covered the genesis and operational service of the English Electric Lightning. The second, in April also at Hendon, under the chairmanship of Air Mshl Sir Robert Wright, had examined the long-standing US-UK Exchange agreement. The coming autumn seminar, at BAWA, Filton, on Wednesday 9 October, would cover the introduction and operations of the long-serving C-130 Hercules.

The Society's finances remained healthy in 2018 with a small surplus of £571 giving a healthy balance of £24,916. Accordingly, the annual subscription would remain at £18, and seminar fees at £20. The committee had noted the increasing costs of the AGM and had considered attaching it to one of the seminars, but this would mean the loss of an annual speaker and the possible loss of the third journal. While finances remain stable, however, we would continue as before, but keeping the options in mind. The Chairman pointed to the need to formulate a succession plan for the committee. There was a need to attract a few members to come forward, perhaps to shadow serving members for a year or so.

The Chairman highlighted the consistent help received from the RAF Museum staff and the Chief Executive, Maggie Appleton. He expressed his appreciation of their support, not only with the mounting of seminars, but with the maintenance of the Society's page and hosting the published back catalogue of its journals on the Museum's website. In conclusion, the Chairman thanked the Committee members for their continued hard work, and expressed his appreciation of the support and encouragement of the President, Air Chf Mshl Sir Richard Johns, and the Vice-President, Air Mshl Sir Frederick Sowrey.

**Secretary's Report.**

Gp Capt Dearman reported that, since the last AGM, membership had remained stable. Nevertheless, reflecting the Chairman's remarks, efforts to recruit new members would be most welcome.

**Treasurer's Report.**

Wg Cdr Cummings, representing the Treasurer, reported on the 2018 accounts which were distributed. The year had achieved a small surplus. Two grants, each of £500, had been made to the RAF Museum and to the Trenchard Statue appeal. There had been no suitable applicants for a Henry Probert Bursary in the year. The end-year balance of some £25,000 was sufficient for the Society's medium-term needs.

A proposal by Gp Capt Heron, seconded by Air Cdre Pitchfork, that the accounts be accepted, and that Mr Bryan Rogers be re-appointed independent examiner, was carried.

**Appointment of the Executive Committee.**

The Chairman noted that all members of the committee were prepared to continue serving. A proposal by Air Cdre Tyack, seconded by AVM Roberts, that the executive committee be so elected was carried. The executive committee members so elected were;

| | |
|---|---|
| AVM N B Baldwin CB CBE | Chairman |
| Gp Capt J D Heron OBE | Vice-Chairman |
| Gp Capt K J Dearman FRAeS | Secretary |
| Wg Cdr C J Cummings | Membership Secretary |
| Mr J Boyes TD CA | Treasurer |
| Wg Cdr C G Jefford MBE BA | Editor & Pubs Manager |
| Air Cdre G R Pitchfork MBE MA FRAeS | |
| Wg Cdr S Chappell MA MSc RAF | |
| Mr P Elliott BSc MA | |

The *ex-officio* members of the committee are:

| | |
|---|---|
| J S Cox BA MA | Head of AHB |
| Maggie Appleton MBE | CEO RAF Museum |
| Mr Harry Raffal MA | RAF Museum |
| Gp Capt J R Beldon MBE MPhil MA BSc FRAeS RAF | DDefS(RAF) |

Wg Cdr H Whitehill MA RAF JSCSC

**Discussion.**

Mr Paul Stewart suggested that the AGM minutes could be published with the autumn Journal if only two were published each year. Air Cdre Tyack gave strong support for a continued third journal, while the Editor was content with three.

**Two Air Forces Award.**

The President presented the Two Air Forces Award to Dr Sebastian Ritchie for his paper on Command and Control in Operation TELIC.

**The Sowrey Fellowship**

The Vice-President, Air Mshl Sir Frederick Sowrey, presented the first two Sowrey Fellowships to Flt Lt Zak Hazard and Fg Off Ben Stephens-Simonazzi.

*In 1996 the Royal Air Force Historical Society established, in collaboration with its American sister organisation, the Air Force Historical Foundation, the Two Air Forces Award, which was to be presented annually on each side of the Atlantic in recognition of outstanding academic work by a serving officer or airman. It is intended to reproduce some of these papers from time to time in the Journal. This one was the winning RAF submission in 2018.* ***Ed***

## THE RAF'S EXPERIENCE OF COMMAND AND CONTROL IN OPERATION TELIC, THE SECOND GULF WAR, 2003

**by Dr Sebastian Ritchie**

This article surveys the Royal Air Force's experience of air command and control (C2) before and during Operation TELIC – the UK name for the US-led coalition operation entitled IRAQI FREEDOM, also commonly referred to as the Second Gulf War. The aim of the article is to provide a clear, factual narrative of the subject in so far as this can be accomplished using official sources. It is also necessary to provide a limited amount of background information to place the key air C2 issues in context. In what follows, air C2 is initially considered in relation to preparatory planning for TELIC. Subsequently, the focus shifts to the deployment phase of the operation, the transition from Operation SOUTHERN WATCH No-Fly Zone (NFZ) operations to TELIC, and air C2 during the operation itself.

Operation TELIC was launched in March 2003; three weeks later, its primary aim was achieved as coalition troops entered Baghdad and precipitated the downfall of Saddam Hussein's regime. TELIC was the RAF's largest single undertaking since the First Gulf War (UK Operation GRANBY) by a substantial margin. At peak, some 8,000 personnel were deployed in theatre along with 126 aircraft, comprising 67 fast jets and 59 other fixed and rotary wing platforms. Between 19 March and 15 April, the fixed-wing aircraft flew more than 2,500 sorties, and RAF combat aircraft released 919 munitions.

Yet if TELIC was comparable to GRANBY in terms of forces committed, tempo sustained and effort expended, the two operations were very different in a number of important respects. TELIC did not involve a drawn-out and pre-planned air offensive similar to the

coalition campaign mounted in 1991. Instead, air power was predominantly used in support of the Land Component during its rapid advance from Kuwait to Baghdad and in Counter-Theatre Ballistic Missile (Counter-TBM) operations over Western Iraq in conjunction with coalition Special Forces (SF). Consequently, while air C2 in Operation TELIC involved at least some obvious continuities, important new challenges had also to be confronted.

**Background, Planning and Command Arrangements**

The RAF's involvement in Operation TELIC followed on from some thirteen years of almost continuous UK air operations in the Persian Gulf. After GRANBY, the RAF was committed to the protracted task of patrolling the Southern and Northern Iraqi NFZs as part of another US-led coalition. Throughout, the coalition operation names were SOUTHERN WATCH and NORTHERN WATCH; by 2002, the UK contribution to these two operations occurred under the operation names RESINATE (South) and RESINATE (North). The RAF maintained detachments of eight Tornado GR4s and six F3s in the south with air-to-air refuelling (AAR) support, while the northern commitment was assigned to four Jaguars. The coalition and UK Air Headquarters and the Combined Air Operations Centre (CAOC) were located at Prince Sultan Air Base (PSAB), Al Kharj, in Saudi Arabia.

In March 2002, Headquarters Strike Command (HQSTC) received the first indirect intimations that the United States was preparing contingency plans for a major operation against Iraq. By May, contingency planning was also being conducted within the MOD. An assessment produced on the 22nd suggested that the UK might deploy some 88 fast jets and 38 supporting aircraft within a period of between three and four months for an operation of the scale of GRANBY.

At the beginning of July, the MOD confirmed to the Prime Minister that US military thinking on Iraq was 'quite well advanced', but that there was, as yet, no political authority to commit US forces. US contingency planning assumed that the objective of any prospective operation would be to overthrow Saddam Hussein's regime, destroy his weapons of mass destruction (WMD) capability and reduce the perceived threat that Iraq posed to surrounding countries and the US itself. Although US Central Command (CENTCOM) at first envisaged that only American forces would be

involved, by July there was a *de facto* invitation to the UK and Australia to participate.

As a first step, the US invited a small number of British military personnel to join their planners at various levels of command. Consequently, the Secretary of State sanctioned the early dispatch of a six-man team to Tampa, on the strict understanding that this would not prejudge the outcome of any decision on UK participation in an operation. The UK was officially informed and briefed on US planning on 16 July, and the Permanent Joint Headquarters (PJHQ) was then tasked to make an assessment of the plan to inform ministers and to examine UK contingency options in a US-led operation against Iraq. The Contingency Planning staff at HQSTC also initiated work on the potential UK air contribution at this time.

A more detailed picture of American planning soon emerged. CENTCOM's basic operation plan (OPLAN), numbered 1003V, was designed to overwhelm the Iraqi regime through a co-ordinated multiplicity of threats applied across a number of lines of operation. These were:

1. Operational fires.
2. Operational manoeuvre.
3. SF operations.
4. Unconventional warfare/support to other governments.
5. Influence operations.
6. Humanitarian assistance.
7. Political-military engagement.

The intention was to launch coalition forces into Iraq across both her southern and northern frontiers. Within this very broad concept, the Combined Forces Air Component Commander (CFACC), Commander USAF Central Command (CENTAF), Lieutenant General T M 'Buzz' Moseley, was assigned five key offensive tasks.

1. Counter-air (airfields and the integrated air defence system).
2. Counter-TBM in Western Iraq.
3. Counter-land.
4. Strategic attack against regime targets (seen as vital to early regime collapse).
5. Support to SF.

Initially, however, air power would be employed primarily for effect and with the aim of achieving what was famously termed 'shock

and awe'. Hostilities would be initiated by a massive bombing effort covering a very wide range of targets. The US believed that, 'the initial "shock and awe" created by the synchronised opening of both air and ground operations', would, 'lead to the rapid collapse of much of the potential opposition, enabling the coalition to seize control of up to two thirds of the country within days'.

Kuwait, although small and potentially vulnerable, could always be counted on for support and was to be the launching platform for the southern offensive. But the northern axis was dependent on Turkey's willingness to permit large numbers of coalition troops and aircraft to be based on her soil, and her government proved unwilling to enter into any such commitment. Nevertheless, in Washington, there was every confidence that these difficulties would be resolved, and planning proceeded on the assumption that the coalition would be able to operate from bases in Turkey. This would have profound implications for the UK because CENTCOM quickly assigned a key role to British land and air forces on the northern front.

HQSTC's first outline plan for RAF participation appeared at the end of July and reflected the increased exchange of information between the UK and the US, as well as CENTCOM's enthusiasm for UK involvement in Northern Iraq. The plan envisaged offensive air operations by Tornado GR4s from their existing base in Kuwait, Ali Al Salem, and from Akrotiri or Southeast Turkey, and air support to UK land forces by Harrier GR7s from Southeast Turkey.[1] The F3s already located in Saudi Arabia would operate in the air defence role, while GR4s and Jaguars flew tactical reconnaissance missions from both the south and north. E-3Ds, Canberra PR9s and Nimrod R1s and MR2s were to operate from Cyprus or Oman. Twelve tankers would be deployed to Akrotiri and to Turkish and Gulf bases, along with in-theatre air transport and air support for SF.

The RAF's tasking, as then understood, was as follows:

a. Contribute offensive air assets to the US campaign against Iraq.

b. Contribute additional 'niche' air capabilities that can add value to the US campaign against Iraq.

c. Support a UK land campaign inserting from Southern Turkey

[1] Hereinafter Tornados, Harriers and Canberras are generally referred to as simply GR4s and/or F3s, GR7s and PR9s respectively. **Ed.**

into Northern Iraq.

d. Enable an Air Point of Departure (APOD) in Turkey for the deployment of UK Land Forces.

HQ STC's plan emphasised the RAF's pronounced dependence on Turkish basing and overflight. By the beginning of August, knowledge of OPLAN 1003V was being extended across key areas of the UK defence community, including the Front-Line Commands (FLCs). On the 5th, PJHQ formed a Crisis Planning Team, and the Defence Staff issued PJHQ with formal planning guidance four days later. PJHQ in turn presented a submission to the Defence Staff on UK contributions to the prospective operation on 13 September. During this period, the RAF was assigned the additional task of supporting Counter-TBM operations in Western Iraq, primarily through the deployment of a detachment of GR7s, which were to collaborate with similarly committed USAF elements and coalition SF.

Between 19 and 22 August, the Chief of Staff, Joint Force Headquarters (JFHQ), visited CENTCOM to discuss command and control, and how the UK component could be integrated into a deployed CENTCOM forward headquarters. Although the nomenclature changed somewhat, the system that emerged differed little from that employed during Operation GRANBY. The Chief of Joint Operations (CJO) was to become Joint Commander for the operation, exercising his responsibilities through PJHQ to the National Contingent Commander (NCC) at his deployed headquarters in the Gulf. As Joint Commander, he would have operational command over all UK forces assigned to the operation, while the NCC exercised operational control of the three UK contingents – Air, Land and Maritime. In turn, the NCC delegated tactical command to the three Contingent Commanders; where the Air Contingent was concerned, Tactical Control was to pass to the coalition Air Commander (the CFACC) during the execution of agreed tasks on the Air Tasking Order (ATO).

The command structure was trialled in a five-phase exercise entitled INTERNAL LOOK during November and December and, as the NCC for an operation against Iraq had obviously to be involved in the exercise, it became necessary to settle his appointment before it began. Air Marshal Brian Burridge, the Deputy CinC at HQSTC, duly

became NCC Designate at the beginning of October. During the exercise, Air Marshal Burridge, the staff of the JFHQ and augmentees from the three FLCs manned the National Contingent Headquarters (NCHQ). Phases 4 and 5 of INTERNAL LOOK took place at CENTCOM's prospective forward headquarters in Qatar.

The exercise ended on 15 December 2002. It provided a clearer picture of the targeting delegations needed by the NCC, and highlighted a number of potential areas of concern, such as the adequacy or otherwise of AAR provisions; many important lessons were apparently identified. Yet the exercise seems only to have been a partial success from the Air Contingent's perspective. According to one subsequent assessment:

> The 3 vignettes played out were insufficiently long to draw significant conclusions. The crucial first few days of the campaign were not covered, which failed to expose fully the problems of synchronisation between A and G days, and the full air operations cycle was never achieved. In addition, many of the processes (intelligence, surveillance, and reconnaissance [ISR], battle damage assessment [BDA] and the capacity of the Air Support Operations Centres (ASOC) to manage the planned levels of KI/CAS) that eventually proved [*to be*] key weaknesses were not highlighted.

As for the overall command and control structure, it probably represented the only logical framework for the UK to employ, given the established functions of the MOD, PJHQ and the FLCs. The advantage of the system was that it provided a single operational commander in theatre acting on behalf of all deployed UK forces – and thereby a single point of contact for Commander CENTCOM, while effectively integrating the three UK contingents into their respective coalition components. The one possible disadvantage had been highlighted during Operation GRANBY, twelve years before: arguably, with its PJHQ, deployed NCHQ and individual contingent headquarters, the UK command structure had too many layers. During TELIC, a small minority questioned whether the NCHQ was necessary. Although both CDS and the Chiefs of Staff supported the NCHQ concept, CJO was unhappy to find that his influence waned within CENTCOM after the NCHQ arrived in the Gulf and CENTCOM itself deployed forward. To the UK Land Contingent

Commander (UKLCC), the NCHQ seemed to represent an extra link in the command chain that caused inertia.

On the other hand, the NCHQ's abolition would have required elements of PJHQ to deploy to the Gulf in its place, if a single commander, positioned in theatre, was still to represent all three deployed UK contingents. It would then have been necessary for the (deployed) PJHQ to deal with each of the UK FLCs and the MOD from overseas. Clearly, the implications of such a change in UK command arrangements would have been far-reaching; where communications alone were concerned, the challenges would have been daunting. The approach employed in GRANBY and TELIC did at least offer the advantage of a single chain between the deployed and UK headquarters, as well as, in PJHQ, a conduit in the UK linking the MOD and the FLCs with deployed forces. Interestingly, the UK Air Contingent Commander (UKACC), far from questioning the role of the NCHQ, argued that it had been empowered too late (20 February 2003) by CJO. In his view, this exerted an adverse effect on both the management of UK force deployments and the C2 of deployed forces.

**Deployment**

When planning for the prospective operation in Iraq began, PJHQ believed that the US might commence hostilities as early as October 2002. However, primarily to ensure the participation of the UK and other countries in a coalition against Iraq, the US began a concerted diplomatic effort within the United Nations (UN) to bolster the case for military action. The decision to 'follow the UN route' postponed the start of any conflict to early 2003. This delay did provide both the US and the UK with valuable additional time to complete their preparations, but it introduced a second critical uncertainty into the process, adding to the difficulties caused by CENTCOM's determination to open a northern front.

Ultimately, the UN Security Council passed Resolution 1441 on 8 November 2002, declaring Iraq to be in 'material breach' of earlier disarmament resolutions, insisting on the provision of a full declaration of WMD holdings and demanding the resumption of weapons inspections. In December, Iraq produced what it claimed was an accurate and complete declaration of its WMD and weapons delivery programmes, but the UN Monitoring, Verification and

Inspection Commission (UNMOVIC) reported on the 19th that that this declaration fell short of the full, final and complete disclosure required. Up to this point, it had been difficult for the UK to embark on open preparations for war, but a more visible build-up now began.

At the beginning of 2003, it became clear that Turkey would not provide basing in the event of hostilities with Iraq, and UK deployment plans were extensively revised. Alternative base facilities for eighteen GR4s at Al Udeid airfield were requested from Qatar, and PJHQ worked with CENTCOM to secure basing for the E-3D and VC10 detachments in Saudi Arabia, for more tankers in Bahrain, and for twelve GR7s in Kuwait. A planned and routine Operation RESINATE deployment of four GR4s to Ali Al Salem on 27 January was used as a first step towards enlarging the detachment, and six GR4s engaged in pre-deployment training in Cyprus were held there, pending movement to the Gulf. Ultimately, the larger GR4 detachment was established at Ali Al Salem and twelve aircraft were based at Al Udeid.

The objective was now to deploy the UK Air Contingent into theatre during the second and third weeks of February to reach full operating capability by 3 March. This was thought to be the earliest possible date for the start of the air campaign. However, to achieve this deadline, the UK needed to finalise the new basing plans, ground equipment had to be conveyed to the Gulf – largely by sea – and it was necessary to complete the protracted diplomatic clearance processes of the various Gulf states. By 31 January, Kuwait and Bahrain had agreed to provide base facilities. By 4 February, it was assessed that Qatar would accept the UK basing request, and reports from Washington suggested that a decision on military action would probably be delayed by US deployment hold-ups and international pressure to give UNMOVIC inspections more time. The original UK deployment timescales could therefore be extended.

In the meantime, from 20 January, a staff that combined elements of the Joint Forces Air Component Headquarters (JFACHQ), the standing Operation RESINATE (South) Headquarters and additional augmentees established the UK Air Contingent Headquarters (UK ACHQ) for Operation TELIC. The Air Officer Commanding 1 Group, Air Vice-Marshal Glenn Torpy, assumed his appointment as UKACC on 9 February. The ACHQ was structured as follows:

A1 Personnel.
A2 Intelligence.
A3 Air Operations and Force Protection.
A4 Logistics and Infrastructure.
A5 Strategy and Plans.
A6 Communications and Information Systems.
A8 Contracts/Civil Secretariat.

The A2, A3 and A5 cells comprised the operations section of the headquarters, while the A1, A4, A6 and A8 cells made up the support section. The headquarters ultimately numbered some 220 personnel, including support staff. Additionally, 55 personnel were fully embedded within the CAOC. Meeting this commitment drew heavily on the RAF's resources of trained C2 manpower, which were stretched to the limit. A problem repeatedly identified in earlier operations – the shortage of trained targeteers – was encountered once again.

Nevertheless, the ACHQ and embedded RAF CAOC staff are said to have exerted a considerable influence on the conduct of the air campaign at the operational and tactical levels. The CFACC was content to place UK officers in senior CAOC positions – a reflection not only of the credibility and experience of the officers concerned but also of the trust and respect that had built up between the RAF and the USAF on the basis of near-constant collaboration since 1990.

The Air Contingent deployment process was far from straightforward. The UKACC believed that the task of establishing his headquarters should have been completed well before the various force elements began to deploy, and subsequently maintained that too many decisions on the structure of his force had been taken in the UK. In his view, specific theatre requirements should have been more influential: there was, 'too much "UK push" rather than theatre pull.' He also recorded that he had been unable to build up his forces as quickly as he had hoped due to the time involved in securing diplomatic clearances to bring personnel, equipment and aircraft into theatre.

Daunting logistical hurdles had also to be overcome. As one commentator remarked, 'the size of the task, together with fragile communications, has caused difficulty in maintaining visibility of exactly what equipment has been scheduled to arrive where and when,

whether moving by sea or air.' Seaborne equipment packages originally prepared for Turkish bases (and which, of necessity, left the UK before the Turkish option was ruled out) were inevitably not optimised for the revised basing arrangements. Deployed Operating Base (DOB) commanders complained that enabling equipment and personnel arrived in the wrong order and at short notice. Hub-and-spoke air transport operations centred on the UAE base at Fujarah (but originally planned for Akrotiri) did not begin as early as had been hoped. Difficulties securing diplomatic clearance then disrupted flying and led to the accumulation of a four-day backlog of freight movement. Shortages of weapons and ground support equipment (GSE) delayed the establishment of full operational capability at Al Udeid and PSAB, and required some redistribution from Ali Al Salem and Bahrain respectively; GSE sent to PSAB from the UK, which reached Bahrain by sea on 10 March, was not delivered until the 17th because of further diplomatic clearance problems. Nuclear Biological and Chemical (NBC) stores proved inadequate and were unevenly distributed between force elements.

The early stages of the deployment were also beset by chronic communications problems at ACHQ level – both forward to the DOBs and back from the headquarters to the UK. Communications bearers and gateways proved insufficiently robust, and difficulties also arose because a multitude of different communications and information systems (CIS) were employed across the UK defence community. Moreover, there was little interoperability with American systems. After TELIC, the UKACC identified CIS as his gravest area of concern.

Of course, many early teething troubles in the communications sphere were ultimately resolved, but the more fundamental weaknesses within the UK CIS infrastructure could not be rectified in the middle of a major operation. The urgent need for a single robust defence-wide system was perhaps the most prominent lesson identified from the operation. By contrast, the other physical deployment obstacles were overcome in due course.

**Air C2 and the Southern No-Fly Zone**

Against a background of mounting international tension, the second half of 2002 witnessed a marked increase in the intensity of air

operations in the Iraqi NFZs. Sometimes described as 'spikes', they led Iraq to deploy more Surface-to-Air Missiles (SAM) into the Southern NFZ, and there were increasingly frequent SAM launches against coalition aircraft, which duly gave rise to a growing number of so-called Response Options – coalition attacks on Iraqi targets. The increase was so pronounced that the more senior RAF officers in theatre began to suspect that a transition might be taking place from extended NFZ operations to shaping activity for a planned assault on Iraq. One UK observer noted in November that, 'the UK position within the coalition ops had to be carefully guarded to remain within the Op Resinate (S) remit and not stray into preparation for a possible action against Iraq.'

That US objectives now extended beyond the immediate parameters of SOUTHERN WATCH was also apparently reflected in a new coalition Concept of Operations (CONOPS) introduced in November. UK analysis of the so-called CONOPS 2003 concluded that it was chiefly concerned with the expansion and rationalisation of targeting delegations from Washington down to the Combined Joint Task Force Operation SOUTHERN WATCH. CENTCOM was said to have no imminent plans for *expanding* the SOUTHERN WATCH target set. Yet the new CONOPS did provide for strikes against, 'targets from the CENTCOM-approved Response Option target list *or targets other than those on the CENTCOM-approved Response Option target list*.'[2]

Yet the reality seems largely to have been that the Response Options, while increasing in intensity, still struck the type of air defence sites that had been targeted almost continuously since 1998. Moreover, they remained confined to Southern Iraq. RAF assets in the Gulf continued to operate in accordance with an earlier CONOPS – CONOPS 2001 – and, by the end of the year, this had led to their exclusion from Response Options on just a few occasions.

However, during January, US timelines for the launch of OPLAN 1003V began to slip. At the end of 2002, US planning still envisaged that a short preliminary air campaign preceding a ground offensive into Iraq would be launched late in February, but the UK was advised on 15 January of 'a possible marginal shift to the right' for the

[2] Author's italics.

American political decision to go to war. The delay was apparently required to give more time both for military preparations and the 'political process' – ie, the presentation of a case for war based on UNMOVIC's expected failure. Furthermore, the gap between A-Day and G-Day had been compressed so that G-Day was now expected to commence five days after A-Day.

As the weapons inspection and UN processes ground on, the timetable slipped again. In mid-February, the UK Chiefs of Staff learnt that the Combined Forces Land Component Commander (CFLCC) was working towards a G-Day of 15-16 March, only slightly preceded by A-Day. This scenario was effectively confirmed on 22 February, when the US administration took the political decision to launch OPLAN 1003V in mid-March. Ultimately, citing the authority of United Nations Security Council Resolution (UNSCR) 1441, the Americans prepared an ultimatum demanding that Saddam Hussein leave Iraq within 48 hours or face military action. It was issued on 17 March, making the 19th D-Day for OPLAN 1003V.

The revised timetable confronted the CFACC with a fundamental problem. As the time allowed for the preliminary air campaign was compressed, he found himself facing the formidable challenge of discharging his five main tasks (see above) almost simultaneously. He was given hardly any time to shape the battlespace or dismantle Iraq's most capable array of ground-based air defences (GBAD) around Baghdad – known as the Super-MEZ (Missile Engagement Zone) – which was crucial if the Republican Guard divisions protecting the Iraqi capital were to be targeted effectively. It must have appeared eminently sensible in these circumstances to conduct at least some shaping operations under the auspices of the NFZ mission through the medium of Response Options. He therefore secured such authority as was necessary to extend the parameters of SOUTHERN WATCH, and the number of Response Options duly increased, as did the coalition air presence in Southern Iraqi skies. By contrast, the UK targeting directive (TD) continued to impose tight restrictions on RAF participation in any activity extending beyond the basic NFZ tasks.

This placed the UKACC in an awkward position, and he eventually felt constrained to ask for his TD and Rules of Engagement (ROE) to be amended. His perspective is easy to understand, but the problem was viewed rather differently in London, predictably enough. The

suggested changes in the directives would have been difficult to reconcile with the government's declared position that no decision had yet been taken to go to war, and with its determination to observe the weapons inspection and United Nations processes before committing the UK to hostilities. Moreover, at the time, the precise legal basis for taking military action to disarm Iraq was still under discussion. Although very seriously considered, therefore, the request was rejected. However, there was rather more flexibility where ISR activity was concerned, and the TD was altered to permit strikes against Iraqi forces deemed to be threatening the coalition build-up in the Gulf. The UKACC remained far from content with the situation, but the revised directive did more closely align the US and UK positions

On 3 March, the MOD authorised aircraft deployed on Operation TELIC to participate in RESINATE (South), and most of the RAF detachments that formed the UK Air Contingent took full advantage of this changed situation when the CFACC introduced a new concept of operations the following day. This involved spreading a series of air 'packages' over each 24-hour period. However, apart from operating on a 24-hour basis, the coalition would maintain the established flying patterns as far as possible, avoiding any further increase in the number of Response Options and thus acclimatising the Iraqis to more intensive air activity. This would avoid confronting them with a sudden and dramatic air offensive that would obviously herald the launch of 1003V. At the same time, the CFACC reiterated that he attached the highest importance to maintaining coalition and international support, and that this should be reflected in the CAOC targeting process. His stance was welcomed at the UK ACHQ, as it promised to moderate at least some of the difficulties that had arisen in the preceding weeks.

In addition to the GR4s at Ali Al Salem and the F3s at PSAB, which were already involved in RESINATE (South), several force elements deployed for Operation TELIC were now included in the ATO, such as the Nimrod R1, VC10 and E-3D detachments. The Al Jaber GR7s began flying RESINATE sorties on 12 March. Only the Ali Al Salem GR4s were committed to Response Options, and no other RAF aircraft released weapons against Iraqi targets before the start of Operation TELIC.

By the second week of March, coalition planning had compressed A-Day and G-Day to such an extent that they were eventually scheduled to take place at the same time – on D+2. This was partly because the US administration desired the shortest possible period of live hostilities and believed extensive battlespace preparation was unnecessary, given the relative strengths of coalition and Iraqi forces. The CFLCC may also have considered that large-scale preliminary air strikes, while desirable to degrade enemy ground forces, might warn the Iraqis of the impending assault and give them an opportunity to sabotage the all-important oil fields before coalition forces began their advance. Equally, it was believed in some quarters that an air campaign designed to achieve shock and awe might undermine coalition Information Operations (IO) by causing civilian casualties and collateral damage, and that the destruction of Iraqi infrastructure might significantly complicate the task of post-war reconstruction.

At the ACHQ, the days preceding the outbreak of hostilities were dominated by last-minute planning for the opening phase of operations. Work on clearing OPLAN 1003V targets started on 9 March and the UKACC also instituted table-top targeting exercises to ensure that robust targeting and clearance procedures were in place. He himself participated in a CENTCOM video teleconferenced table-top exercise on 12 March intended to 'war-game' the early days of the campaign. At the same time, ATOs were prepared covering D-2 to D+4. This proved extremely difficult because of the prevailing uncertainty about how 1003V would actually begin – how the political and military processes would be synchronised, how A-Day would be co-ordinated with D-Day and how the end of SOUTHERN WATCH would lead into the beginning of OPLAN 1003V. A Master Attack Plan for the A-Day ATO was finally briefed to the CFACC on 13 March, but changes were being introduced into some of the other ATOs for this critical period as late as the 18th. Ultimately, it was necessary for the UK ACHQ to prepare a variety of Air Operations Directives to cover a broad range of circumstances in which hostilities might start. Much of this planning effort inevitably proved to be nugatory.

The UKACC duly adopted the Operation TELIC ROE on 19 March at 1800Z – the same time as the Americans switched to the

ROE for OPLAN 1003V. However, air planning was again in a state of flux by that time. If 19 March was D-Day, the original plan had envisaged launching the ground and air operations on D+2 – the 21st. But Commander CENTCOM then decided that the ground offensive should begin on D+1 – the 20th – apparently in anticipation of the early collapse of resistance in Southern Iraq. In other words, he now envisaged that G-Day would actually precede A-Day. As some unknown comedian in the CAOC put it, 'A before G, except after D.'

This had profound implications for A-Day: a Master Attack Plan designed to contribute independently to the achievement of shock and awe could hardly be appropriate to a situation in which large-scale ground operations had been in progress for more than 24 hours. Ultimately, numerous missions scheduled for the opening stages of TELIC were cancelled altogether, and much of the targeting associated with shock and awe was abandoned. Similarly, the Baghdad Super-MEZ was left intact and was not systematically targeted for several days – a striking reversal of the order of events normally associated with air campaign planning.

In the initial coalition offensive, the US Army's V Corps drove north-west along the western bank of the Euphrates, while the Marine Expeditionary Force (1 MEF) and 1 UK Armoured Division concentrated on securing southern areas of Iraq, including the port of Umm Qasr, the Rumaylah oilfields, the Al Faw Peninsula and Basra. Responsibility for this area then passed to 1 UK Armoured Division, freeing the bulk of 1 MEF to follow V Corps as far as Nasiriyah, where they crossed the Euphrates and advanced north. The campaign then developed into a headlong rush for Baghdad.

For the deployed RAF units, the revision of coalition planning in this period overturned a number of earlier assumptions. The GR4 and GR7 detachments arrived in the Gulf expecting to fulfil a variety of roles, including attack, interdiction and CAS. In the event, they received – at most – two or three days of pre-planned tasking before being switched to CAS or, to be more precise, KI/CAS. KI/CAS (standing for Kill-Box Interdiction/Close Air Support) was a US Marine Corps (USMC) concept, which was adopted by the CFACC for the operation. The whole of Iraq was divided into kill-boxes and each box was then subdivided into nine equal squares, so that it resembled a telephone keypad. Operations were planned into

individual kill-boxes with set rules for entry and exit.

Outside a Fire Support Coordination Line (FSCL), some distance beyond the Forward Line of Own Troops (FLOT), aircraft were cleared to attack any targets they could find in their assigned kill-boxes – assuming they had been declared 'open'. If they were 'closed', aircraft could only attack under positive direct control, normally from a Forward Air Controller (FAC). Inside the FSCL, kill-boxes were automatically closed unless opened with the agreement of the CFLCC. In the absence of such agreement, they were subject to three types of CAS, all of which necessitated positive direct control of the aircraft. Type 1 required the terminal controller to have sight of both the aircraft and the target – a rare occurrence during the campaign; Type 2 required the terminal controller to have sight of either the aircraft or the target, while Type 3 enabled air strikes to take place when the terminal controller could see neither aircraft nor target. This typically occurred when a forward ground unit reported the location of a target to a terminal controller in radio contact but not visual contact with both the ground unit and the attacking aircraft.

For the GR7s committed to Counter-TBM, a slightly different system was employed. Western Iraq was divided into four Areas of Operation (AOs), each being assigned to specific SF elements. Each AO included a number of Joint Special Operations Areas (JSOAs), which corresponded with the kill-box grid system employed by coalition air forces. SF within the JSOAs were responsible for searching them for Scud activity and were also protected by strict fire support control measures – a vital safeguard against fratricide. Outside the JSOAs, it was unnecessary for fire support control to be quite so rigid, and air assets were responsible for the Scud hunt.

The contrast with the RAF's experience in GRANBY and post-GRANBY operations in the Gulf could hardly have been sharper. For more than a decade, crews had been accustomed to extensive mission planning and pre-briefing on their targets, as well as target folders containing up-to-date photographs, intelligence and other mission-specific information. In the KI/CAS role, on the other hand, aircraft were simply dispatched to a kill-box to await any tasking that became necessary. The GR7s committed to Counter-TBM were sent out to observe potential Scud hide sites. Detailed targeting information

normally emerged only during transit to the target area.

Other functions associated with pre-planned targets, such as the application of the TD and the selection of weapons – previously undertaken by the CAOC – were delegated to the cockpit during KI/CAS missions, and this was in addition to more familiar aircrew responsibilities, such as the location and positive identification of the target. Moreover, the critical tactical control function of assigning aircraft to targets was handed off to 1 MEF's Tactical Air Operations Centre (TAOC), the US Army's V Corps ASOC, and, for Counter-TBM, the Special Operations Task Force's Joint Fires Element.

This sudden, large-scale and high-intensity transition from pre-planned to dynamic tasking raised acute difficulties; the fact that small, mobile, tactical targets were involved – often in dispersed, concealed or urban locations – complicated matters further. The search for solutions was not helped by poor liaison between the different components. Intelligence was a particularly vital commodity in a campaign of this nature, yet the analysis and exploitation processes took far too long. Although the US maintained an enormous ISR collection capability, the fusion of intelligence products could not keep pace with operational requirements, and BDA was rarely made available in time to influence planning or targeting decisions.

Ultimately, significant numbers of coalition combat aircraft were left untasked or were unable to attack assigned targets for other reasons and returned to base with their weapons. This quickly became a source of concern at higher levels of the command chain. The V Corps ASOC appeared unable to control the air support assigned to it, and aircrew soon discovered that they were more likely to be allocated targets by 1 MEF. As V Corps drove rapidly north towards Baghdad, some aircraft also found themselves operating beyond the effective range of the ASOC's communications. However, work was soon ongoing to improve KI/CAS procedures, and provision was also made for aircraft to attack pre-planned or alternate targets. These tended to be fixed targets with predetermined GPS co-ordinates, such as headquarters, barracks and depots to which troops or equipment might have been dispersed. So-called 'bomber boxes' were also introduced, where aircraft could release unguided weapons against low collateral damage targets.

Meanwhile, the V Corps ASOC was asked to review its CAS procedures in an attempt to reduce the number of aircraft left untasked, and some improvement in its performance was subsequently noted. In due course, it was moved north to Tallil, in Southern Iraq, to improve communications with forward areas. At the same time, ISR and AAR assets that had been held south of the Iraqi frontier for their own safety were permitted to orbit over the border area to improve intelligence supply and on-station time for KI/CAS assets. Subsequently, some of these aircraft began operating inside Iraqi airspace despite the risks involved.

Nevertheless, notwithstanding what were referred to as 'process improvements in KI/CAS', the situation remained far from satisfactory. When the UKACC visited Ali Al Salem, Al Jaber and Al Udeid at the end of March, he noted considerable frustration among the GR4 and GR7 crews. He subsequently convened an operations/tactics seminar on KI/CAS at the UK ACHQ, which identified four key areas of concern. These were communications, the V Corps ASOC's performance, the non-availability of Kill Box imagery, and the prioritisation and flow of aircraft between the two control centres and individual Kill Boxes. It was also suggested that imagery from the GR4's RAPTOR reconnaissance pod and from the PR9s could be employed far more effectively to support 'time-sensitive' targeting.

In the end, at least some of these issues were addressed through tactical-level initiatives. For example, some direct transfer of RAPTOR and PR9 imagery occurred to both UK and US force elements to permit more rapid analysis and exploitation. Harrier Force South succeeded in obtaining more alternate targets and these were regularly attacked if no dynamic KI/CAS tasking was available. They were identified through the combined efforts of their Mission Support Cell (MSC) and the DOB Intelligence Cell. This involved careful study of future ATOs to establish the location of assigned kill-boxes, and close liaison with the 1 MEF Deep Strike Cell – also conveniently based at Al Jaber. If the location of possible targets was confirmed by the Deep Strike Cell, the MSC's commanding officer (who was also the 4 Squadron Ground Liaison Officer) would attempt to match the information with any available imagery of the areas covered. If the secondary targets were fixed, he could also clear the

Collateral Damage Estimate (CDE) with the CAOC and relieve the pilots of this responsibility. Alternate targets were also identified by the Air Cell within 1 (UK) Armoured Division.

On the ground, progress slowed during the last week of March. Commander CENTCOM subsequently felt that V Corps and 1 MEF had focused too much attention on seizing ground rather than destroying enemy forces. It became clear that their extended lines of communication were vulnerable to attack, and that measures had to be taken to ensure their security. Iraq's best Republican Guard divisions were also known to be defending the southern approaches to Baghdad, and it would have been unwise of the CFLCC to launch a major ground assault against them while his supply lines were threatened. Neither corps was at first strong enough to execute such a task. The weather also turned against the coalition, Central and Southern Iraq being hit by violent and prolonged sandstorms between 24 and 26 March. By the 28th, a more-or-less formal pause in the ground offensive had been called. Plans to move against the Republican Guard divisions were postponed from the 29th to 2 April to allow V Corps and 1 MEF to marshal their resources for the forthcoming 'Battle of Baghdad'.

The Air Component was thus handed an unexpected but welcome opportunity. During this period, strikes on the so-called Super-MEZ substantially degraded Iraqi air defences around Baghdad, although the CFACC began to suspect that their capability had been overestimated by coalition intelligence earlier in the operation. They rarely presented much direct threat to coalition aircraft. By 31 March, he was referring to Baghdad and its environs as a 'threat area' rather than a MEZ. Over the following days, Iraqi early warning cover began to disintegrate, and the number of SAM launches steadily declined.

Meanwhile, coalition air power continuously targeted the Republican Guard. The Baghdad Division was reduced to an estimated combat effectiveness of just 10 per cent, while for the Medina Division the estimated combat effectiveness was on 25 per cent. For the Adnan and Hammurabi Divisions, the figure was 55 per cent, while for the Nebuchadnezzar and Al Nida Divisions it was 70 per cent. The divisions that suffered least apparently reduced their vulnerability to air attack by employing such far-reaching dispersal

and concealment measures that their combat capability was also substantially undermined. Thus, the Republican Guard and other formations south of Baghdad were rendered incapable of effective resistance – a fact that became all too clear when the ground offensive resumed. The anticipated set-piece battle for the Iraqi capital simply failed to materialise.

As V Corps and 1 MEF closed on Baghdad and Iraqi resistance crumbled, coalition air forces were confronted with the prospect of the FSCL being extended north of the Iraqi capital and with virtually all fires short of this line having to be co-ordinated and controlled. Baghdad was carefully mapped and divided into zones; each zone was then subdivided into sectors, and GPS co-ordinates were produced for every building. The tactics appropriate for Urban CAS over Baghdad now became the focus of attention at the UK ACHQ and detachment level.

At the same time, the UKACC became concerned that the procedures formulated to manage the flow of aircraft into the restricted battlespace would not sufficiently address the increased risk of blue-on-blue engagements, mid-air collisions and collateral damage. This latter problem was particularly worrying because the smallest precision-guided munition (PGM) in the UK inventory was the 1,000lb Paveway/Enhanced Paveway 2.[3] Paveway 2 could be very accurately directed at a single building, but its explosive force often threatened to cause at least some damage beyond the immediate boundaries of the target. In short, it was not especially suitable for employment in an urban environment. In an attempt to find a rapid solution, proposals emerged for using inert Paveway 2 bombs, and the UK ACHQ submitted a request for their dispatch to the Gulf as a matter of the highest priority on 3 April. However, in practice, it was found that troops on the ground requesting air support preferred the effect of conventional explosive and would assign any available tasking to US aircraft if the RAF could only offer them inert weapons.

Coalition forces took control of Baghdad over the following days, and air tasking over the Iraqi capital then declined considerably, but there was some intensification of operations in Northern Iraq.

[3] Enhanced Paveway 2 incorporated GPS guidance as well as Paveway 2's conventional laser guidance.

Airborne troops had landed at Bashur Airfield on 26 March, and coalition SF were also infiltrated. The aim was to safeguard Iraq's oil fields around Kirkuk, uphold her territorial integrity and further her military defeat by preventing forces in Northern Iraq from reinforcing Baghdad. As the airborne and SF units lacked heavy weapons, they were largely dependent on air power for fire support. The CFACC also decided to target Tikrit from the air independently. As the city was Saddam Hussein's spiritual home and a base for other members of his government, he believed this would signify to the Iraqi people and to members of the armed forces the coalition's determination to remove the regime. Hence, as air tasking in support of V Corps and 1 MEF began to slacken, operations over Northern Iraq gathered momentum. Approximately 29 per cent of the air effort in the 5 April ATO was assigned to the north. This change of emphasis produced a limited amount of additional tasking for the RAF detachments, although the NCC ruled, on the basis of his TD, that they should not strike targets in the Tikrit area that were merely regime symbols. Ultimately, the fall of Saddam Hussein's regime during the second week of the month brought hostilities to an end.

From an air perspective, TELIC will always be associated above all else with the trials and tribulations of KI/CAS. To many, the high weapon bring-back rate and the difficulties experienced by the various tactical C2 agencies were extremely troubling. The coalition air forces appeared poorly prepared for the KI/CAS task, whereas the USMC, with their organic air capability, seemed far more proficient. On this basis, the continued efficacy of centralised air C2 was challenged in some quarters after the conflict. At its worst, this critique involved a fundamental misrepresentation of the ATO system which, it was claimed, rigidly tied aircraft to specific duties three days in advance.

In actual fact, the vast majority of combat aircraft were assigned by the ATO to dynamic tasking in support of the Land Component and not to specific pre-planned attacks. Moreover, there is a case for arguing that tangible gains might have resulted from more, rather than fewer, pre-planned air strikes. As we have seen, the lack of tasking for aircraft assigned to KI/CAS ultimately resulted in numerous *ad hoc* attacks on secondary targets. Many of these were fixed facilities and could have been targeted far more economically and effectively

by a conventional planned air campaign; at least some had in fact been removed from the A-Day ATO following the launch of the coalition ground offensive. Had such targets as headquarters buildings and barracks been attacked during the opening days of Operation TELIC, it is also far more likely that they would have been occupied. In the event, by the time they were finally struck, most would probably have been empty.

Historically, the accomplishments of the USMC have undoubtedly been impressive where CAS is concerned, yet it is all too easily forgotten that they lack much air capability beyond the basic CAS role. While they may often benefit from very effective CAS, their organic air support provides little else. Moreover, the distribution of air assets on organic lines is always open to objection on resource-allocation grounds. Organic air assets that are not immediately required by the ground formation to which they are attached can be difficult to transfer to the support of other formations that have an immediate and pressing need for them. By contrast, via centralised command, available air assets can easily be apportioned in accordance with rapidly changing operational priorities.

The Counter-TBM story provides an illustration. Although, on paper, the air assets assigned to Western Iraq were under the command of the CFACC, they were to all intents and purposes locked into the Counter-TBM/SF-support task. As their role was so clearly defined before the onset of hostilities, they could train and prepare for it very thoroughly. However, when the anticipated Scud threat did not materialise – and as the requirement for SF support began to decline – it was difficult to reassign them elsewhere. In any case, coalition commanders were unwilling to reduce the Counter-TBM air effort while the Iraqis retained their hold on particular areas that had long been linked to Scud-related activity, such as the border town of Al Qa'im. Consequently, while the RAF and USAF combat air detachments played a vital role in operations in the west, their strike rate was low even by the standards of Operation TELIC.

This is not necessarily a criticism of the whole concept of organic air power; it is simply a reminder that it can often involve the commitment of very substantial resources to quite limited and specialised tasks. In short, organic air support is not cheap. The RAF's participation in Counter-TBM operations involved the

permanent allocation of some 32 fixed-wing and rotary-wing aircraft as well as tankers and RAF Regiment personnel; Tornado GR4s based at Ali Al Salem also participated intermittently. USAF operations were mounted on a very much larger scale.

It is also revealing to draw comparisons between GR7 operations flown in support of the Counter-TBM mission and those mounted by Harrier Force South from Al Jaber. Between 19 March and 14 April 2003, 3 Squadron flew 142 Counter-TBM missions for 290 sorties. Some 32 sorties released weapons and 73 weapons were dropped in all. Harrier Force South, between 21 March and 14 April, flew 179 offensive missions involving 367 offensive sorties (ie excluding reconnaissance missions with the Joint Reconnaissance Pod), 117 of which released a total of 265 weapons. In other words, 11 per cent of the Counter-TBM sorties released munitions compared with 32 per cent of sorties flown from Al Jaber; 3 Squadron had to fly nine sorties per weapon release, whereas Harrier Force South had only to fly three.

These figures partly reflect the fundamental difference between the two detachments' respective tasks. While 3 Squadron aircraft took off each day to perform both the 'non-traditional' ISR (NTISR) and attack roles, a large part of the NTISR task was focused on one specific object – the Scud missile – which was not in fact deployed in Western Iraq. By contrast, Harrier Force South's reconnaissance role was entirely separate from their attack role, and offensive missions were tasked to destroy virtually any legitimate Iraqi target that could be found. They also flew occasional pre-planned missions and benefited from the availability of more secondary targets than were allocated to 3 Squadron. Consequently, Harrier Force South aircraft were far more likely to be tasked against targets. However, their offensive capability was critically dependent on the availability of Thermal Imaging And Laser Designator (TIALD)-capable aircraft and pods, and yet the over-riding priority attached to Counter-TBM compelled them to manage throughout the campaign with half the number of TIALD aircraft that was made available to 3 Squadron (four compared with eight), and with the same number of pods (five – initially four at Al Jaber). They faced a constant struggle to maintain these mission-critical resources.

Similar arguments could be applied where the PR9 detachment was concerned. Locked into an endless and unproductive search of

potential Scud hide sites, 39 Squadron began pressing for alternative tasking, collecting much-needed imagery over Tikrit, Baghdad, Ramadi or Mosul. However, the CAOC ISR collections staff responded with strong counter-arguments, emphasising the continued importance of the Scud hunt and the fact that both Commander CENTCOM and the CFACC still believed the Iraqis might attempt Scud launches against Israel if the coalition dropped its guard.

Beyond offering such insights into the advantages and limitations of organic air power, Operation TELIC also demonstrated once again the value of forward basing. When the Turkish option collapsed in January 2003, alternative basing arrangements had to be organised at very short notice. It was fortunate that Al Udeid could accommodate the second Tornado GR4 detachment in these circumstances. Nevertheless, the Al Udeid Wing faced a transit of about 900km to Southern Iraq – six times the distance that confronted the Combat Air Wing flying from Ali Al Salem – and this was a significant handicap.

Excluding reconnaissance missions with RAPTOR, Counter-TBM, Storm Shadow and ALARM tasking, the Ali Al Salem Combat Air Wing planned 324 sorties between 20 March and 15 April 2003; 309 sorties were flown. The 309 sorties resulted in 148 weapon releases (48 per cent). By contrast, the 268 sorties flown by the Al Udeid Wing led to just 87 weapon releases – 32.5 per cent. If the data are confined to KI/CAS against fielded Iraqi forces before the virtual cessation of hostilities on 12 April, the results for the Al Udeid Wing would be based on 200 sorties, of which only 47 – 23.5 per cent – released weapons. Al Udeid's distance from Iraq provides the chief explanation for their lower strike rate. More unserviceabilities were experienced during the long transit north[4] and they were far more dependent than the Ali Al Salem GR4s on AAR to hold over Iraq while awaiting tasking. If they were tasked, the subsequent processes of target location, positive identification and clearance also took time, with inevitable consequences in terms of fuel consumption. If AAR was unavailable, there was no alternative but to return to base.

Well before hostilities actually began, the drawbacks of operating from so far south were well understood. To an extent, they had to be

[4] Lower serviceability was exacerbated by a lack of prepared base facilities at Al Udeid, including aircraft sunshades.

accepted, but the original basing plan was reversed, as we have seen, to position the larger GR4 detachment at Ali Al Salem.

The ROE and TD employed during TELIC were only finalised the day before D-Day (although drafts were available earlier), a process described by one report as 'long and tortuous'. Nevertheless, both ministers and legal advisers were made aware of the realities of high-tempo, high-manoeuvre warfare while the TD was being prepared, and thus agreed to accept that rigid control over targeting from London was unrealistic. The NCC received more extensive delegations than the UK Air Commander had been granted during Operation ALLIED FORCE, four years before.

Delegations to contingent level were based on a CDE system that incorporated civilian casualty estimates and four tiers that reflected the proximity of civilian objects to coalition aiming points. Individual target categories were delegated up to specified tier and civilian casualty estimate levels. If the delegated civilian casualty or tier analysis criteria could not be satisfied at the appropriate level of command, the target would have to be referred upwards – for example from the NCHQ back to the UK targeting authorities. However, in practice, nearly all target approval decisions were taken in theatre.

US forces operated in accordance with somewhat different ROE and CDE procedures. Such divergences had become a familiar part of coalition operations since the end of the Cold War, and the friction they could sometimes generate came as little surprise. The requirements of the UK TD were fully briefed to the responsible American staffs, and it was very rare for RAF aircraft to be allocated targets that they were not allowed to attack. Moreover, through continuous discussion, it was often possible to identify and address potential problems well in advance. Then, if it was established that a target could not be assigned to UK aircraft or American aircraft flying from the UK or UK sovereign territory, it might be reassigned to an American aircraft flying from a non-UK base. The UK red card was only produced on a handful of occasions – usually when there had been no opportunity for preliminary Anglo-US discussions.

**Conclusion**

Lessons studies, conducted after Operation TELIC, drew attention to several C2 issues raised in earlier after-action reports, such as those

produced following GRANBY and the Kosovo conflict of 1999. There was concern about the weakness of the RAF's CIS infrastructure, and about the CAOC's shortcomings where intelligence exploitation and BDA were concerned. Nevertheless, the majority of assessments were broadly positive. C2 arrangements had benefited from the fact that there had been ample lead time for planning and preparation. Relatively few countries had participated in the coalition, and it had been dominated by the US and the UK, which had for long been operating together in the Gulf. When problems arose, they could often be dealt with informally and bilaterally. The laborious multi-national processes that caused so many difficulties during the Kosovo operation were notably absent, and there was far less political interference and considerably more delegation to commanders in theatre. Although human resources were certainly stretched, the RAF successfully manned the UK ACHQ with trained JFACHQ personnel as well as augmentees and other staff who had gained C2 experience from operations over Iraq and the Former Yugoslavia since 1990, and filled influential embedded positions in the CAOC.

Yet while several past problems were addressed, the coalition was confronted by many new air C2 challenges. Some of these arose during the transition from RESINATE to TELIC; others were encountered during the operation. For example, after the outbreak of hostilities, the USAF quickly demonstrated a number of impressive advances in the field of time-sensitive targeting, and this prompted recommendations for the RAF to review its targeting procedures and implement measures to accelerate approval processes when fleeting high-priority targets were involved.

But the most problematic issue for coalition air commanders was the move away from deliberate or pre-planned operations, which had been central to UK air doctrine in the 1990s, towards dynamic tasking, chiefly in the form of KI/CAS. This required the delegation of some C2 functions to the V Corps ASOC and 1 MEF TAOC. The many and varied difficulties involved were reflected in the fact that numerous combat aircraft were left untasked by these agencies – something that led to the development of secondary targeting of a more deliberate character. Furthermore, the coalition air forces were no longer cast in the lead role they had played in GRANBY, and over Bosnia and Kosovo. Instead, they found themselves supporting what

was essentially a ground plan in which the direct effect of air power appeared considerably less important than the volume of support provided to the land component. In this context, it was easy for both air and land to underestimate the importance of truly integrated planning based on the achievement of operational effect.

## AN INTERVIEW WITH 'BOMBER' HARRIS

### by Wg Cdr Andrew Brookes

*In the 1970s, then Flt Lt, Andrew Brookes undertook a series of one-to-one interviews with senior RAF commanders, aircraft designers and test pilots while researching his ground-breaking history of the RAF nuclear deterrent (*The V-Force*, Jane's, 1982). His interview with MRAF Sir Arthur Harris, (AOCinC Bomber Command 1942-1945), was recorded on 8 September 1975 at his Goring residence on the Thames. 'Bomber' Harris's own words and no-holds-barred opinions are published here for the first time.*

*Sir Arthur Harris.*

**What the Bombers Achieved**

'The first major war, 1914-1918, was a submarine war and if the German high-ups hadn't been so damned silly and had really gone flat out on submarines, they would have defeated us – and easily. They damned nearly did it as it was, despite all the silly mistakes they made. The last war was definitely the manned aircraft war, on all sides. The army did a lot of to-ing and fro-ing but quite frankly, the air gave the winning armies a walk-over, comparatively speaking. There is no doubt that the bomber won the Japanese war in a week with the nuclear bombs – stopped it in a week – thereby saving anything up to 2 million casualties, service and civilian, on both sides. And that was the bomber war, in my opinion, at its zenith.

'Yet our bombers in the last war got no credit from the smear-mongers who can't otherwise sell their material. But the fact remains that the people who matter, people who really saw what was going on and admitted it, such as [*Armaments Minister*] Albert Speer,

Goebbels, Erhard Milch [*Luftwaffe Chief of Staff*] and, quite frankly, Montgomery, who repeatedly said that the bombers won the war. That was pretty generous from a soldier. However, for some extraordinary reason, the Air Ministry propagandists – call them what you will – have *never* played up the bomber offensive properly. They handed the writing of the history [*The Strategic Air Offensive against Germany 1939-1945*, Webster and Frankland, HMSO, 1961] over to a junior officer [Flt Lt Noble Frankland DFC who completed one tour as a Bomber Command navigator] whose views were already known in the thesis he had written for his doctorate. And in that history, which damned with faint praise everything that the bombers achieved, finished up on the last page by saying what they did was 'decisive'. It was a somewhat peculiar approach. But it came too late to prevent every smear-monger in the trade from belittling the efforts of the bombers and everything that has been written since has been based on those volumes.

**The Guilty Party?**

*[John Strachey, a journalist by profession, was elected to Parliament in 1929. He joined Oswald Mosley in founding the New Party in 1931 but he broke with Mosley later in the year. Strachey lost his seat in 1931 and became a communist sympathiser for the rest of the 1930s. He opposed the Molotov-Ribbentrop Pact and after volunteering as an air raid warden he joined the RAF on a temporary commission. He served as an adjutant with a Hurricane squadron and then as the public relations officer with a bomber Group. He was posted to the Air Ministry as a public relations officer in the Directorate of Bombing Operations where he made official broadcasts about RAF Bomber Command.]*

'After he split with Mosley, this particular fellow became the number one communist UK propagandist. He intrigued with the Russian ambassador as to whether he should become an official card-carrying member and the answer he got, for obvious reasons, was "No, you're much more use to us outside." Came the war and do you know what they did with him? They dressed him up as a Wing Commander and put him in the Directorate of Bombing Operations in the Air Ministry. So I wrote to the Air Ministry but got no reply. I

went to Portal [*Chief of the Air Staff*] and I was told, "Oh, you must realise we look after these things et cetera, et cetera." However, I wasn't satisfied with that so a senior officer was especially sent down to warn me that I would be sued for libel if I didn't shut up.'

*[Strachey was re-elected as a Labour MP in 1945. He was immediately appointed Under-Secretary of State for Air and is widely credited as having been responsible for ignoring Air Chief Marshal Sir Arthur Harris and, by implication, Bomber Command from the Victory Honours List.]*

'It was partly due to this individual trying to get at me that Bomber Command did not get the credit it deserved, and to some extent he succeeded.'

**What Was Achieved?**

'You'll find Albert Speer repeatedly told Hitler that the shortage of essential armaments was due to the bombing and it was such that the fronts might be broken through at any time, as indeed they were. There were so many things that the bombers did which have been completely ignored. For instance, in the submarine battle in the Atlantic, the bombers are always being blamed for having grabbed all the aircraft and deprived the Navy of what they wanted for reconnaissance. Well that's just not true – what we did say was that the place to get submarines is where they're built and not to look for the haystack out at sea. We never got any credit for what we did, except from Albert Speer who in one simple sentence in his memoir wrote, "We would have kept to our promised output of submarines for Admiral Doenitz if the bombers had not destroyed a third of them in the ports", a third of them. Now in addition to the third that were destroyed in the ports by the bombing, quite a number were destroyed by hitting mines. 30,000 tons of mines were dropped and quite a number of U-boats disappeared and sank without trace. And incidentally there were other interferences as that revealed by the German admiral in charge of training submarine crews. He wrote to his superiors and said that without submarine crew training, you couldn't have an underwater war. "I cannot train crews if I can't have my training ground kept clear of these damned air-laid mines." That was in the Baltic – which we repeatedly and completely salted. One

aspect of the bomber war for which have never been given credit or fair treatment.

'We were so effective in bombing the U-boat programme that they tried in the end to get round it by prefabricating submarines inland. Typical German mistake. When they prefabricated the sections, they discovered what they should've known before they started. They were too big to go by road or rail. They can only go by canal. There were only two canals – which is exactly why we kept on destroying the canals with the result from an original output of nearly 120 prefabricated sections which only took a week or two to put together as opposed to six months to a year to build a submarine in the port. But the movement and their prefabrication was reduced from 120 a month to virtually nothing.

'During the war, the armaments side in Germany produced just over 20,000 dual-purpose anti-aircraft/anti-tank guns. The 88mm gun was particularly valuable because it was the armament of the Tiger tank – the best tank on any side during the war. And on the Tiger tank, the 88mm gun was not only the only mobile gun available but also it had a very sophisticated sighting system. It was the only mobile gun capable of competing with the very heavy armour of the Russian tanks. Of the 20,000+ guns produced, some 17,000-19,000 were retained in Germany in the anti-aircraft role. What would've happened if the German anti-tank forces had been multiplied by ten which they certainly would've been but for the bombing of Germany? In addition, they had to man and supply 26,000 light Flak guns which were heavy automatics, very valuable at the front but they didn't get there because they were kept back in Germany for AAA. Also, 160 million rounds of ammunition had to be manufactured as percussion and not as armour piercing anti-tank type. According to Milch, 900,000 fit German soldiers were retained in Germany to man the anti-aircraft defences. That was one of the major victories of the entire war. Well over 1.5 million people including over 900,000 soldiers were retained and occupied in Germany against the bombing. Quite apart from the damage the bombers did, which was enormous. For instance, the official history refers to the attacks on Berlin which were cut short simply because we were side-tracked onto helping the armies directly**.** The official history referred to them not as a failure but as a 'defeat'. Well, a Swiss diplomat reporting to his government

after the bombing of Berlin referred to 146 armament factories destroyed and over 200 severely damaged in Berlin alone. We know that 6,000 acres (as opposed to 600 in London, which is 10 to 15 times the size of Berlin), were totally destroyed and 1.5 million out of the 3 to 4 million occupants of Berlin were rendered homeless apart from the destruction of all the facilities such as water supplies, sewage and lighting. To say that that was not only a failure but a defeat was absolute nonsense but absolutely typical. Speer has said repeatedly that it was the bombing that defeated Germany, and naturally enough I believe it.

'I could give you many other instances. For instance, Monty asked us to help them cross the Rhine during which the prophets of gloom and doom said we would suffer the same sort of casualties that we suffered in the first day of the Battle of Somme in 1916. Well, we took out the defensive positions exactly where we were going to cross and Monty signalled me in the morning, "Thanks for the magnificent cooperation in the battle of the Rhine. The bombing last night was a masterpiece and enabled us to take our objectives by midnight." And they took them without anything approaching the 70,000 casualties on the first day of the Battle of the Somme. Casualties were actually 36, and that sort of thing applied all the way through with the army's advance through France. How was it that some 30 divisions of British and American troops, totally destroyed double their number of German divisions and drove them from the field every time. We took 20,000 prisoners at a cost of 150 casualties in the Channel ports alone thanks to the bombing. These fellows were put there and sworn to do or die et cetera, et cetera and they knew damned well they would die if Hitler thought they'd let the side down. But that's what happened thanks entirely to the bombing. There's not the least doubt in the minds of anybody who troubled to look at the facts that the bombers totally won the war in Japan and did 90% of it in Europe and would've done it all if there had been no invasion and the resources put into really going for Germany instead of every time we tried to increase the force, bombers were taken away here, there and elsewhere, sent to Egypt, handing over to Coastal Command and so forth. I remember on one occasion at the end of 1942, Winston asked if I was satisfied with the Bomber Command expansion plan? What sort of expansion? We finished up with 13 fewer squadrons than we

had at the start of the year. He was astounded but that's what happened. If the bombers had really been given full support and material that could've been made available, but for all the military sideshows, we would've won by bombing alone and we would've defeated Germany, which would've been a very bad thing. If there'd been no allied armies in France when Germany collapsed, the Russians wouldn't have stopped until they were paddling in the Atlantic. They would've gone straight through a completely dispirited and hopeless France. So, there you are.

**Fighter Escorts**

'In 1944 I asked for some night fighter squadrons to protect the bombers. The idea was to have these freelance fighters looking around for the freelance German fighters and interfering with them around their aerodromes and amongst the bomber stream. You can't escort at night, you just can't. No. I always believed in escort if it was for daylight bombing and in fact, the Americans have me and the British Purchasing Commission to thank for the fact that they had the Mustang. We told them the Mustang was the best fighter they'd got but their old Allison engine had been developed such that the last donkey- let alone horse-power had been got out of it. It was only when they got the Rolls-Royce Merlin that the Mustang developed its full potential. That said, the Yankees had one hell of a time with daylight bombing and they didn't achieve much until the last year of the war with the advent of the fighter escort and the continuing destruction of the German anti-aircraft organisation. The combined effect let them get away with daylight bombing but only by the skin of their teeth. In fact, one of their early efforts against Schweinfurt put them out of action for the rest of that year. Daylight bombing only tended to succeed in the Mediterranean and over Italy where the going was easier.

**The Atom Bomb**

'Nobody's going to risk highly trained crews to deliver a warhead if it can be delivered with the same accuracy by an unmanned missile. Of course, people say missiles didn't work in the last war but that was mainly because the flying bombs didn't get there and they were quite easily suppressed. And the V-2 rockets were not sufficient in number or sufficiently explosive. If those rockets had had a nuclear warhead,

we would have been properly up a gum tree. The one thing that worried Winston throughout the war, more than anything else, we hoped and prayed that the Germans didn't spring some terrible surprise. Winston had in mind our own nuclear programme which he thought I knew nothing about, as if I was born yesterday!

'People forget that it was our fellows who gave their nuclear research to the Americans to start what became known as the Manhattan Project. But people also forget that the Germans before the last war were ahead of everybody in nuclear fission. And here was another amusing sidelight on the effect of the bombers where the historians said we did nothing or virtually nothing to interfere with the German nuclear programme. In June '42 when we had hardly really started on the major bomber offensive, there was a conference in Germany about working on nuclear weapons. And the idea, thank God, was turned down flat by Hitler (with his wonderful intuition) for one reason and one reason only – he said it was "Jew science". But as Speer wrote, "In any case, we could not have afforded the vast amount of skilled and unskilled labour required for so ambitious a project while we had to find the manpower for urgent repairs following the bombing of the armament industry in Germany." Well that's straight from the horse's mouth. That's another score you put to credit to the bombers.

**Bomber Loss Rates**

'There was never a time when the bomber loss rate gave me great cause for concern. Take the Nuremberg raid, which was our biggest bloody nose. Well, when you fight a thousand battles, it'd be very surprising if you didn't get a punch in the nose occasionally. And we fought a thousand battles. Take the official history. It says that that Nuremberg defeat brought the bombing to a full stop. No! The losses during the entire month including Nuremberg were the lowest losses for 13 months previously. They don't mention that. But Nuremberg was on 30 March 1944. Now, April, May are the short nights which normally produced a great diminution of the bombing effort because we couldn't get there during those very short nights; we couldn't get darkness cover much further than Emden on the coast. Therefore, at that time of year the bombing was likely to ease up, as it had done every year, except for bombing coastal ports during the short nights.

But in addition, control of the strategic bombing during that month had been handed over to Eisenhower for the purpose of making things ready for the invasion. And a vast amount of bombing was done on that score, knocking out the French railways and a still greater amount was done knocking out the flying bomb release platforms and the two sites at Mimoyecques where the Germans were preparing for the V-3 long-range guns and also flattening places like the mushroom-growing caves which were the largest of the underground V-1 storage sites. All those factors reduced the scale of long-range bombing but so far from Nuremberg bringing bombing to a dead stop, within April and May we dropped nearly 20,000 tons of bombs deep into Germany, in nearly 6,000 major attacks with 6,000 aircraft. Some dead stop!

'The official history didn't even take the trouble to look at the Bomber Command records to see what we did and where we went. No, so delighted were they that we got a bloody nose, saying that stopped us. Really, that was the reaction. Well, I don't really blame the small boy who wrote the history; after all he was a very junior officer. There never was a junior officer, a private soldier, even a bugler, who didn't know how to run a campaign better than a commander-in-chief. I know that from first-hand experience. As I say, his views were known, and he was deliberately selected to write the history and he had nothing to go on except from the American reports.

'Whereas when we drove into Germany, the Americans sent in some thousands of people to undertake a Strategic Bombing Survey to assess the effects of strategic bombing on Germany. When I asked about the British equivalent, I was astounded to find that there wasn't going to be one. I tackled Churchill but he was too busy turning over in his mind the ways and means of kicking Japan out of the war, not realising that a grateful electorate was about to turn him out of the war. Well, in the end in opposition to this vast American organisation I had clandestinely to build up my own bombing survey organisation consisting of one man, one driver, one batman, one Dad's Army major, who was a very good linguist, to act as an interpreter and one of my ADCs in uniform to get them the entrée into organisations where you wouldn't have been allowed if you weren't in uniform. And that was all we sent in.

'Not for months and months later when everything had been

mopped up did the Air Ministry finally get round to building up some sort of organisation by which time the Americans had taken all the evidence back to America and were saying, "look what they've done". No, the thing that really infuriates me is the constant smearing which of course is grossly unfair not only to the crews who survived (God knows, the casualties were appalling) but also to the families of those who didn't survive, painting the picture that it was all futile and useless when in fact beyond any reasonable doubt or any reasonable examination of the facts the bombers, as Monty has said, did more than anyone towards winning the war. Even CIGS, Alan Brooke, who was no friend of the air force and was always making inordinate demands, ended up recognising the brilliant skill and the wonderful support they gave to the Army. Same from Eisenhower. At the Quebec conference, the Joint Chiefs of Staff decided that the invasion of France was going so well that the time had arrived to take control of the strategic British and American bombers away from Eisenhower and hand it back to their proper masters to compete with in addition to Europe. And when that decision was made, General Marshall wrote to Eisenhower – and that correspondence was top secret between the two heads of the American army and was not for anybody else to see – it was only revealed 25 years after the war. And in that correspondence, Marshall said, "this decision by the Joint Chiefs of Staff makes me apprehensive lest the support you're getting from them will diminish." Eisenhower, in his reply, which I've got here. "You might be interested to know that ACM Harris not only willingly supports the ground operation, but he actually proved to be one of the most respected and cooperative members of this team. Not only did he meet every request I made upon him, but he actually took the lead in discovering new ways and means for his particular type of planes on the battlefield. I'm quite sure he was genuinely disappointed to lose his status as an integral part of this organisation. However, he did have a representative right here at my HQ I have no real fears for the future when the great battle comes to the real entry into Germany, he will be on the job."

'Eisenhower, having twice been President of the USA, wrote later "that as one of my close associates in Overlord, a special word of thanks should go to you for your skill and selfless dedication to the cause in which we all served. No historian could possibly be aware of

the depths of my obligation to you."

**Double Standards**

'You hear continual moaning about the bombing of Dresden. Well, never mind who ordered it – we didn't. From that you hear a great deal about bombing civilians – the general attitude being, soldiers never do that sort of thing. Well, have you ever heard, in all of military history, of any army besieging a city letting the civilians out? So there seems to be some difference between what you can do within range of army's guns and what you mustn't do with bombing. We wrote off St Nazaire and Lorient and they belonged to our allies, the French. That was quite all right, do you know why? Because it was ordered by the navy and not by the bloody air force. At the same time I was ordered to write off Bordeaux, then the second largest city in France, and I refused to do so without written orders from the PM.

'To go beyond that, no navy has ever had any other strategy than blockade and counter-blockade. There can't be, never has been, never will be. In the first war it was so successful, according to our own white paper published afterwards, that we starved 800,000 Germans to death, which is more than the bombers, but they don't brag about it. It was all right; it was done by the navy and not by those cads in the air force. It's the attitude, isn't it?

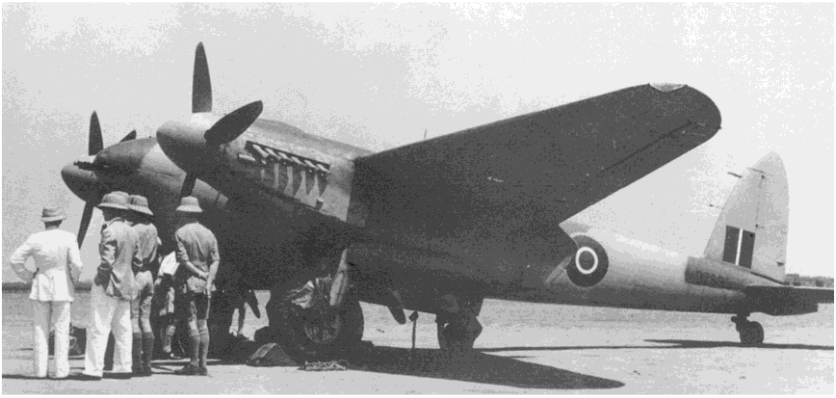
'The massed bomber raids on Hamburg over four nights in July and August 1943 reduced half the city to rubble and killed nearly 45,000. It would have taken five month's production to amass the same naval weapon load and if the navy had sailed up the Elbe and achieved what Bomber Command did, the fleet commander would have had a column erected to him in the centre of London!'

# THE MOSQUITO AND ITS STRUCTURAL PROBLEMS IN THE FAR EAST[1]

**by Wg Cdr Jeff Jefford**

In April 1943 AHQ Bengal announced that six Mosquitos, the first of which had already arrived, were being delivered to India. These aircraft, Mk IIs and VIs, were allotted to No 27 Sqn at Agartala as the first examples of the type to be issued to a squadron in the Far East. The Mk IIs were intended for familiarisation while the Mk VIs were to be used for weathering trials during the forthcoming rainy season. It had already been anticipated that the casein glue normally used to bond the Mosquito's structure might not stand up to tropical conditions and in the Mk VIs this had been replaced by a formaldehyde adhesive. The trials were to be supervised by Mr F G Myers, de Havilland's (DH) technical representative in India. Despite the somewhat experimental nature of these aeroplanes it was decided that they could also be used to supplement the squadron's Beaufighters on intruder operations.[2] In the event only three offensive sorties were mounted before the five surviving Mosquitos were sent to Kanchrapara where they were adapted for reconnaissance duties and issued to No 681 Sqn at Dum Dum.

Despite these aircraft having been exposed to high temperatures and humidity, no significant deterioration of the adhesive seemed to



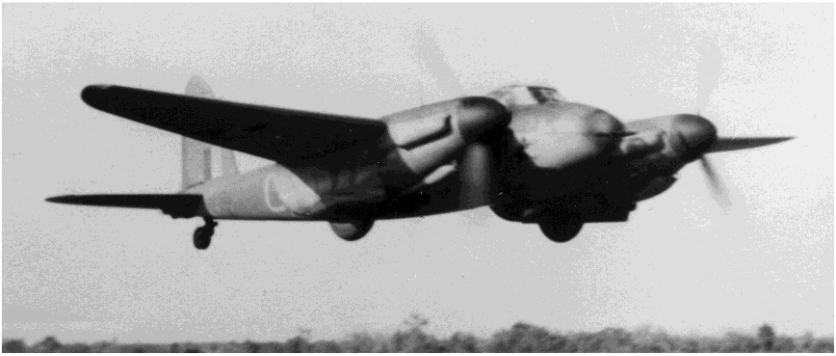
*The first Mosquito to be allotted to a unit in India, No 27 Sqn, was this Mk II, DZ695; it was written off in a landing accident on 30 May 1943. (via G J Thomas)*

have occurred so, in August 1943, approval was given for the delivery of more Mosquitos to India. The PR aircraft were eventually concentrated in No 684 Sqn, which formed at the end of September 1943, and the Mosquitos proved to be so effective and trouble-free that, by January 1944 the Air Ministry was planning to equip no fewer than twenty-two bomber and strike squadrons in the Far East with Mk VIs, using them to replace Vengeances and some Beaufighters.[3] To support this programme, de Havillands were instructed to begin the manufacture of replacement airframe components at Karachi.

No 1672 (Mosquito) Conversion Unit was established at Yelahanka in early 1944 to introduce the type into service in the attack role. No 45 Sqn was the first operational unit to be re-equipped, flying its first mission on 28 September. No 82 Sqn began its conversion in July and No 47 Sqn in October with Nos 110 and 84 Sqns following a few weeks behind and it appeared that No 684 Sqn's PR effort was going to produce a record photographic coverage in November. The type's prospects were thus looking very bright when all Mosquito flying in India came to an abrupt stop following a series of fatal accidents.

On 13 September the crew of HP886, a Mk VI of No 82 Sqn, had been killed when their aeroplane crashed while making dummy attacks on another aircraft; the CO thought that a gluing fault might have caused a failure of the wing or tail.[4] Then, on 4 October, the wing leading edge of one of No 45 Sqn's Mosquitos, HX821, buckled in flight, although Sqn Ldr N L Bourke RAAF was able to land safely. Having been transferred to No 143 RSU, this aeroplane crashed near Bishnapur on 10 October, killing the pilot, Flt Lt R A Campbell RCAF, and the RSU's Chief Technical Officer, Flt Lt D W Rimell.

Sqn Ldr C J Chabot was despatched from HQ Base Air Forces South East Asia (HQ BAFSEA) on 11 October to investigate the recent spate of accidents. On the 20th two more Mosquitos crashed with the loss of four more lives; HP919 of No 82 Sqn lost a wing while on a practice bombing sortie from Ranchi and No 45 Sqn's HP921 broke up over Kumbhirgram. Pending a diagnosis of the problem, flying was suspended the following day. Mr Myers was already studying the available wreckage and he arrived at Kumbhirgram on 23 October to inspect No 45 Sqn's aircraft. An initial analysis indicated that the accidents had been caused by glue



*No 45 Sqn's HP921 taking off from Amarda Road in May 1944. On 20 October this aeroplane broke up in flight over Kumbhirgram, killing Sqn Ldr Don Edwards and Fg Off Eric Sandifer, resulting in all Mosquitos in India being grounded for inspection.* (Howard Levy)

failure; it was believed that within the wings of aircraft which had been parked in the open, 'extreme heat has caused the glue to crack and the upper surface to lift from the spar.'[5] It soon began to become apparent, however, that the adhesive was not the real cause of the trouble. Worse, it would also emerge that the problem was not confined to India.

As early as March 1944 production of the first batch of Australian-built Mosquitos had been disrupted when it was discovered that some components of the wing's internal structure were failing to mate. Gaps had appeared in the glued joints between the main spar and the plywood skin and, under flight loading, the upper surface could become completely detached, leading to the potential collapse of the box-section spar assembly. The first fifty sets of wings had to be modified, delaying the aircraft's entry into service with the RAAF by several months.[6] Since then the Accidents Investigation Branch had attributed to structural failures of various kinds, some of them specifically associated with the wing, the loss of twenty-five UK-based Mosquitos between 13 April and 27 September 1944.[7]

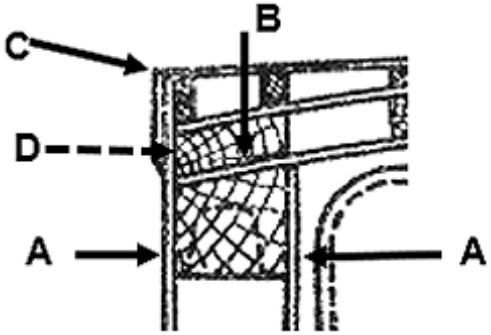
In an initial report on HP919, written on 26 October, Myers noted that his examination of the wreckage had indicated that the front spar had 'broken away clean at the scarfe (*sic*) joint adjacent to the fourth rib from the wingtip.[8] On careful examination it was discovered that there was no evidence of any glue on either of the surfaces of the

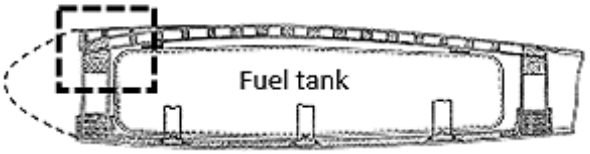
scarfe [*and that*] further examination of the parts of this wing have shown that there is a very great lack of glue in many places [....] in some cases leaving a gap of up to 0.25 inches.' Examination of another aircraft, HP976, again revealed, 'no evidence of any glue between the spar sections', the gap in this case being 0.35 inches.[9]

On completion of its preliminary investigation into the spate of local accidents HQ BAFSEA signalled its findings to the Air Ministry on 28 October. The main conclusions were that there had been failures of glued joints between the spar web, the spar boom and the packing block on the front mainplane spar and further failures of a glued joint in the top boom splice at Rib 12. Other problems, some of them also identified as failures of glued joints, were identified within the tailplanes. Eight of the eighteen Mosquitos on charge to No 45 Sqn had been found to be defective. At this early stage the incidence of failures appeared to be most common with aircraft which had undergone a prolonged period of outdoor storage in India.[10]

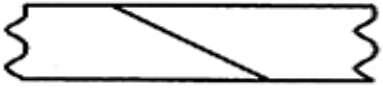
It is significant that the RAF was referring to 'glue failures', in contrast to Mr Myers 'absence of glue' and BAFSEA's final observation suggested that there might be some justification for believing that the glue had broken down under tropical conditions. This was a possibility that had been feared ever since the Mosquito had first been introduced in India and the experience of No 45 Sqn while it had been working up at Dalbhumgarh had provided some support for this theory when, as early as June 1944, it had complained that, 'A great deal of trouble was experienced with wood shrinkage due to heat and every aircraft had to have its control surfaces checked and the main connections to the spars connected up.'[11] But was shrinkage pulling the components apart or a lack of glue allowing this to occur? Myers had little doubt that it was the latter. He had refined his initial report into the loss of HP919, but he still maintained that '. . . there was no trace of cement on either of the surfaces forming the splice [*and that*] the whole of the structure examined showed a general low standard in the quality of the cementing.'[12]

On 1 November the Ministry of Aircraft Production (MAP) relayed the text of BAFSEA's 28 October signal to de Havillands with a request that their representative in India visit No 45 Sqn to make his own assessment.[13] The problems being encountered in India were discussed at a meeting convened by the MAP in London the following

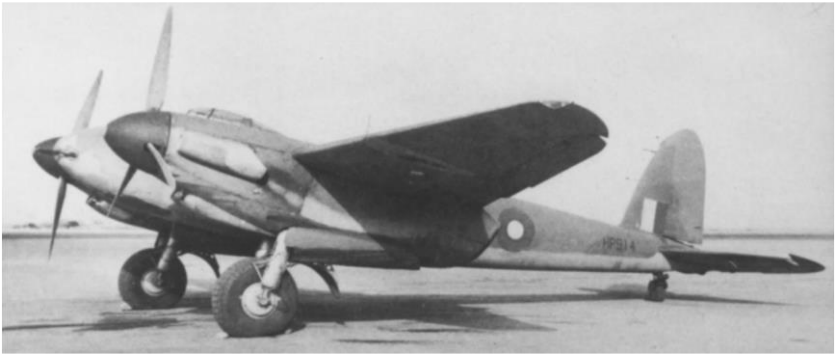



*Cross section through a Mosquito wing, showing where the major problems appeared to be.* **A** *indicates where defects were found with adhesion between the spruce front spar and the plywood facing webs.* **B** *is the interface between the upper surface of the spar and the plywood wing skin, which could also display inadequate or deteriorated glue.* **C** *is the spanwise junction between the main wing skin panels and the (not shown) leading edge ' nose' fairing. This joint was sealed with madapolam (linen), which was found to deteriorate quite rapidly in India, and the plywood, once soaked, then shrank, creating a spanwise gap that allowed moisture to enter, leading to the problems experienced at* A *and* **B**. *This gap was later sealed with a spanwise plywood strip (Mod 638) [*Sharpe and Bowyer*; Mosquito, (Faber; 1967) p37]*



*Left, a scarf joint, or splice, as incorporated in the Mosquito leading edge boom at* **D**, *is the strip of spruce sandwiched between the upper wing skin and the front spar boom – as viewed from the front, in the direction of arrow* D, *above.*



*One of the first Mosquitos to be allotted to No 45 Sqn, in March 1944, HP914 was taken apart in the following November as part of the effort to identify the cause of recent losses.* (Howard Levy)

day to consider BAFSEA's signal and Myers' letter of 26 October, but there was insufficient data to draw positive conclusions. It was agreed, however, that:

a. there was cause for concern over quality control at Standard Motors, who had built the wings of the aircraft exhibiting the reported defects;

b. that de Havillands should send an engineer with specific Mosquito experience to assist Mr Myers in-theatre;

c. that someone with appropriate structural expertise should also be sent out to India to investigate.[14]

On 4 November Myers submitted a report on No 45 Sqn's HP914 which had been dismembered for inspection. This report included observations such as 'no cement or adhesion' between certain components.[15] On the same date, HQ BAFSEA sent another signal to London reporting a 'serious defect in splice in top boom of front main spar adjacent to Rib 12' of another aircraft, HR437. The splice was open to a width of 1/8th inch due to, 'excessive glue subsequently reduced to powder' but the conclusion was that this, 'apparent defect [*was*] not due to climatic conditions [*in*] this theatre.'[16]

Meanwhile, Myers had been inspecting other aircraft in India and on 5 November he sent BAFSEA a further report on a number of other aircraft which had been opened up. Several of these had been in India for only a few weeks yet they already displayed deficiencies similar to

those which had crashed. This threw serious doubt on any suggestion that the problem might be due to lengthy tropical exposure and strengthened Myers' contention that the wings had been inadequately constructed in the first place. To settle this point, the oldest Mosquito wing in India had been examined. This belonged to HJ730, a Mk VI, which, as one of the original aircraft delivered in April/May 1943, had been in use more or less continuously with Nos 27, 681 and 684 Sqns ever since it had arrived. Myers reported that this machine was, 'in perfect condition throughout', and he therefore concluded that the problem, 'could in no way be attributed to weathering conditions in this Command, but only to faulty workmanship in the original manufacture of the components.'[17]

Three days later, BAFSEA sent another signal reporting that all Mosquitos that had been in India for more than three months had now been inspected. Of the twenty-four aircraft involved only one did not have a defect in the splice, ie the scarf joint, adjacent to Rib 12, and BAFSEA recommended that checks be carried out on aircraft in the UK.[18] Clearly alarmed at the magnitude of the problem, and its possible global implications, the Air Ministry requested specific details (Mark and serial number) of all defective airframes so that comparative checks could be made at home. BAFSEA responded on 13 November listing thirty-one aircraft. Curiously, one of them was HJ730, to which Myers had given a clean bill of health only a few days before. This was followed up on the 17th by a further signal identifying another fifty-one defective aircraft.[19]

As a result of the accumulating evidence, all Mosquito operations in the Far East had been suspended on 10 November and, apart from some ferrying flights to MUs, the aeroplanes had been effectively grounded. The knock-on effects of this were far-reaching. The planned manufacture of components at Karachi was abandoned and ACSEA's re-equipment programme, which was just beginning to gain momentum, was suspended. De Havillands, still maintaining that the failures in India resulted from climatic conditions, nevertheless ordered the destruction of all components at Hatfield that had been bonded with other than formaldehyde glue.[20] For his part, however, it is clear that No 684 Sqn's diarist had no doubts about the reason for the grounding, noting that, 'Section of wingtip splicing on some aircraft found to be defective due to inferior workmanship at the

factories producing these components.'[21]

With the aircraft grounded since 10 November, BAFSEA wrote to all AOCs on the 26th to lay out the facts. It said:[22]

> 'You will by now have received a signal from this HQ explaining briefly the reasons for grounding Mosquitos. There are, unfortunately, at the present time rumours going around various units that large numbers of Mosquitos have broken up. The facts concerning the Mosquito are set out below:-
>
> There have been three serious accidents attributable to faults in the wing spar manufacture. It cannot be definitely stated that these are due to faulty manufacture or to glue deterioration but the evidence goes to show that there are errors in the shaping of the wood making up the spar assembly. A common fault running through one series of Mosquitos coming mainly from one factory is that pieces of wood are so shaped that, when assembled, essential elements do not make surface contact and no adhesion takes place. Ban on flying Mosquitos will be lifted when we can be certain through which series the fault runs.'

The letter went on to say that a deputation from the UK, led by Major Hereward de Havilland, was due to arrive in India that day and that their findings would be passed on once they had completed their investigation.

BAFSEA's letter was not entirely accurate because it still reflected the early conclusion that the faults occurred only with Mk VI wings built by Standard Motors at Canley. This had already been shown to be premature, since BAFSEA's signals of 13 and 17 November citing specific faulty aeroplanes had included Mks III, VI, IX and XVI, some of which had been built elsewhere, some of them by the parent company at Hatfield. Furthermore, apart from there being different interpretations of the cause of the problem, differences of opinion were also emerging as to precisely what constituted a defective wing.

A week after arriving in-theatre the UK team had identified another problem – shrinkage of the airframes in monsoon conditions. There were, therefore, now five possible explanations under consideration: deterioration of the glue; lack of glue; incorrectly shaped components; wood shrinkage; and, as an outsider, insect infestation. There were signs of a broad dispute emerging between the manufacturers, who

favoured an environmental explanation, and the RAF in India who, initially at least, tended to accept local advice that the aircraft were inadequately constructed.

On 4 December a member of the UK team, Dr M Pryor of the RAE, drew up a lengthy and measured appreciation of the problems being experienced with wooden aircraft (not only Mosquitos) in India and sent it to the MAP.[23] He opened with, 'I think we have formed a false idea of how wooden aircraft stand up to the Indian climate. Reports on Mosquitos and gliders give an optimistic picture.' Quickly dismissing concern about the effects of, 'decay, by fungus [*or*] bugs', he went on to consider the effects of damp and, in marked contrast to his upbeat opening remarks, he painted a pretty gloomy picture, 'In general the condition of all types I have examined is alarming, and I think the RAF will need all the help either we or the constructors can give them if they are to maintain a reasonable standard of serviceability on any wooden aircraft in this theatre.' In the specific case of the Mosquito, he concluded that there were two quite separate problems.

Pryor recognised that, in the case of the scarf joints, while there had been some deterioration of the glue and/or wood shrinkage, neither of these was the root cause of the problem which was, 'entirely a matter of faulty assembly.' Some 75% of the aircraft inspected in India had exhibited this defect and it was anticipated that it would be found to be equally prevalent among those in the UK. On the other hand, Pryor went on to observe that Maj de Havilland had succeeded in, 'convincing all concerned that this defect is not nearly so important as they originally thought it was.'

The second problem concerned the adhesion between the spruce spar booms and various plywood elements, including the upper wing skin. Although there was some evidence of inadequate gluing where these components had separated, it was concluded that in the majority of cases (frequently in the vicinity of Rib 12 – about 6 feet in from the wingtip) it was, 'probably due to swelling of the top skin rather than shrinkage' causing the securing screws to pull through.

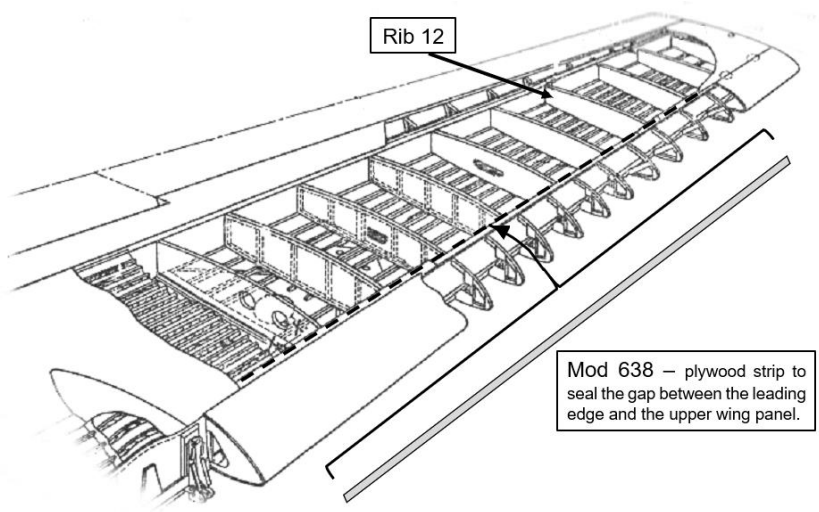
On balance it now appeared that both the manufacturer *and* the climate had contributed to the failures, but it was now beginning to be appreciated that, in the latter case, what had initially been seen as shrinkage, leading to separation of components, was not so much a

cause as an effect; the real damage mechanism was swelling. Very significantly, however, Pryor considered that, 'Mosquito accidents had not been excessive.' Of the three that had allegedly been lost as a result of structural failure, he considered that this had actually been the case only with HP919, and that the, 'connection with the failure of the defective edge boom splice (ie the scarf joint) is not at all certain.'

Apparently acting on Pryor's input, the MAP promptly directed that, on the next and all subsequent daily inspections, all Mosquitos up to and including the Mk 32 were to be examined for signs of the wing skins lifting from the front spar adjacent to Ribs 11 and12.[24] RAF Defford promptly reported that six Mosquitos, of six different marks, held by the Telecommunications Flying Unit had, 'defective wing spar glued joints.'[25] Since all of these aircraft had been built by the parent company at either Hatfield or Leavesden, this provided further evidence to exonerate Standard Motors as having been the sole culprit, but it also served to undermine those who believed that the root of the problem was to do with the tropical environment, as none of these aeroplanes had been exposed to monsoon conditions – and they had certainly not been attacked by termites.

Pursuing Pryor's prediction that defective scarf joints would be found throughout the fleet, some sixty wings in the hands of various repair contractors in the UK were examined during December. The findings revealed that, while the splices were, 'not entirely satisfactory' on some aircraft, the incidence was nothing like the 75% reported in India and, and perhaps more significantly, that there was no associated lifting of the wing skins at Rib 12.[26] This report, combined with that from Defford, clarified the position somewhat. The detection of some defective scarf joints in the UK tended to confirm that there was a manufacturing problem but the much higher incidence of this fault in India indicated that climatic conditions had exacerbated it considerably. The absence of any observations on lifting skins in the UK, compared to India where this symptom was common, provided further strong evidence to support the contention that the Mosquito's problems arose from dampness.

These emergent conclusions were confirmed at an MAP meeting on 1 January 1945 at which Maj de Havilland presented an analysis of the Mosquito's defects. He was able to report that the manufacturer had conducted strength tests on the suspect scarf joint, using partially




*Mosquito Mod 638.* (Sharpe and Bowyer; *Mosquito*, p37)

glued specimens, which had shown that the strength factor in that region of the wing was perfectly adequate. Even more surprisingly, this had also proved to be the case when *un*glued samples were tested, which effectively removed the defective scarf joints from contention as being the likely cause of an accident.

The more critical failures were those concerning the mutual adhesion between spar booms (particularly the front ones), spar webs and wing skins. The trouble here was, 'attributed to water soakage in conjunction with differential shrinkage and some unsatisfactory initial gluing.' The company undertook to improve manufacturing techniques among the contractors building Mosquito components which would take care of the inadequate 'initial gluing' issue entirely. The 'differential shrinkage' aspect was less easily resolved. The root cause was clearly the ingress of water and it had become apparent that a major factor here was the deterioration of dope and sealant (madapolam fabric) on the upper surfaces of the aircraft; a factor which had not been widely reported at first. Repair of defective aircraft, of which there were about fifty in India, would involve replacement of the entire front spar and leading edge assemblies. Prevention of future occurrences was to be achieved by applying a plywood strip spanwise along the entire wing to seal the whole of the

*Once confidence in the Mosquito's structural integrity had been restored, it operated over Burma with considerable success, as indicated by this picture of this, still camouflaged, Mk VI of No 45 Sqn, HR462, taxying in on 11 March 1945 on completion of its fiftieth sortie.* (S O'Connor)

butt joint between the upper skin panel and the curved leading edge, which ran the length of the front spar. This was subsequently introduced as Modification (Mod) 638. Surprisingly, since it altered the aerofoil section, Mod 638 appears to have had no adverse effect on either performance or handling. Finally, to improve the protective finish further, Maj de Havilland reactivated an earlier proposal that reflective silver paint be introduced. Although this had previously been ruled out on tactical grounds, it was agreed that the suggestion would be re-examined and on 14 February 1945 a silver finish was authorised for all Mosquitos based in India.

Now that the dust had finally settled and the initial assessments had been revised, it seems that the Mosquito's problems were not nearly as serious as had initially been feared. Because of the sudden spate of accidents, however, the authorities had had little alternative but to ground the aircraft pending investigation. This had found that, while the Mosquito's wooden structure did have some limitations in a tropical climate, detailed analysis of the accidents that had occurred had revealed neither a common cause nor a fundamental weakness. No 45 Sqn had been issued with new aircraft in early December and it had resumed operations with these very successfully. Confidence was soon restored, and No 82 Sqn had also become operational before the end of the month. At the same time the stalled re-equipment programme was restarted, Nos 47, 84 and 110 Sqns eventually joining

the Mosquito force a few weeks before the fall of Rangoon. ACSEA's original plans for the large-scale introduction of the Mosquito had lost far too much momentum, however, and although Nos 89, 176 and 211 Sqns also converted to the type they did not become operational until the war in Burma was virtually over.

The Mosquito remained in service in the Far East after the war and Nos 47, 82, 84 and 110 Sqns saw some action against Indonesian nationalists in the Dutch East Indies in 1945-46, but the problems persisted. On 15 December 1945 a Mosquito of the Don Muang-based No 211 Sqn, RF588, had broken up in flight over Ipoh. Whether this had been due to adverse conditions – turbulence – or a structural defect was unclear, but the inevitable result was another grounding. Enough aircraft had been cleared to permit twelve to participate in a fly-past over Mountbatten's Victory Parade in Bangkok on 19 January, but the squadron was grounded again the following day. It was suspected that the, 'rear web of the rear spar had separated from the edge boom' and a Special Technical Instruction (STI), was issued calling for all aircraft to be inspected.[27] Only three of No 211 Sqn's eighteen aircraft were cleared to fly and it was decided to disband the unit. In Ceylon, the same STI had grounded fourteen of No 45 Sqn's Mosquitos.

Although there were no more catastrophic failures, operations continued to be hampered by the discovery of further faulty wing structures. Plagued as it was by periodic groundings and flying restrictions, the Mosquito was now of doubtful value and before the end of 1946 the type had been withdrawn from service in the attack role in the Far East. Ironically, its successor was the Beaufighter, the aircraft that the Mosquito had been intended to replace.

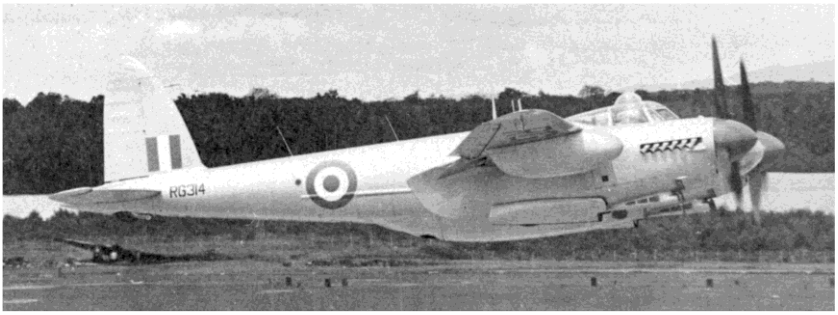
De Havillands had, at first, been understandably reluctant to acknowledge that their construction techniques were lacking but there seems little doubt that this had been the case in 1944, although this was a problem of quality control rather than a fundamental fault in the Mosquito's design and seems, in any case, not to have been critical. There is little reason to doubt, however, that the aircraft's greatest deficiency was the inherent inability of its wooden structure to stand up to the demands of the tropical climate and it appears to have been impossible to make the aeroplane waterproof. While Mod 638 may


*An early post-war (1946) Mk VI of No 84 Sqn, RF696, wearing the all-silver paint scheme that had been introduced in February 1945.* (R H Dargue)

have been sufficient to keep the rain out in Europe, continuing post-war problems with late-build Mosquitos would indicate that it evidently failed to do the job in southern Asia.

With the advantage of hindsight, an additional contributory factor suggests itself. It is possible that the inherent tendency for the integrity of the Mosquito's wing to become degraded under tropical conditions was exacerbated by the sortie profiles being flown. This surmise is based on the fact that, although No 684 Sqn's aircraft had exhibited the same defects as other Mosquitos, the relatively staid nature of that unit's reconnaissance role imposed far less stress on the airframe than low-level fighter-bomber sorties, and No 684 Sqn appeared not to have experienced any catastrophic failures. Furthermore, despite the continuing problems with the wing structure of Mosquitos operating in the attack role in the Far East, which led to its early withdrawal, the type continued to give safe and relatively trouble-free post-war service with No 81 Sqn, which operated Mosquitos from Singapore on (mostly) high-level photographic reconnaissance and survey work until as late as 1955.

Having drawn this tentative conclusion, however, there must remain a lingering doubt over the fate of some of the wartime Mosquitos which simply 'failed to return'. At the time it was naturally assumed that such losses had been due to enemy action but there is some evidence to suggest that this may not always have been the case. In the course of the painstaking post-war work of locating the remains of lost servicemen and removing them to military




*No 81 Sqn's RG314, a PR 34, taking off from Seletar on the RAF's final operational Mosquito sortie on 15 December 1955.*

cemeteries, the Missing Research and Enquiry Service arranged for two 'Unknown British Airmen' to be reburied in Taukkyan War Cemetery in 1953.[28] Although they could not be positively identified, the date and location of their bodies leaves little doubt that they were Fg Off E A Fielding and Fg Off R A Turton RNZAF. They had been flying a reconnaissance mission over Rangoon on 2 November 1943 when their aircraft, Mosquito II DZ697 of No 681 Sqn, was seen to disintegrate; eyewitnesses made no observations of any enemy involvement. DZ697 had been one of the first batch of Mosquitos to reach India and, prior to being adapted for PR work, it had been one of those used by No 27 Sqn on a trial basis. The loss of DZ697, due to what may well have been a catastrophic structural failure, pre-dates the general alarm over this phenomenon by a year and it must leave an unanswered question as to how many of the other Mosquitos which were reported missing, in Europe as well as in the Far East, may actually have come apart rather than being shot down.

In conclusion, while stories of the glue 'breaking down' circulated widely both during the war and after, and there was some factual basis for these, this was not the root cause of the Mosquito's problem. It is true that there were some early manufacturing deficiencies and joints did tend to come apart, but the real problem lay in the swelling and/or shrinkage of the wooden structure, rather than simply inadequate adhesion – although the end result was the same. Despite the remedial action that was implemented, silver-painted, late-series Mosquitos, complete with Mod 638, were still being grounded for 'defective glued joints' in Singapore as late as 1954, eg VT628 of No 45 Sqn.

But was it really defective glue, or a defective joint, or a well-glued well-made joint which had pulled apart through wood shrinkage? It seems evident that, regardless of the type of glue employed, the colour of the paintwork and the incorporation of Mod 638, the Mosquito was simply unable to stand up to prolonged exposure to the high ambient temperature and humidity of the tropics.

**Notes:**

[1] This article is a lightly edited, and slightly expanded, version of Annex K to the author's history of No 45 Sqn, *The Flying Camels* (1995).

[2] TNA AIR23/5107. AHQ Bengal letter AHQ/193/2/Air dated 10 April 1943.

[3] Sharp, C Martin and Bowyer, M J F; *Mosquito* (Faber & Faber, 1967) p261.

[4] With hindsight, it is possible that the same thing might have occurred on 13 May when No 45 Sqn's HP939 had broken up at Amarda Road in very similar circumstances, costing the lives of Wg Cdr H C Stumm and Flt Lt W J McKerracher. The possible connection does not seem to have been noted at the time, however, and the original diagnosis, that an undercarriage door had come off and carried away the tailplane, does not appear to have been reviewed.

[5] TNA AIR27/457. RAF F540 for No 45 Sqn, 23 October 1944.

[6] *Mosquito*, p111.

[7] TNA AVIA15/2605. Accidents Investigation Branch Service Accident Reports Misc Nos 23F and 23G.

[8] The fourth rib in from the wingtip is Rib 12.

[9] TNA AVIA15/2605. Air mail letter DH/India/Misc 267 dated 26 October 1944 from F G Myers to A J Brant of de Havillands.

[10] *Ibid.* Signal T397, BAFSEA to Air Ministry, of 28 October 1944.

[11] TNA AIR27/457. RAF F540 for No 45 Sqn, 12 June 1944.

[12] TNA AVIA15/2605. Letter DH/India/Misc 277 dated 31 October 1944 from F G Myers to various addressees in India and the UK, including the Air Ministry and de Havillands. This letter was accompanied by a number of photographs (not on file) of the wreckage of HP919 illustrating the difference between the torn wood fibres of a damaged, but well-glued joint and the smooth surfaces of joints that lacked glue.

[13] *Ibid*. Letter SB.42494/RDL1(b)/EGE dated 1 November 1944 from Mr E G Etheridge at MAP to the Resident Technical Officer at Hatfield.

[14] *Ibid.* Minutes of a Meeting held in Thames House on 2 November 1944.

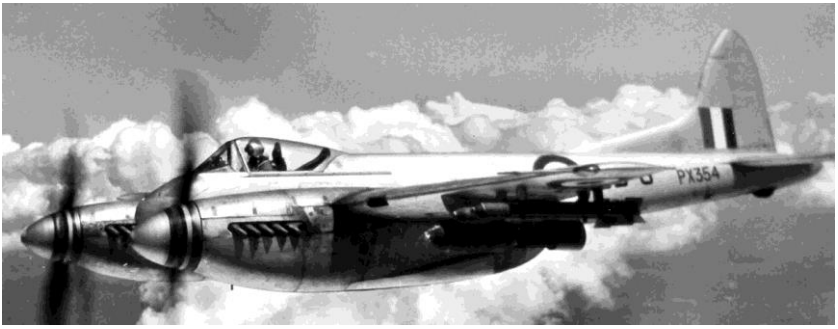
[15] *Ibid.* Letter DH/India/Misc 279 dated 4 November 1944 from F G Myers to various addressees in India and the UK, including the Air Ministry and de Havillands. As with the letter at Note 12, this one had also originally been accompanied by photographs (no longer on file) supporting Myers' conclusions.

[16] *Ibid*. Signal T141, BAFSEA to Air Ministry, of 8 November 1944.

[17] *Ibid.* Letter DH/India/Misc 280 dated 5 November 1944 from F G Myers to various addressees in India and the UK, including the Air Ministry and de Havillands. As at Notes 12 and 15, the file copy of this letter lacks its accompanying photographs.

[18] *Ibid*. Signal T174, BAFSEA to Air Ministry, of 8 November 1944.

[19] *Ibid.* Signals T227 and T268, BAFSEA to Air Ministry, of 13 and 17 November 1944 respectively.
[20] *Mosquito*, p263.
[21] TNA AIR27/2213. RAF F540 for No 684 Sqn, 12 November 1944.
[22] TNA AIR23/4503. HQ BAFSEA letter BAF/AIR/865 dated 26 November 1944 from SASO, Air Cdre A H Wheeler, to AOCs 221, 222 and 225 Gps and Photo Recce Force.
[23] TNA AVIA15/2606. Unreferenced personal letter dated 4 December 1944 sent, via Chief Technical Officer (CTO) Air HQ New Delhi, from Dr M Pryor (of the RAE) to Mr H Grinstead (DD/RDT at the MAP).
[24] *Ibid*. MAP Servicing Instruction/Mosquito/8 issued on or about 6 December 1944.
[25] *Ibid.* Signal from MAP to DH (Hatfield), undated but specifically referring to the Instruction at Note 24.
[26] *Ibid.* Loose Minute Insp/Acft/84/CIA1 dated 28 December 1944.
[27] STI/ACSEA/Mos/13A.
[28] Commonwealth War Graves Commission, Graves Concentration Report BUR/140, dated 5 March 1953.




*While Hornets, like No 45 Sqn's PX354, looked like mini-Mosquitos, they were of more robust construction. As with the Mosquito, the fuselage was of moulded balsa and ply and the upper wing skin was of plywood, but the lower surface was of Alclad and the spars were composite spruce/light alloy bonded with Redux. Nevertheless, in April 1955 serious main spar defects were found on three aircraft. Amid growing concerns about structural integrity, the manufacturer recommended that flying cease; the remaining Hornet fleet was grounded on 17 May*. (M Retallack)

## SOME RECOLLECTIONS OF THE EARLY FLYING BOATS

**by Air Mshl Sir Edward Chilton,
former AOCinC Coastal Command**

Recently[1] I was shown a faded picture postcard acquired in Malta and I was delighted to see an old friend of long ago. It was the first, and only, Short Singapore Mk I moored astern of the battleship HMS *Queen Elizabeth* in St Paul's Bay in March 1927.

Flying Boat development entered a new phase in 1926 when the Supermarine Southampton replaced the old F5 in service. This aircraft was a great step forward, a delight to fly and operate. It started off with a wooden hull and was certainly the most beautiful hull ever built, but it still had the disadvantage of soaking up water and thus adding considerably to its weight unless it was brought ashore to dry out. Hence, later Southamptons were made with metal hulls.

At this time, the Singapore was produced by Short Brothers with a remarkably fine hull shape in metal, and it went for service trials at the MAEE, Felixstowe towards the end of 1926. Shorts had a head start in the manufacture of metal hulls because they had kept in business in the


*The RAF Museum's magnificently restored example of the wooden hull of an early Southampton, N9899.*

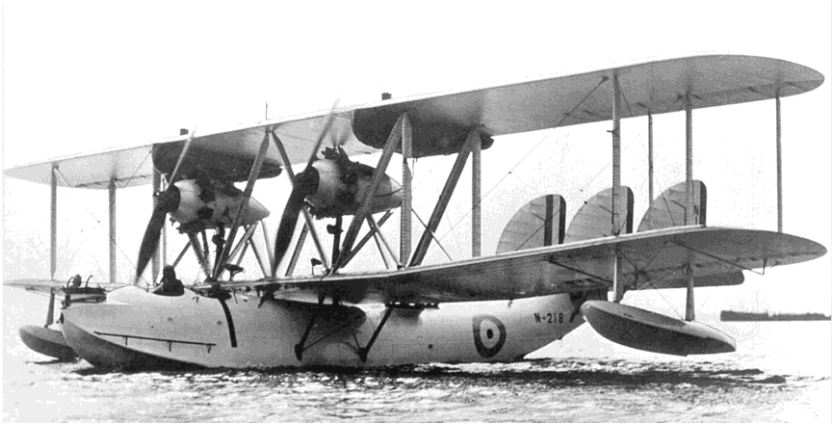
*Short Singapore I, N179.*

early 1920s by making metal bus bodies for London Transport, when aircraft orders were scarce. The Singapore was powered by two Rolls-Royce Condor Mk III engines and very quickly proved itself in every way. Its water handling characteristics were excellent; the take off and landing run being especially clean. Unfortunately, the Air Ministry had already committed its very limited funding to the production of the Southampton, but all was not lost for Shorts who had an eye on the future of civil aviation.

Certainly, the hull form of the Singapore led directly to the famous Sunderland of World War Two fame and the equally famous Empire class flying boats of Imperial Airways. Alan Cobham, the well-known civilian pilot, who at that time was trying to open up the overseas routes, borrowed the Singapore for a Mediterranean cruise, and this was when the photograph, mentioned above, was taken.

The Singapore I (N179) returned to Felixstowe for further trials and on 12 August 1927 left, on a goodwill flight of the northern European capitals, together with a Blackburn Iris Mk II (N185), a Supermarine Southampton Mk II (N218) and a Saunders Valkyrie (N186), in which I was the second pilot and the cruise navigator. The Secretary of State for Air, Sir Samuel Hoare, flew in the Iris with Sqn Ldr C L Scott as captain.

Unfortunately, the neat and tidy formation on the flight to Denmark was spoilt because the Singapore developed engine trouble half-way across the North Sea and returned to Felixstowe on one engine. It



*Supermarine Southampton II, N218.*

rejoined the Flight at Oslo in Norway a few days later, having flown there non-stop. In the meantime, the other flying boats visited Esbjerg and Copenhagen. Then bad luck struck again a few days later when the Flight was on its way from Gdynia in Poland to Memel in Latvia.

There had been a spell of bad weather and gale force winds, but as the journey would not be very long, it was thought wise to proceed in order to make up time already lost with the other delays. This proved to be unfortunate because the Valkyrie suffered a broken fuel pipe to the starboard engine and was forced to land in very rough sea well to the west of Königsberg. Normally, this three-engined craft should be able to continue on its two remaining engines, but with no arrangements for dumping fuel in those days, or for feathering the propeller of the now dead engine, the craft suddenly became difficult to fly with a full load of fuel. As the fuel load was too great, the failure of the starboard engine appeared to have a profound effect upon the rudder control which affected the lateral movement.

The Flight's path was fortuitously headed into the very strong wind of 35 to 40 knots, but by flying just below the clouds at about 1,200 feet in turbulent conditions the handling problem was compounded for the pilot, Flt Lt Martin, and he concluded that our safe options were rapidly reducing.

From a navigational point of view, the prospect of a sea landing was not welcome, as our position at that moment was as far from sheltered

water as it was possible to be. It was clear that the only course was to continue to fly ahead and try to make as much forward progress towards Memel as was possible. We had already passed the only headland that might have offered protected water in which to land safely. Another unwelcome factor was that rough weather had driven the local fishing boats from the area so that their assistance was unlikely. As the minutes passed, the difficulty with lateral control and the weight of the craft caused valuable height to be lost but it was hoped that the well-known factor of 'Ground Effect' (when flying very close to the water) would provide just enough lift to keep the craft airborne. While this looked like solving the immediate problem of staying in the air, it soon became apparent that our nerves were not equal to swaying about so close to such a rough sea. Thus, the captain decided to risk landing the craft as soon as he was in a favourable position.

I well remember the landing which was achieved with great skill, and I also recall the pilot's four-letter word as we hit the sea. However, as we ended the short run, we had the misfortune to hit a bigger than usual cross swell and our starboard float fittings buckled under the strain. The wing tip float had always been the weakest part of a flying boat and was likely to give way in a rough sea. It continued to be so right up to the modern Sunderland. Fortunately, this was one danger in which the crews were well-versed, and no orders were necessary from the pilot. Just as well because there was no radio or inter-com in those days.

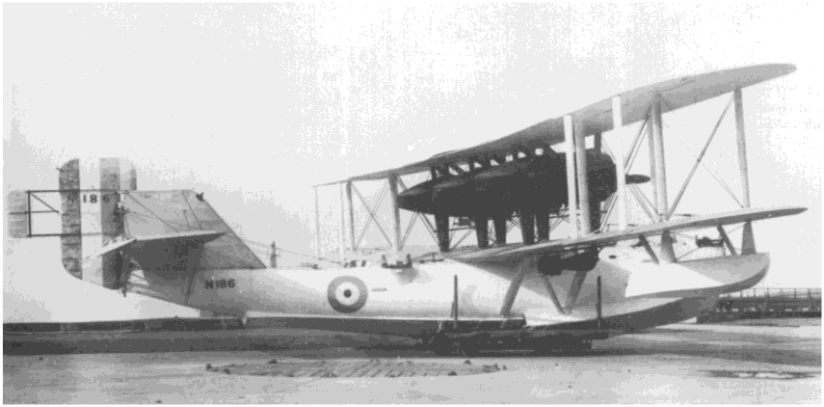
The immediate action required to save the plane from capsizing was for all spare crewmen to climb out as far as possible along the fabric covered wing; a difficult feat in the rough water with little to grab for support until one eventually reached the outer strut which was the only safe hold. By this time, the wireless operator, who was the only one left with the pilot, was able to assure us that the hull was still watertight. The next difficult step was to turn the craft around downwind to starboard by using full engine power as well as a drogue on the starboard side. Having done this we could then proceed downwind towards a small fishing harbour at Palmnicken, or to an attractive sandy cove further on, upon which we could safely beach the flying boat in the much calmer water protected by the small harbour breakwater. In the meantime, our fellow travellers in the air above us continued to circle with more than a

little interest, as we were the ‘cruise imprest holders’ and so had all the money for the rest of the cruise.

Fortunately, all went well with this part of the operation, but the harbour entrance was clearly too narrow for us to enter in the cross-wind conditions, even if we had had the use of both outer engines, and we had to abandon it. We had no other alternative but to make for the best part of the empty and gently sloping sandy beach which was ideal for our immediate need. We came to rest as well as we would have done on a launching trolley at our home base! It was also clear that our final position was above the normal water mark and we would be able to work on the craft as soon as we could assess the damage. We used our W/T set to send a message to our base, which would be intercepted by the other flying boats and could be repeated by them if our message was not received.

At the time, we did not appreciate the fact that we were not permitted to use our W/T set on German soil, and we were to be reminded of this in much clearer terms later on by the police! However, as soon as we were secure, the local inhabitants started along the beach to get a better look at their unexpected visitors and in no time we had quite a crowd. They all appeared to be very friendly, notwithstanding the difficulty in communication. However, all the friendship suddenly vanished with the arrival of the local policeman and his assistant who pronounced that we were French ‘Spies’! Unfortunately, we were travelling without passports because they were not required by the countries that we had planned to visit. For good measure, the policeman pointed out that the national markings on our rudder were ‘Blue, White and Red’ which only French aircraft wore. As the Prussians hated the French, the locals were suddenly very hostile and the senior policeman proceeded to march off the captain, Flt Lt Martin, to the local ‘cooler’, while I was left behind to secure the craft with the rest of the crew. Later Martin was released and by then we had finished a reasonably detailed report of the damage.

We were lucky in having with us a very experienced Sgt Cronkshaw, an ex-Halton apprentice and later a wing commander (Eng) as well as a sound aircraft rigger and engine fitter. Leaving one person to guard the craft, we set off for the small town to arrange a place to stay and to draft a signal of our damage, which could be sent via our Consul in Königsberg.



*The one-off Saunders Valkyrie, N186. Note the servo rudder, which proved to be a less successful feature.*

Apart from minor fabric damage to the tailplane, we had a cracked main hull member which was made of wood, some damage to the lower part of the rudder, and we needed a replacement starboard float with its associated fittings. We also needed some replacement fuel pipes of a flexible nature, otherwise we would have the same trouble on the return journey. We also said that we thought that we could repair the hull damage with a length of 2-inch spring steel bolted through the hull member and hull with long bolts in four places. Just in case fortune was on our side, we asked the local fishermen to try to locate our missing float as it appeared to be intact when we last saw it.

The next day our Captain was taken to Königsberg ender escort and was confined to the fortress there until the British Consul came to his rescue. In the meantime, the Foreign Office was working overtime with Berlin, which soon brought about a change of heart, and shortly after that diplomatic passports were issued for us all.

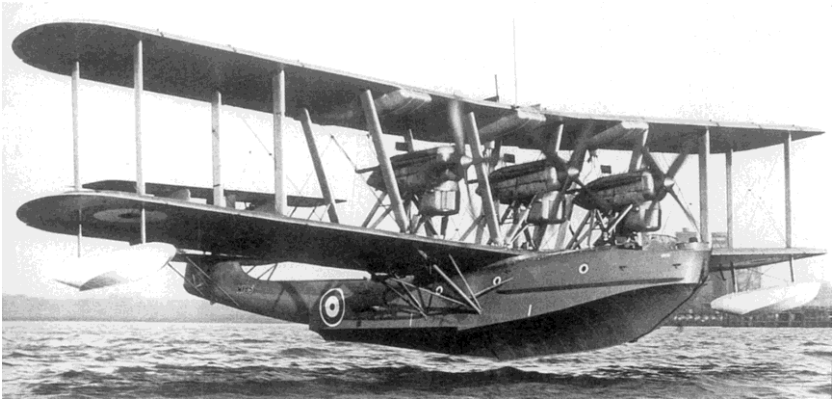
We now settled down to a happy working routine in the nice summer weather, which was just as well as we were often in the water around the hull. We had constructed a sort of dock so that when we turned the craft about, the tail was the innermost part. The bows of the flying boat were designed to take a reasonable amount of water buffeting, so this was a wise precaution against the risk of a sudden storm. We needed extra fixing points for the craft and had only one anchor which was required ahead, so we had to cast about for other

means. Fortunately, we had plenty of strong rope which we carried for mooring in the very deep Norwegian lakes. To overcome the difficulty, we resorted to an old fisherman's trick of making a sand anchor. First a reasonably deep hole must be dug in the sand, then a wooden box is filled with sand, bound around with rope and lowered into the hole. The rope is attached to the flying boat and then the hole is filled in. This provides a most remarkable holding point, and is virtually impossible to pull out. It is a useful tip for modern yachtsmen.

At the end of three weeks our spares arrived with Flt Lt Usher, the expert on hull repairs from our home base, Felixstowe. He soon approved our work and then guided us on the more difficult task of fitting the new float and rudder. The rudder, which should have been the easiest part to put right, proved to be the most difficult. The securing lugs on the new rudder were not in the same place as on the old one. We were all for repairing the old one and had suggested it in the first place, but Usher would not approve this, and the problem was finally overcome by using longer bolts in the three places where they did not coincide. What the AID experts would have said about our repairs one can only guess, but it was the only way to get the craft home.

A few days later we were off, sliding from our resting place with the greatest of ease, a quick high-speed water test and then took off for Copenhagen and home with no problems at all. We were the last of our party to return, but all four flying boats had proved their ability to operate from unprepared bases, notwithstanding engine troubles for all but the Blackburn Iris. Reliable engines, so essential to the safety of craft flying over the sea for long periods, were still a problem and the constant spray of salt water during take offs and landings was a major contributary factor to their failures.

After all this, what did we learn? First, it was not much good having three engines, unless you could stay in the air on any two engines with a heavy load on board. In fact this lesson was not immediately learned because, a few years later, a Saro A7 did exactly the same thing with a less successful outcome in the Irish Sea. The craft was lost but the crew were saved by a passing ship after a few hours. Second, a decision was taken to discontinue with wooden hulls. This was entirely correct, although I firmly believe that it was



*The Blackburn Iris II, N185, was the only one of the four boats that completed the cruise without encountering a problem of some kind.*

the Valkyrie's wood hull that saved the day in a very rough sea because it was so flexible. It was made of 'Consuta' wood, a marine ply with five laminations sewn together with copper wire and glued as well. Third, a very obvious recommendation was made that all fuel pipes must be flexible in order to prevent breakage through vibration.

For my own part, it proved a point made by my old flying boat instructor at Calshot, who said that, 'an ounce of practical experience is worth many pounds of theory.' And so it proved to be during the many years I was to serve in Coastal Command.

Finally, it was subsequently found that the servo rudder fitted to the Valkyrie was inadequate and this had greatly contributed to the lack of lateral control when flying on two engines. The Valkyrie and the Singapore were the first flying boats so fitted and up to that time the arrangement was still experimental. However, the Singapore's system proved very satisfactory right from the start.

**Note:**

[1] The date of this paper is not known, but it is believed to have been written in retirement, possibly in the 1970s. **Ed**

## WHY NO BATTLE OF BRITAIN SQUARE?

**by Mark Russell**

Since 1835 the Royal Navy has had Trafalgar Square to commemorate what many see as its greatest moment, while since 1817 the Army has had Waterloo Bridge (and since 1838 Waterloo Station) to commemorate the battle which saved the nation – but where is the equivalent landmark commemorating the Battle of Britain, when many would say the RAF saved the nation? This brief article describes the discussions that were held on this topic back in 1959-62.

As the twentieth anniversary of the Battle of Britain approached, press interest in how the Air Ministry planned to commemorate it grew, with calls for a memorial to be constructed. Similar questions had been raised by both the *Daily Telegraph* and the *Daily Express* after the forced landing of the Historic Flight Spitfire on 20 September 1959, when the papers had asked what the RAF planned to do to keep examples of these aircraft flying. These calls were discussed in the Air Ministry, and a proposal was put forward to set up, 'a small departmental committee' with the brief to, 'report to the Air Council on the project for the creation of a Battle of Britain memorial.'[1] The Secretary of State for Air appointed the committee on 10 November 1959. The committee noted a number of potential problems in

*Spitfire XVI, SL574, down on its luck on 20 September 1959.*

creating such a memorial, including the fact that, 'the Ministry of Works already had more statues than they could find room for in London', with the idea of naming one (or part of) the new developments after the Battle emerging as the most practical idea.[2]

A memorial already existed in the form of the Royal Air Force Chapel in Westminster Abbey (although both Trenchard and Dowding objected to this being seen as a Battle of Britain memorial); around £70,000 had been contributed by the general public for this, leaving a surplus of £50,000 for the RAF Benevolent Fund after the chapel had been unveiled by King George VI on 10 July 1947.[3] Concern was therefore also raised that the public, having so generously funded what they believed would be *the* memorial for the Battle, would not understand or support the need for a second memorial.

The committee, chaired by AVM W P G Pretty, the Director General of Organisation (DGO), reported on 19 February 1960. The committee's report began by describing the memorial in Westminster Abbey as a 'splendid memorial' although, 'surprisingly little known by the public.'[4] This suggests a recession from the, 'high-water mark of Battle remembrance' and one can see why the RAF would have been keen to use the twentieth anniversary of the Battle to reinforce its place in the public eye. However, the committee doubted, 'whether any further national memorial to those who died in the Battle of Britain is needed' and stated that it would be, 'actively opposed to any action calculated to detract from the memorial which already exists.'[5] What the committee did believe was that, 'some square or other feature of London should be named after it [*the Battle*], in order that it may become as well known to future generations as Waterloo or Trafalgar.'[6]

This suggestion was clearly intended to place the Battle as firmly in the public consciousness over time as the Army's and Navy's great Napoleonic victories when they saved the nation – allowing the RAF to take its place as also having saved the nation (although one might question how many Londoners now know what the names Waterloo and Trafalgar commemorate). Examples of Spitfires and Hurricanes were already displayed in London museums, 'a fact … which appears to be surprisingly little known', and the committee recommendeded the permanent public display of a Hurricane and Spitfire.[7] These aircraft had, during the committee's meetings, been compared to

having, 'a place in Air Force history equivalent to that of HMS *Victory* in Naval history,' and preserving examples on prominent public display was seen as important.[8]

The Air Council endorsed these recommendations on 14 March 1960, and a round of consulations with other relevant government departments began. By August, while there had been consensus on the potential naming of some new development in London after the Battle, the agenda had widened to the commemoration of battles in general, noting that with the exception of *the* Battle, 'there are no purely Air battles during World War II which appear likely subjects for Memorials.'[9] This perhaps is a key reason why the Battle of Britain takes centre stage in the RAF's public memory – it could be clearly delineated into a reasonably short timeframe, as well as having been witnessed by the people of the South East of England, unlike (for example) Bomber Command's campaign which lasted the length of World War II and, in terms of the fighting, took place out of sight. A Ministry of Defence (MOD) meeting discussing memorials to World War II victories also noted that the memory of the Battle had, 'been kept green' and had not, 'given rise to the discussion and controversy which have clouded other great feats of arms.'[10] There is no evidence in the file of any wider discussion about memorialising all of the RAF's efforts in World War II, including the much larger efforts of Bomber Command.

The meeting that discussed the Air Ministry proposal to name some part of London after the Battle noted, 'Government feeling was that there was insufficent public demand to justify battle memorials' and that, 'public interest in World War II and its events has waned noticeably during the last few years' (interestingly, and as evidence of this, children's' book authors found it impossible to get books set against the backdrop of WW II published after the war, for about 25 years, until they were 'history' rather than recent memory).[11] Seen from 21st century Britain, this waning of interest in World War II is interesting, given the way that the events of 1940 and World War II have provided a psychological backdrop to many of the debates about Britain's place in the world in this century, and which has seen memorialisation of both World Wars grow (as evidenced, for instance, by the re-instatement in many places of the observation of two minutes silence at 11am on 11 November each year). The meeting

also noted that the Army and RN did not wish to, 'press for commemoration of naval or military victories' but that if the Battle of Britain was singled out for commemoration in this way, 'the Navy League and perhaps the Army League would campaign in favour of the Services with which they were concerned', a prospect the meeting clearly did not like, opening the way as it might for a protracted debate about renaming multiple parts of London.

The meeting concluded that the MOD should produce a report for the Cabinet – firmly scuppering the initial idea that some announcement on the establishment of a Battle of Britain Memorial should form part of the twentieth anniversary of the Battle. This was then followed up by a suggestion from the Chief of the Defence Staff, The Earl Mountbatten of Burma (who was no great friend of the RAF) that while a Battle of Britain memorial might be, 'an excellent thing, surely we ought to look to the future', and suggesting that one of the new universities, such as the one in Kent, be used to commemorate the Battle.[12] Discussion continued in a typically bureaucratic way, with the suggestion, on 27 January 1961, that, 'a committee of public names … consider the form the memorial should take.'[13] However, despite the case being made that the Battle was 'special', in that it had been seen by many, and was both a, 'major victory and a deliverance', the Cabinet concluded, on 25 April, that it was, 'undesirable in general to provide national memorials to victories in the second world war [*sic*].'[14]

The result was a recommendation that the Air Ministry talk to the University Grants Committee about the possibility of naming a building at the University of Kent after the Battle, with the Air Ministry making it clear it could not spend funds on such a building, nor sponsor any campaign to raise such funds.[15] The final conclusion, on 6 December 1962, was that, 'my Secretary of State has reluctantly come to the conclusion that we should not now pursue the idea of a Battle of Britain memorial.'[16] No further official consideration of central memorials arose, and it was left to private initatives to drive the creation of the Battle of Britain Memorial at Capel-le-Ferne (initiated by the Battle of Britain Memorial Trust, and opened on 9 July 1993), the Battle of Britain Memorial on the Victoria Embankment (September 2005), the Bomber Command Memorial (June 2012) and the statue of MRAF Sir Arthur Harris (erected by the Bomber


*The Battle of Britain Memorial on the Victoria Embankment.*

Harris Trust in London in 1992). Given how some of the suggested sites for renaming as a Battle of Britain memorial location have aged (eg Elephant and Castle, the Hammersmith flyover), one might conclude that the delay and subsequent failure to set up such a memorial was a lucky escape for the memory of the Battle.

**Notes:**

1 AIR 2/15518; C. 95819/57, Part II, Policy on Historic Aircraft work Party, 2 November 1959.
2 AIR 2/15401; Battle of Britain Memorial Committee, Minutes of First Meeting, 24 November 1959, para 3.
3 https://www.westminster-abbey.org/about-the-abbey/history/raf-chapel accessed on 31 December 2019.
4 AIR 2/15518; Battle of Britain Memorial Committee – Report, 19 February 1960, para 3.
5 *Ibid*; para 4.
6 *Ibid*; para 5.
7 *Ibid*; para 8.
8 AIR 2/15401; Battle of Britain Memorial Committee, Interim Report, para 6.
9 AIR 2/15518; AHB 2/351, Memorials to Victories and Battles, 20 October 1960.
10 *Ibid*; MoD ref 751/052, 25 October 1960, Draft – Memorials to Victories in the Second World War, para 5.
11 *Ibid*; MoD – Battle of Britain Memorial, 21 October 1960.
12 *Ibid*; CDS to Minster of Defence, 28 November 1960.
13 *Ibid*; C.125710/60, 27 January 1961.
14 AIR 8/2144; Extract from CC (61)23 Conclusions, 25 April 1961.

[15] AIR 2/15518; C.125710/60/S.4, W C Curtis, Head of S.4 MoD, to Sir Cecil Syers, University Grants Committee, 16 August 1961.
[16] *Ibid*; C.125710/60/AUS(f)/217, F Cooper to J A Drew, 6 December 1962.

*Above, part of the Battle of Britain Memorial at Capel-le-Ferne with the Christopher Foxley-Norris Memorial Wall in the bacground on the right. Below, the wall, fifteen two-metre high granite panels, bearing the engraved names of 2,947 men known to have taken part in the Battle,*

# LIEUTENANT-GENERAL SIR DAVID HENDERSON: THE FORGOTTEN 'MAKER OF THE RAF'?

**By Clive Richards**

*'"David" has gone, and so the world of aviation laments the departure of one of its most interesting and greatest figures.'*

So began an obituary published in the September 1921 issue of *The Aeronautical Journal*.[1] The 'David' in question – Lieutenant-General Sir David Henderson – had died of natural causes in the previous month. Readers were enjoined to, 'mourn seriously and sincerely for David Henderson; the rising generation does not promise to produce more men of his stamp and quality for the service of aviation. He has left us, but his works will live and grow and multiply; and the Air Force of the future should look back to him as their real Creator and their first Chief.'[2] In their report of Henderson's death, *The Times* struck a similar note. It acclaimed him as having been, 'one of the most attractive and loveable of men. "Canny" beyond the ordinary run of his countrymen, he combined with extreme quickness of brain a charming and humorous sense of the irony of things.' He was, moreover, 'one of the great figures of the war.' Whilst acknowledging Henderson's many military achievements, *The Times* nevertheless emphasised his role as the 'Maker of the RAF', pointing in particular to his tenure as Director-General of Military Aeronautics (DGMA) as the period in which he, 'performed the services for which especially his country owes him grateful remembrance.'[3]

## Forgotten – or obscured?

However, in later decades this 'grateful remembrance' would prove somewhat lacking. By the 1960s Henderson had become, in the words of Robin Higham, 'one of the shadowy figures in British flying history.'[4] A two-part profile of Henderson by François Prins, published in the magazine *Aeroplane Monthly* in 2012, opened with the observation that Henderson was, 'largely forgotten these days.'[5] In the following year David Jordan similarly characterised Henderson, 'as something of a forgotten man, a rather underserved fate for someone who was so closely involved with the early years of British military aviation.'[6] Such judgements may at first appear surprising. The latter's part in nurturing military aviation prior to and during the

First World War was certainly reflected in the official history of *The War in the Air*; his name appearing in five of the six volumes that comprise this work.[7] References to Henderson can also be found scattered through much of the literature relating to the development of British and Commonwealth air power.[8] Given that it is commonplace for such accounts to acknowledge Henderson, why does he continue to be regarded as a forgotten figure?

While he has not been airbrushed from the history of British military aviation *per se*, it can nevertheless be argued that Henderson has lacked the recognition that his contribution merited. In part, this may be due to the fact that his major contributions to the development of British military aviation took place at some remove from the battlefield. His tenure in command of the Royal Flying Corps (RFC) in the field was relatively brief and occurred at a time when the activities of the Corps, although of considerable importance, were on a much smaller scale than those undertaken later in the conflict. Much of his career as a military aviator was engaged in orchestrating the organisation, equipment and administration of the RFC and advancing the case for air power in Whitehall and Westminster. Although these activities were of vital importance, they lacked the cachet that came with operational command and have been neglected by many historians.

Moreover, few works have taken Henderson as their focus. Although he does appear in the memoirs and biographies of those who served under him and with whom he interacted, Henderson himself has yet to find a biographer. An early effort by Lady Henderson to see her husband memorialised in print, authored by H A Jones, foundered.[9] Later historians have judged that the 'fragmentary' nature of Henderson's surviving papers in the care of the RAF Museum precludes any attempt to produce a full biography.[10] This lack of material can be attributed, at least in part, to Henderson's innate reticence. 'He never talked of himself or his achievements. Content to do, and give of his best, concentrating himself on the task at hand, when that task was finished he had no inclination to write or talk of what he had done, but passed to further work.'[11] Any prospect of Henderson using his time in retirement to leave a memoir recording his experiences was stymied by his early death at the age of just fifty-nine.

As a result, little exists currently that examines Henderson's life in any detail. A biographical sketch by H A Jones appeared in the Spring 1931 issue of the *Journal of the Royal Air Force College*, and was reprinted privately by Hatchard in the same year.[12] In addition to the overviews by Prins and Jordan cited above, to date the most insightful analysis of Henderson's career remains James Pugh's contribution to Spencer Jones' *Stemming the Tide: Officers and Leadership in the British Expeditionary Force 1914*, first published in 2013, although this chapter does not discuss events after 1915.[13]

The overall result of the above has been to reduce Sir David Henderson to something of a peripheral figure in the story of British air power. This paper is intended to address this injustice – albeit in a rather limited fashion – by shedding a little further light on Henderson's background, career and achievements. It will seek to adopt a more rounded approach to Henderson's life with the aim of exploring how his influences prior to 1912 influenced his approach to the role of Director General of Military Aeronautics prior to and during the First World War.

**Origins and early career**

David Henderson was born in Glasgow on 11 August 1862, the youngest son of David and Jane Henderson (née Pitcairn).[14] His father was a former ship's captain and a prominent Glasgow shipbuilder.[15] The young David Henderson attended Clifton Bank School in St Andrews, Fife, before entering the University of Glasgow in 1877, at the tender age of fifteen, as an engineering student.[16]

Henderson would subsequently turn away from engineering, however, in favour of the military. In the summer of 1882 he opted to sit the entrance examination for the Royal Military College, Sandhurst.[17] In the following year he passed the qualifying examination for a commission with honours, coming second in his cohort with a score of 2,384 marks, and on 25 August 1883 he was duly commissioned in Princess Louise's (Argyll and Sutherland Highlanders) with the rank of lieutenant.[18] In October 1893 Henderson was posted to the regiment's 1st Battalion, then at Cape Town but shortly to transfer to Natal.[19] He would go on serve with the battalion in Ceylon from November 1885. His time there included an attachment to the Royal Engineers, who, 'reported on the high

qualities of his technical knowledge and pleaded for the retention of his services when the time came for the Argylls to leave the island.' Despite their protestations, in May 1889 Henderson was reunited with his battalion, now in Hong Kong; and whilst there he was promoted to captain on 23 July 1890 (antedated to 26 February).[20]

Henderson returned home on 19 March 1892 when the 1st Battalion arrived at Portsmouth aboard the troopship HMS *Orontes*, before travelling to Edinburgh Castle to relieve 1st Battalion, Cameron Highlanders.[21] By this time, H A Jones later reflected, 'Henderson had been away nearly nine years. He was hardened by his service abroad, his character had acquired poise, and he had absorbed much diverse experience. He was in fact, ready to benefit to the full from a course at the Staff College.'[22] Henderson sat the Staff College entrance examination between 29 May and 7 June 1893, coming third in order of merit; he graduated from Camberley three years later.[23] This period also saw changes in Henderson's life beyond the military. His father's sudden death, leaving, 'a widow, two daughters, and three sons to mourn his departure', was announced in the *Glasgow Herald* on 27 December 1893.[24] Two years later, on 18 December 1895, Henderson married Henrietta Caroline ('Netty') Dundas, 'the second daughter of Henry Robert Dundas, and the granddaughter of the first Baron Napier of Magdala', in St Mary's Cathedral, Edinburgh. Their first child, Ian Henry David, was born in London on 2 October 1896; a daughter, Angela Margaret, followed on 2 January 1906.[25]

**Intelligence Officer**

Henderson's introduction to the world of intelligence would appear to have come with his appointment as a Staff Captain (Intelligence) at Army Headquarters on 1 December 1897, thereby replacing Major Edward Altham Altham [*not a typo!*] upon the latter's appointment as Deputy Assistant Adjutant-General in the Intelligence Division.[26] His time in the UK would be interrupted by events in the Sudan. In 1898 it was decided that additional troops should be despatched to support operations being undertaken by an Anglo-Egyptian force commanded by Sirdar of the Egyptian Army, Major-General Sir Herbert Kitchener. Brigadier-General the Honourable Neville Lyttelton was given command of the Expeditionary Force's 2nd Brigade, and on 13 July 1898 Henderson was appointed Lyttleton's Aide-de-Camp.[27] He

would go on to serve alongside Lyttelton during the remainder of the campaign, which culminated with the Battle of Omdurman on 2 September 1898. Henderson was one of those mentioned in Kitchener's Despatch of 5 September 1898, which appeared in *The London Gazette* at the end of that month.[28]

Henderson returned to Army Headquarters in October 1898 and was promoted to the rank of brevet major in November.[29] In April of the following year he became a Deputy Assistant Quarter-Master General.[30] Once again, though, developments overseas would cut his time in London short. From the mid-1890s onwards the Intelligence Division had, 'issued a succession of reports emphasizing the likelihood of war with South Africa and warning that such a war would be both costly and sanguinary.'[31] With the prospect of war looming, in July 1899 Captain (Brevet Major) Henderson became one of ten 'special service' officers despatched to South Africa for intelligence duties. On 1 July, Henderson and Major Walter Adye, Royal Irish Rifles, were posted to the staff of the Natal Field Force, under the commanded by Lieutenant-General Sir George White, as Deputy-Assistant Adjutant-Generals (DAAG) for Intelligence. They were joined by a third DAAG for Intelligence, Major Archibald Murray, Royal Inniskilling Fusiliers, on 9 October, with Altham (then head of the Intelligence Division's Colonial Section) becoming the Natal Field Force's Assistant Adjutant-General (AAG) for Intelligence on the same day.[32]

The outbreak of war in October 1899 saw Boer columns enter Natal and Cape Colony. During the opening stage of the war in Natal, Henderson would show himself to be, 'a most painstaking and reliable intelligence officer', who demonstrated, 'boldness, discretion, and reticence, and is an Officer of High promise.'[33] His initiative led to the establishment of a force of, 'forty five white men and fifty natives', recruited with the assistance of the Honourable T K Murray, 'a well-known South African personality', as the kernel of an intelligence organisation. 'The men were all volunteers, had to find their own horses, saddlrey and rifles, serve without pay and were to provide local language and local knowledge. Henderson thought briefly about what to call them and then chose that traditional, and most appropriate of titles – 'The Corps of Guides'.'[34]

Both Henderson and Altham were amongst those besieged at

*David Henderson during one of his stints in Africa.* (RAF Museum)

Ladysmith for four months between the beginning of November 1899 and the end of February 1900. During the siege Altham, 'was attacked by enteric fever, and Major Henderson assumed charge of the Field Intelligence Department.' White would praise Henderson as, 'a bold and accurate reconnoitrer', whose, 'intelligence […] was always reliable.'[35] Moreover, Henderson, 'emerged from the siege', according to Parritt, 'not only with his reputation established as a sound intelligence officer, but also of being a brave and pugnacious fighter.'[36] His mettle was demonstrated in an operation which took place on 7 December 1899. That evening, a force of over six hundred men, directed by eighteen members of The Corps of Guides under Henderson's command, 'made a sortie for the purpose of destroying the guns on Gun Hill, which had been giving us much annoyance.'[37] Henderson and his Guides,

> 'steered the party over two miles of rough scrub country, through the blackest of nights to reach the base of 'Gun Hill'. As they scaled the heights the Boer piquet had suddenly realised their presence and shouted – 'Shoot! Shoot! The Rooineks (Rednecks) are upon us!'. ['']Fix bayonets – charge!' had come the answering cry, and with a rush the British force had swept over the position with Henderson still in the front, though wounded and bleeding heavily. The guns were destroyed, and the party had then returned exultantly to the encircled town.'[38]

Between 28 October 1900 and 19 September 1902 Henderson served as Director of Military Intelligence (DMI), with the Brevet rank of lieutenant-colonel 'whilst so employed.'[39] He did much to expand the intelligence machinery. Building upon his earlier work with The Corps of Guides, Henderson increased the Field Intelligence Department from a strength of, 'approximately 30 Officers and 250

white subordinates', at the time of his appointment to, '132 Officers and 2,321 white subordinates', by 31 May 1902.[40] His, 'prolonged tenure in South Africa', according to Beech, 'allowed him to regularise and codify the work of his department; he insisted upon a uniform reporting system, systemised the collection of signals intelligence, formalised the terms and conditions of employment of his irregular employees and brought order to its expenditure through a centralisation of the accounting system.'[41] The mobile columns employed by General Lord Kitchener as General Officer Commanding-in-Chief the Forces from December 1900 onwards, 'had come to be deeply in debt to Colonel David Henderson's reorganization of the Field Intelligence Department. […] The key to the success of the columns was the column's Intelligence Officer, and the key to his success, in turn, was the skill with which he organized his black scouts, guides, and spies.'[42] 'The mobility of the Boers', wrote Sir George Arthur in his *Life of Lord Kitchener*,

> 'had its counterpart in their quick-wittedness in gathering the intelligence which dictated their mercurial methods. But Kitchener's efforts to improve the machinery for the collection and assimilation of his own intelligence had been entirely successful, and on that intelligence as supplied to him by Colonel Henderson he relied largely, and never in vain, for his own devisings.'[43]

In addition to his professional prowess, Henderson's open and attractive personality enabled him to win the confidence of his Commander-in-Chief, Sir Herbert Kitchener. Although the notoriously reserved Kitchener remained aloof from most of his staff, Henderson would appear to have been one of the few officers with whom he was able to establish a closer relationship.[44] In his final Despatch, Kitchener recorded that Henderson had, 'invariably done his best to cope with the great difficulties of his position', and further recognition of his, 'services during the operations in South Africa', would come with the award of the Distinguished Service Order.[45]

Despite being appointed formally as Director of Military Intelligence at Headquarters in London on 28 October 1902, Henderson nevertheless continued on in South Africa for a further seven months, being transferred temporarily, 'on the application of the

Colonial Office, to the Staff of the High Commissioner, for duties in connection with permits and prisoners of war, and for certain other duties directly connected with my previous employment.'[46] His eventual return to the UK would see Henderson make, 'his greatest long-term contribution to British intelligence practice', by encapsulating his experience in South Africa in written form; the result – a manual entitled *Field Intelligence: Its Principles and Practice* – being published by the General Staff in October 1904.[47] A pamphlet entitled *Regulations for Intelligence Duties in the Field* appeared in the following month and is also thought to have been authored by Henderson. Together, they encapsulated what has been termed the 'Henderson model', which, 'became the new doctrinal foundation for British Army intelligence.'[48] In *Field Intelligence* he further recommended, 'that all persons, other than staff officers permanently engaged on Intelligence [*sic*] duties in a campaign should be formed into an 'Intelligence Corps' for reasons of co-ordination and *esprit de corps*', pointing the way to the subsequent establishment of the Intelligence Corps.[49] Subsequently, with *The Art of Reconnaissance*, Henderson intended, 'to present a view of the subject of reconnaissance as a whole, in the hope of assisting those whose duty or ambition it may be to prepare themselves to undertake the pursuit of information in war.'[50] The first edition of this work was published in both London and New York in July 1907, with revised editions following in October 1908 and May 1914.[51]

**Staff Officer**

In March 1904 the focus of Henderson's career switched from London to Aldershot, with his appointment as Deputy-Assistant Quartermaster-General at 1st Army Corps. The latter had been commanded since September 1902 by Lieutenant-General Sir John French; although it is almost certain that their paths would have crossed during the Boer War, this would appear to have been the first time that Henderson had served directly under French.[52] In November of the following year he replaced his fellow intelligence officer in South Africa, Archibald Murray, as an Assistant Adjutant-General on the staff of Aldershot Army Corps' 1st Division, with the brevet rank of colonel.[53] He became Staff Officer, 1st Grade at Aldershot Command on 1 January 1907.[54]

Such was the regard in which Henderson was now held that Lord Esher had considered him as a candidate to replace Sir George Clarke when the latter relinquished the post of Secretary to the Committee of Imperial Defence (CID) in October 1907.[55] Instead, on 21 December 1907 he was appointed the Chief Staff Officer to French, who had succeeded Field Marshal His Royal Highness the Duke of Connaught and Streathearn as Inspector General of the Forces (later, Inspector-General of the Home Forces) on 1 December 1907.[56] The primary role of the Inspector-General's department was, 'to act as "the eyes and ears" of the Army Council'; and French, 'regarded the post as anything but a sinecure.'[57] He and his staff adhered to a rigorous schedule, 'going from the preparation of memoranda and instructions, to observation and inspection, and culminating in the annual manoeuvres in August-September.' Much time was spent travelling, both in the UK and overseas. Notably, during the winter of 1909-10, Henderson accompanied French on an inspection tour of the Far East, and in the following year he and Sir John travelled to Canada.[58]

Henderson's tenure as the Inspector-General's Chief Staff Officer could have been somewhat foreshortened, had Sir Douglas Haig's suggestion that Henderson replace Brigadier-General Henry Wilson as Commandant of the Staff College been accepted. However, neither the Chief of the Imperial General Staff, General Sir Walter Nicholson, nor General Sir Charles Douglas deemed Henderson 'good enough' for the position.[59] Henderson's talents would nevertheless seem to have been valued by French, who in his last annual report, submitted in November 1911, paid tribute to, 'the most valuable help', that Henderson had provided during his tenure as Inspector-General.[60]

**Military Aviator**

Henderson had been aware from as early as 1907 of the potential utility of the aeroplane as a reconnaissance platform. 'The possibilities of reconnaissance from balloons or kites have received some attention of late', he acknowledged in the first edition of *The Art of Reconnaissance*, 'and experiment has shown that, when forces are in close contact, observation from balloons is a valuable method of obtaining information.' Whilst recognising that the inherent limitations of balloons and kites limited their effectiveness, Henderson nevertheless went on to note that, 'Should an effective method be

devised of controlling the movements of dirigible balloons or aeroplanes, the possibilities of aerial reconaissance will, of course, be infinitely extended.'[61]

*'Henry Davidson' in the driver's seat of a Bristol Boxkite.*

In August 1909 Henderson had accompanied French when, after attending French Army cavalry manoeuvres near Chalons, the latter led a British delegation to the *La Grande Semaine d'Aviation de la Champagne* at Rheims, 'The first great aviation meeting in history.'[62] Nevertheless, it was only in 1911, whilst recuperating at Harrogate from an operation to the wound he had received at Ladysmith, that Henderson decided to gain first-hand experience. 'One day an aeroplane competing in Lord Northcliffe's round-Britain air race was forced down in a field near the hotel in which Henderson was staying. He walked up to the aircraft and had a long talk with the pilot. It was at this time that he decided he must learn to fly.'[63] Henderson duly took flying lessons at the Bristol Flying School, Brooklands under the pseudonym 'Henry Davidson', passing the tests required to be awarded his Royal Aero Club Certificate on 16 August and being elected a member of the Royal Aero Club later in the same month.[64]

Henderson's military aviation career would begin in earnest three months later. Stung into action by a steadily rising tide of political and public disquiet with what was perceived as the slow pace of British aeronautical development, on 18 November 1911 a Standing Sub-Committee of the Committee of Imperial Defence on Aerial Navigation met under the chairmanship of Lord Haldane, 'to carry out a wide-ranging enquiry into the subject of Aerial Navigation.' Henderson's seniority, his qualification as a pilot and his skills as a staff officer made him an obvious candidate for membership of this

sub-committee. Other War Office representatives included Major-General Sir Charles Hadden, the Master-General of the Ordnance; Sir Archibald Murray, Henderson's fellow intelligence officer in South Africa and now Director of Military Training (DMT) on the Imperial General Staff, with the rank of major-general; and the Superintendent of the Balloon Factory, Melvyn O'Gorman.[65]

At the conclusion of their meeting on 18 December 1911, the Standing Sub-Committee established a new Technical Sub-Committee under Henderson, charged with mapping out, 'all the details necessary', for the establishment of a, 'National Corps of Aviators.' Subsequently, the remit of the Technical Sub-Committee was broadened to include, 'The use of dirigible balloons, captive balloons, free balloons and kites in war and the future organisation of the units devoted to any of these services.'[66] The report of this specially-convened 'think-tank' was approved by the Sub-Committee and, 'in view of the urgency of the matter', received provisional approval from the Prime Minister prior to being seen by the Service departments, the Treasury, or indeed the CID itself.[67]

A central tenet of the work done by the Sub-Committee and its Technical Sub-Committee was that, 'The British aeronautical service should be regarded as one.'[68] It was envisaged that a single Flying Corps be created which should consist of separate Naval and Military Wings, each of which were, 'to be maintained at the expense of, and to be administered by, the Admiralty and the War Office respectively.'[69] To this end, the Military Wing would absorb the existing Air Battalion, Royal Engineers. The resulting Royal Flying Corps, 'was constituted by Royal Warrant on 13 April 1912, and, 'the structure of the Air Battalion was officially absorbed into this new body the following month.'[70]

Oversight of the development of military aviation within the War Office was facilitated by the creation, in early 1912, of an Executive Committee under the Chief of the Imperial General Staff – the Royal Flying Corps Committee – which dealt with, 'questions referred to or arising in the War Office in regard to the organization of the Royal Flying Corps.'[71] The Finance Member of the Army Council (Rt Hon Harold Trevor Baker MP) was appointed president of the Executive Committee, and its membership comprised three of the officers that had served on the CID Standing Sub-Committee's Technical Sub-

Committee – namely, Henderson (as chairman), Major Duncan S MacInnes and Captain Frederick H Sykes, the latter having been awarded Royal Aero Club Certificate No 95 in June 1911.[72]

**Director-General of Military Aeronautics**

On 1 July 1912 David Henderson entered the War Office on his appointment as DMT in place of Murray.[73] He once again found himself reporting directly to Sir John French, the latter having become Chief of the Imperial General Staff (CIGS) in the previous March.[74]

While it was apparent from the outset that much of Henderson's time as DMT would be taken up with aeronautical matters, the remit of his post nevertheless extended far beyond the confines of military aviation to include home defence planning and the education and training of officers and men. In a letter to the Treasury dated 22 June 1912 the War Office suggested a temporary remedy to the particular difficulties Henderson now faced. This noted that Henderson, 'has for some time past been working out, and is now engaged in giving effect to, the organization of the Military wing [*sic*] of the Royal Flying Corps', and that he possessed the, 'special knowledge and experience', required to resolve the, '[*m*]any intricate questions, military and technical, that surrounded the establishment of the Military Wing.' Given that, 'it would not be possible, at the present stage, to transfer the important and heavy work he is doing to someone else', the Army Council therefore sought Treasury sanction for Henderson and Murray to share the post of DMT until the end of the 1912 manoeuvre season. The Treasury sanctioned this arrangement in the following month.[75]

Murray's appointment as Inspector of Infantry in December 1912 meant that Henderson had to shoulder in full the combined responsibilities of *de facto* head of Army aviation and DMT.[76] His burden was exacerbated by the paucity of officers with aviation experience on the General Staff – especially following the departure of Sykes from the War Office in May 1912 to become the Military Wing's first commanding officer.[77] Nevertheless, by April 1913 the Secretary of the War Office, Sir Edward Ward, could advise the Treasury that the RFC Committee had, 'to a large extent settled the system of organisation of personnel, transport, supplies &c', for the Military Wing and were, 'gradually distributing these portions of the

work among the directorates concerned.' Despite this, there remained,

> 'consultative and advisory duties which are of a general staff [*sic*] nature (ie, training, war establishments and equipment, use of aircraft in war &c). These duties which are continually increasing are sufficiently distinctive to justify the constitution of a separate directorate, but although this course would have many advantages the [Army] Council do not feel that in existing circumstances they can say it is absolutely necessary and on the other hand they feel that the special knowledge and experience of the present Director of Military Training renders it desirable that the work should be under his supervision.'

The best way forward, in the judgement of the Army Council, was for,

> 'the work of the Flying Corps Committee (which will in future be designated the War Office Air Committee) to be carried out through a separate division of the Military Training Directorate which will continue the present process of devolution of duties pertaining to other directorates, but will retain general staff work and also act, under the Committee, as the general co-ordinating authority.'[78]

The RFC Committee was dissolved and its workload assumed by an 'Air Service Section' (MT4) within the Directorate of Military Training, the latter being tasked in particular to, 'continue the process of devolution of questions connected with the Air Service to the branches concerned', and to, 'co-ordinate the aeronautical business of the War Office.' The establishment of MT4 was to prove merely a preliminary step towards the creation of a fully-fledged, 'Military Aeronautics Directorate […] responsible for the administration of all parts of the Army Air Service.'[79] This new directorate – the Directorate of Military Aeronautics – came into being on 1 September 1913, with the appointment of, 'Colonel (temporary Brigadier-General) David Henderson CB DSO, from Director of Military Training at the War Office to be Director-General of Military Aeronautics, and to retain his temporary rank whilst so employed', being promulgated in *The London Gazette* on the following day.[80] Unlike MT4, Henderson's new directorate, 'was independent of the four great departments of the War Office, and the Director-General of

Military Aeronautics dealt in person with the Secretary of State for War.'[81] One officer who served in both MT4 and the Directorate of Military Aeronautics was Major Sefton Brancker. 'David Henderson', Brancker would later recall,

> 'was one of the most attractive men I have ever met. He was a born diplomat with a very subtle mind, and a keen sense of humour. His foresight and soundness of judgement were wonderful, and his tact and skill in dealing with a tangled and delicate problem used to fill me with envious admiration.'[82]

'Even from this distance', Dye reflected in his study of early British military aviation logistics, *The Bridge to Airpower*, 'the creation of the RFC was ambitious and achieved at breakneck speed. It belies the popular story of official indifference and the skepticism attributed to senior officers, fixated by the role of cavalry.'[83] Henderson's professional and personal abilities played a vital role in establishing a place for aviation in the British Army prior to the First World War.

**The outbreak of war**

In August 1914 a British Expeditionary Force (BEF) was despatched to France under the command of Sir John French. In accordance with, 'arrangements for mobilization of the Royal Flying Corps, Military Wing', issued by the DGMA on 29 July 1914, it was accompanied by an initial RFC component consisting of a headquarters and four squadrons (Nos 2, 3, 4 and 5), together with an Aircraft Park.[84] Command of this contingent would prove contentious. In his autobiography, *From Many Angles*, Sir Frederick Sykes would later assert that he, 'had received a verbal promise that I should command the RFC in the field.'[85] On 5 August Sykes was duly advised by Captain Geoffrey Salmond, then on the staff of the DGMA's MA1 Branch, that on being relieved as Officer Commanding, RFC (Military Wing) by Brevet Major Hugh Trenchard in two days' time, he and Major Robert Brooke-Popham were to, 'proceed to the War Office for duties on the Staff of the Headquarters, Royal Flying Corps (Military Wing).'[86] This transfer, however, did not pave the way for his appointment as commander of the RFC contingent. Rather, that post would be assumed by Henderson, with

*Brig-Gen Sir David Henderson KCB DSO was appointed GOC the RFC Military Wing in August 1914. (*UK Photo And Social History Archive)

Sykes serving instead as his Chief of Staff.[87] Henderson duly sailed from Folkestone to Boulogne on 13 August 1914 and joined the RFC's headquarters at Maubeuge four days later, although he was not appointed formally to command the RFC until 20 August.[88]

Henderson now became the 'General Officer Commanding the Royal Flying Corps, Military Wing'. A War Office Memorandum prepared in December 1914 defined Henderson's duties as GOC as encompassing both, 'the administration of military aeronautics', and, 'command of the Royal Flying Corps, Military Wing, both at home and abroad.'[89] During an interview with H A Jones in 1920, Trenchard pointed to the fact that, 'Henderson was GOC RFC', until he himself, 'became CAS in early 1918.' Consequently, 'Henderson was really in supreme command of the RFC throughout the world. This', said General Trenchard, 'was a very good thing, because it held the service together in precisely the sort of way as I am now trying to do in my present organisation.'[90]

At least one study has cast doubt on Henderson's motivations at this time. Whilst conceding that, 'Henderson may have demonstrated keen logic in taking over from Sykes', Ash suggested that, 'his decision also hints at personal ambition clouding his judgement about what was best for the RFC. As a senior brigadier general, he had the necessary rank, but no one could perform the two most important jobs in the air service at the time: General Officer Commanding (GOC) in the Field and DGMA.'[91] Henderson, however, was not alone in preferring the prospect of service at the front to sitting at a desk. The demand for suitably trained officers to fill staff positions within the BEF on mobilization – and the widespread belief that the fighting would prove short-lived – resulted in an outflow of officers from the War Office. 'The outbreak of the First World War witnessed a surge

of patriotic fervour in Britain and a rush to join the colours. Those already serving in the military were keen to get to France and play their part in a war that most expected would be over in a few months.'[92]

It is also unclear whether the decision was solely Henderson's. Initially, French's headquarters was small, comprising, 'no more than 30 officers', and, in addition to French, included a number of other officers familiar with Henderson – notably, Sir Archibald Murray (Chief of Staff) and Sir William Robertson (Quartermaster-General).[93] Given his previous associations, it is likely that Henderson's appointment was welcomed, and indeed may even have been requested. Moreover, his rank and his standing with French enhanced the position of the of the fledgling RFC within the BEF. Sykes would later concede that, 'Henderson […] had been in close touch with our work, and was an old friend of Sir John French, whose Staff Officer he had been. French wanted Henderson near him, and no other position was available. If a more senior officer were needed Henderson was the best choice, and he was certainly a charming man to work under.'[94]

Henderson would continue to combine command of the RFC in the Field with the position of DGMA for much of the next year. During the initial stage of the BEF's operations, 'Henderson's daily routine and activities […] are difficult to establish, but he was playing an important role in operating at the interfaces that existed between the RFC and the BEF.' [95] In a despatch dated 7 September 1914 French highlighted,

> 'the admirable work done by the Royal Flying Corps under Sir David Henderson. Their skill, energy and perseverance have been beyond praise. They have furnished me with the most complete and accurate information which has been of incalculable value in the conduct of the operations. Fired at constantly by both friend and foe, and not hesitating to fly in every kind of weather, they have remained undaunted throughout.
>
> Further, by actually fighting in the air, they have succeeded in destroying five of the enemy's machines.'[96]

In a second despatch submitted ten days later, French not only

noted the, 'incalculable value', of the contribution made by, 'Sir David Henderson and the Royal Flying Corps under his command', but also expressed specifically his, 'deep appreciation', of Henderson's assistance.[97] Such was the regard for Henderson and his abilities that, on 26 October 1914, he became one of seven, 'Colonels (temporary Brigadier-Generals) promoted to the rank of Major General for distinguished conduct in the Field'.[98]

Henderson might have left aviation and returned to conventional soldiering when, with French's approval, he assumed command of 1st Division on 22 November 1914.[99] In his absence, command of the RFC fell to Sykes. Ash has charged that, by accepting the post, Henderson again, 'demonstrated', his, 'preoccupation with personal aspirations.'[100] As an infantry officer with first-hand combat experience, command of the division is certainly likely to have appealed to Henderson. His time at 1st Division was cut short, however, when, on 20 December, he learned that he was to relinquish command of the division to Major-General Richard Haking and return to the RFC. According to Sykes, the impetus behind this reversal would appear to have come from the Secretary of State for War himself; 'Kitchener, who had never been quite happy about Henderson's transfer, ordered him to return to the Air Service.'[101] Maurice Baring would later recall the, 'bitter disappointment', that this decision engendered. 'Everyone was miserable at General Henderson going. And it was particularly cruel for him to have to leave the Division just as it was going into action.'[102]

By the time of First Army's attack at Neuve Chapelle in March 1915 the RFC in France had expanded to a total of seven operational squadrons, divided between three wings.[103] The responsibility of commanding this force, whilst also continuing to oversee the work of his Directorate in London, did little for Henderson's health. Between 12 and 17 March Henderson was sufficiently unwell to be confined to bed.[104] Directed by his doctor to recuperate in the South of France, on 18 March Henderson and his ADC (Captain Barrington-White) left St Omer for Paris, before travelling on to Nice two days later. He returned from Nice on 19 May, 'restored to health and looking like a different man.'[105]

In his absence Sykes had once again assumed command of the RFC in the Field. During the first months of 1915 the relationship

between Henderson and Sykes, 'had deteriorated badly.'[106] The first seeds of the rift between the two men would appear to have been sown with Henderson's initial appointment to command the RFC in the Field in preference to Sykes. In May 1915 Henderson resumed command of the RFC and shortly after Sykes left for the Dardenelles. Sykes replacement as GSO1 at RFC Headquarters was Robert Brooke-Popham. The latter, according to his biographer,

> 'had a great admiration for Henderson, whom he credited as being the first senior Army officer to realize the value of the air in war and a great example of loyalty and chivalry. He was also impressed by Henderson's operational innovations, such as concentrating aircraft rather than dispersing them to lower formations and grouping fighter aircraft into offensive squadrons, rather than allocating them to individual squadrons for self-defense (as Trenchard had wanted). Henderson and Brooke-Popham got on well together, which made for a harmonious headquarters.'[107]

**Return to the War Office**

Whatever the benefits that accrued from Henderson exercising personal command of the RFC in the Field, his appointment as GOC would certainly appear to have had a deleterious effect at home. Unable to be both in London and France at the same time, Henderson was obliged to defer the day-to-day direction of his directorate to Sefton Brancker, who became Assistant Director of Military Aeronautics (ADMA) with the rank of lieutenant-colonel.[108] 'Hard-working, loyal and gregarious, Brancker virtually ran the Directorate of Military Aeronautics until 1917 without ever being vested with formal authority.'[109] However, he lacked Henderson's organizational and administrative acumen. Writing to Trenchard in September 1917, the Director of Military Operations, Major-General Frederick Maurice, conceded that Brancker was, 'full of energy.' However, Maurice also found him, 'wanting in judgement in dealing with a big administration and his methods are too casual. His office is all upside down and has been for some time.'[110] Furthermore, while he was able to exercise direct access to both the Chief of the Imperial General Staff (CIGS) and the Secretary of State for War, Lord Kitchener, Brancker nevertheless found that his efforts were often impeded by

the fact that he, 'was young and junior in rank as compared with the officers dealing with other similar responsibilities in the War Office.'[111]

Matters came to a head in late July and early August 1915. 'We must wake up in the senior officer line or get left', Brancker warned Henderson in a letter dated 28 July:

> 'The drawback to the situation is that you are our only senior officer. I do not feel that I fill this place properly. If it requires a Major-General to command the RFC in the Field, it certainly wants one here, where instead of being a valuable asset, the RFC is still an expensive and precocious innovation. The fact that you come home occasionally does not help; rather the reverse, for it makes my position much weaker – the innate but, I presume, unconscious obstructor financial and otherwise, will not treat me seriously, and they use the desire to treat with *you* and not with me as a means of avoiding action.'[112]

Brancker returned to the charge in a second letter, sent in the following month. 'The Director-General of Military Aeronautics must be a Major-General at least, have a loud voice in the War Office, and if possible, be on terms of equality with the Army Council. It is obviously the appointment for you, and if you held it, it would also imply the Command of the whole Flying Corps.'[113] Bowing to the inevitable, on 19 August 1915 Henderson turned over command of the RFC on the Western Front to Trenchard and, 'returned to the War Office to deal with the multitudinous problems of supply of men and material for the rapidly expanding air service.'[114] He was appointed as an additional Military Member of the Army Council on 22 February 1916, and in the following month was granted the temporary rank of Lieutenant-General.[115] He brought to the Army Council, 'great personal prestige, keen technical knowledge, and war experience of the arm which he represented':

> 'He found that to meet the world-wide flood of demands which came to him, he needed the full use of the rare qualities with which he was endowed. He had often to fight for his corps in an atmosphere where there was no air tradition and where the

> role of the new arm was imperfectly understood. To the end he remained unruffled and kindly in judgment of those who would not understand, but he alone knew what his serenity cost him.'[116]

Henderson's return to the War Office coincided with a rise in concern as to the quantity and quality of the material being acquired for the RFC. 'The German airship raids and the success of the Fokker monoplanes in the air fighting in France shook the popular faith in the efficiency of our air administration. Complaints regarding the inferiority of our equipment began to be heard.'[117] While there were grounds to question the DGMA's procurement policy and practices and the functioning of the Royal Aircraft Factory, many of the complaints, 'were expressed…in terms of such gross exaggeration as to damage the movement for reform.'[118] Henderson's frustration with some of this ill-conceived sniping was reflected in his preface to F W Lanchester's *Aircraft in Warfare: The Dawn of the Fourth Arm*. The complexity of the subject and the need for security, he argued, made it difficult to convey an accurate picture of aerial warfare to the uninitiated. This left, 'the uninstructed public, hungry for information on a novel and alluring subject…easy prey to the imposter':

> 'Any plausible rogue, gifted with sufficient assurance, and aided by a ready pen or supple tongue, has been able to pose as an "aeronautical expert," and to find some kind of following. To those who, as a matter of duty, or in search of information, have perused the aeronautical discussions carried on in the Press, or the reports of such discussions elsewhere, the very word "expert" calls up a strange procession of inventors, politicians, motor-trade touts, journalists, trick-fliers, novelists and financial agents, most of them, axe in hand, on the way to the national grindstone; a few, innocent, following on the same track, on a vague quest for supernatural powers of flight.'[119]

One such 'plausible rogue' was the 'maverick adventurer and inventor' Noel Pemberton-Billing. Pemberton Billing had been commissioned into the RNAS in October 1914 and had been instrumental in planning the raid on the German airship factory at Friedrichshafen carried out in the following month.[120] He had

*Lt-Gen Sir David Henderson as DGMA at his desk in the Hotel Cecil, aka 'Bolo House', in 1917.*

resigned his commission in January 1916, and at the second attempt had secured a seat in Parliament as the MP for East Hertford. Here, 'day after day and with increasing sarcasm and vituperation, the 'Air Member' continued his attack upon governmental air policy.'[121]

In response to this continuing criticism, a committee chaired by The Honourable Mr Justice Bailhache was appointed, 'to enquire into and report upon the administration and command of the Royal Flying Corps with particular reference to the charges made both in Parliament and elsewhere against the officials and officers responsible for the administration and command and to make any recommendations in relation thereto.'[122] The Bailhache Committee, 'sat to take evidence on 22 days, hearing 54 witnesses, between the 18th May and 1st August, 1916.'[123] In addition to testifying before the Committee, Henderson was also permitted to question those who testified alongside him. 'The cross-examination of Mr Billing and other witnesses by Sir David Henderson', *The Times* obituarist would later note, 'suggested that Sir David could have distinguished himself as conspicuously at the Bar as he did in the Army.'[124] The Committee's final report found that most of the charges levelled by critics of the RFC and Royal Aircraft Factory in general – and Henderson in particular – were without substance. 'A microscopic examination', it concluded, 'has disclosed some mistakes, as we think. How could it be otherwise? General Henderson has told us that the responsibility is his for such shortcomings as there are. We ascribe them to the difficult position in which he was placed.'[125] It expressed admiration for the way in which the RFC had been expanded during

the first two years of the war – which was, 'increased when we remember that all of the work necessary to bring it into its present state of efficiency has been done while bearing the heavy burdens of rendering such services as the Army required of it in the Field and on the fronts' – and was sure that Henderson would share the, 'gratitude and thanks which are his due for a great work devotedly undertaken and well done…with the officers and men who have served under him, whether as Commander of the Royal Flying Corps or as Director-General of Military Aeronautics.'[126]

The Committee's central recommendation was, 'that the equipment of the Royal Flying Corps should be entirely separated from the executive command':

> 'General Henderson's position as Commander of the Royal Flying Corps, responsible for it as a fighting arm and at the same time responsible as Director-General of Military Aeronautics for its equipment is an impossible position for any man to fill now that the Royal Flying Corps has grown to its present dimensions, and especially in view of its probable future growth. There seems no reason why this change should not be made at once. There are officers on the Directorate of Military Aeronautics who now have sufficient experience to take over equipment and deal with it independently.'[127]

While electing not to pass judgement on the desirability of 'a united air service', the Committee did advocate the creation of, 'one Equipment Department charged with the equipment of both the Army and Navy Flying Services.'[128] Considerable rivalry then existed between the RFC and the Royal Naval Air Service (RNAS) with regard to procurement. 'The necessity for the rapid expansion of both branches', the War Cabinet observed in their *Report for the Year 1917*, 'was apparent from the days of the earliest hostilities, and competition between the services ensued to some extent in personnel, but chiefly for supply of material':

> 'It must not be supposed that the spirit of accommodation between the two services was absent, but it was natural for the two supply branches each to do their best for the service to which they respectively owed allegiance. In these circum-

> stances, the absence of any independent and competent method of allocation between the two services of our aeronautical resources and of such material as could be obtained from our Allies produced inconveniences which the ever-growing needs of both the naval and military branches tended to aggravate.'[129]

In an attempt to remedy the situation the Joint War Air Committee had been established in February 1916, under the chairmanship of Lord Derby and with Henderson as a member, 'to ensure that the manufacture, supply, and distribution of material required is in accordance with the policy of aerial warfare laid down by His Majesty's Government.' [130] Henderson also had a seat on the Air Board, chaired by Lord Curzon, which replaced the Joint War Air Committee in May 1916. Both bodies were primarily advisory in nature and lacked any real executive authority. It was only in February 1917, with the reformation of the Air Board (which acquired the status of a ministry), that the single equipment department called for by the Bailhache Committee came into being. This incarnation of the Air Board was led by Lord Cowdray, with Henderson once again representing the War Office as DGMA.

**Establishing the Air Ministry**

The next year would see a series of events that would culminate with the establishment of a fully-fledged air ministry. Henderson would play a prominent role in this process. Spurred on by German daylight air raids against targets in the UK conducted from March 1917 onwards, on 11 July the War Cabinet approved the establishment of a Committee on Air Organisation and Home Defence Against Air Raids, consisting nominally of Prime Minister David Lloyd George and Lieutenant-General Jan Smuts; it soon became clear, however, that this would be a one-man enterprise, with the Prime Minister acting as a silent partner.[131] 'For expert advice Smuts relied chiefly on the Director General of Military Aeronautics, David Henderson.'[132] Smuts' efforts were summarised in two reports. The first, submitted to the War Cabinet on 19 July, dealt with the question of the defence of London against air attack. Earlier in July, the Commander-in-Chief Home Forces – Sir John French – had written to his old staff officer and friend, Henderson, to press the Army Council's suggestion for, 'a single centralized air defence system'; and Henderson would appear to

have relayed this suggestion to Smuts, who incorporated it in his report.[133] The London Air Defence Area (LADA) was duly established in the following month.

The second Smuts Report, submitted on 17 August 1917, dealt with, 'the Air organisation generally and the direction of aerial operations.'[134] This recommended, 'not only the creation of an air ministry with a consultative board, equivalent to the Admiralty and the War Office', but also, 'a single unified 'Air Service' run by an Air Staff.' According to Overy, the latter, 'more radical proposal', was based, 'almost entirely on Henderson's advice, since neither Cowdray nor Churchill, otherwise staunch supporters of the idea of a new ministry and staff, argued for the creation of an entirely new service, to be created under the extreme conditions of a war that Britain might still lose.'[135] Following a lengthy debate, on 24 August the War Cabinet accepted Smuts' recommendations and directed that a committee be established,

> 'to investigate and report on the arrangements necessary for the amalgamation of the Royal Naval Air Service and the Royal Flying Corps and the relationship between it and the Admiralty and War Office, and the legal constitution and discipline of the new unified Air Service, and prepare the necessary draft legislation and regulations for submission to Parliament at the earliest possible date'.[136]

The circumstances that now resulted in Henderson surrendering the post of DGMA in order to concentrate upon the task of establishing this new Air Ministry resembled, to a degree, those that led to his appointment as DGMA in the first instance. In a letter to the Secretary of State for War, Lord Derby, dated 28 August 1917, Lord Cowdray requested that the former, 'place at my disposal the services of Sir David Henderson to be the head of the staff which will work out the details of the reorganization involved in the Cabinet's decision.' Writing to the Chancellor of the Exchequer and Leader of the House of Commons, Andrew Bonar Law, on the following day, Derby signalled his willingness to surrender Henderson. While he had, 'done very well', as DGMA, it was, 'quite impossible for matters to continue as they are at the present moment. He is so much engaged with what I may call the policy that it is impossible for him to give the proper

attention to the details which are so essential at the present moment for the proper maintenance of our air supremacy.'[137]

Henderson was eventually, 'relieved of his appointment', as DGMA in October 1917, 'in order that he might give his undivided energies to the details of the amalgamation of the naval and military air services as the Royal Air Force.'[138] The, 'shape and general architecture of the Royal Air Force', was sketched out by the Air Organisation Committee. Although Smuts was once again the nominal chair, in reality, 'the moving spirit behind the activities of the committee was Sir David Henderson.'

> 'This was the work for which the logical mind of Sir David Henderson and his practical experience well fitted him. Every member of the committee toiled at high pressure, but none more than Lieutenant-General Henderson, who held nothing back and whose energy burned like a flame when, as here, his heart and mind were engaged.'[139]

His contribution came at considerable personal cost. Jones would later note that, 'his work against time on this committee, given with an inspired prodigality, used up all his reserves of physical strength; it was his last big service to the Royal Air Force and his most outstanding.'[140]

The first Secretary of State for the Air Force, Lord Rothermere, appointed Henderson, 'to be an additional member of the Air Council and to be Vice-President of the Air Council', with effect from 3 January 1918.[141] However, Henderson's continued association with the Air Ministry would end with his resignation after just three months. In a letter to Bonar Law on 26 April, Henderson attributed his resignation, in part, to the fact that he, 'had no executive duties left. The organisation of the Air Force in which I had been engaged since my transfer from the Army Council for the purpose, was complete, and I had clearly told Lord Rothermere, when he asked me to be Vice-President that I could only hold the position while there was work for me to do.'[142] However, his decision would appear to have been triggered by, 'the atmosphere of intrigue and falsehood which…enveloped the Air Ministry.'[143] Matters came to a head when Rothermere accepted the resignation of Trenchard as Chief of the Air Staff and appointed Sir Frederick Sykes in his stead. The ill-feeling

that had developed between Henderson and Sykes earlier in the war had by no means abated, and Henderson promptly tendered his own resignation to Rothermere in no uncertain terms:

> 'After our conversation on Friday last, when I expressed to you and to General Smuts a very unfavourable opinion of Major-General Sykes, and considering my previous relations with that officer, his appointment as Chief of the Air Staff makes it most undesirable, in the interests of the Service, that I should remain in the Air Force.'[144]

On 17 April 1918 the Secretary of the Air Ministry, W A Robinson, notified the War Office that both Henderson and Trenchard had, 'resigned their appointments on the Air Council, and are desirous of reverting to the Army.'[145] Noting that, 'my previous relations with Sykes, and my opinion of him, were not secrets', Henderson expressed to Bonar Law his fear that, 'had I remained in the Air Force, there was grave danger that I might become, however unwillingly, a focus of discontent and opposition.'[146]

**After the Air Ministry**

Shortly after David's departure from the Air Ministry the Hendersons were struck by a personal tragedy. Their son, Ian, had followed in his father's footsteps, graduating from the Royal Military College, Sandhurst and being commissioned into the Argyll and Sutherland Highlanders on 13 January 1915.[147] He was seconded to the RFC in August 1915, and after learning to fly at the Central Flying School served subsequently on the Western Front as a fighter pilot, being awarded the Military Cross in October 1916.[148] Ian joined No 1 School of Air Fighting on 1 March 1918, and he was killed in a flying accident on 21 June, aged just 21.[149] He was buried in Girvan Cemetery, Ayrshire, and commemorated in a memorial service at St Martin in the Fields on 27 June 1918, attended by many of those who had served alongside his father in war and peace.[150]

Henderson would not remain unemployed for long. He returned to France on 15 July 1918, and on 10 August became the Commandant responsible for British troops in the Paris area.[151] Subsequently, Lord Derby – now British Ambassador in Paris – suggested that Henderson's duties should be combined with those of military advisor

*Lt-Gen Henderson wearing the 1918 pattern khaki RAF uniform that was in vogue until the introduction of a blue-grey version in September 1919.* (Walter Stoneman, National Portrait Gallery, London)

to the ambassador and head of all British military missions in the Paris area. Henderson assumed this enhanced role, with the title of Military Counsellor to the British Embassy, in October 1918.[152] He continued to serve as Military Counsellor until May 1919, when he was appointed the first Director-General of the League of Red Cross Societies.[153] This new post, his obituary in *The Times* reflected,

> 'needed the utmost diplomacy, and he possessed the arts of a diplomat to a high degree. He succeeded admirably, and his recent achievement in getting the old and conservative International Committee of the Red Cross to come to a working understanding with the new League was far from being the least of his triumphs.'[154]

By 1921 Henderson's health had deteriorated considerably and on 17 August he died. Henderson's body was cremated in Geneva three days later. His ashes were returned to his native Scotland and on 1 September they were interred in his son's grave at Girvan in a military funeral. Commentators were quick to laud Henderson's contribution to the establishment and development of British air power. 'In view of the magnitude to which the RFC, and later the RAF, grew', his obituary in the journal *Flight* concluded on 25 August 1921, 'one is apt to underestimate the difficulties which beset those in whose hands rested the task of early organisation and equipment, but by those who were in intimate touch with aviation in those days the life-work of General Sir David Henderson will never be forgotten. *Per Ardua ad Astra*.'[155]

In practice, however, recognition of Henderson's contribution faded quickly. One outspoken exception was the man often lauded as the 'father of the Royal Air Force', Viscount Trenchard. The RAF, 'was formed on April 1, 1918, as one Service', Trenchard reflected during a debate in the House of Lords in 1953:

> 'The three people who formed that Service and laid the foundations of all that has gone on since were General Sir David Henderson, General Smuts and Sir William Weir (now Lord Weir). Those three men had more to do with the formation of the Royal Air Force than any other men in this country – and Sir David Henderson's name is not so well known as it ought to be.'[156]

**Notes:**

[1] 'Lieutenant-General Sir David Henderson, KCB, KCVO, DSO, Hon FRAëS [sic],' *Aeronautical Journal*, Vol 25, No 129, 1921: p465.

[2] *Ibid*, p467.

[3] 'Death of Sir David Henderson: Maker of the RAF', *The Times*, 19 August 1921, p11.

[4] Higham, Robin, *The Military Intellectuals in Britain: 1918-1939*, reprint ed. (Westport, CT: Greenwood Press, 1981), p123, fn.

[5] Prins, François, 'Forgotten Founder, Part 1,' *Aeroplane Monthly*, Vol 40, No 4, April 2012: p60.

[6] Jordan, Dr David, 'Lieutenant-General Sir David Henderson: Forgotten Father of British Air Power?,' *Royal Air Force Air Power Review, 95th Anniversary Special Edition*, 2013: p20.

[7] Raleigh, Walter, *The War in the Air*: *Being the Story of the part played in the Great War by the Royal Air* Force, Vol I and Jones, H A, Vols II, III, V & VI (Oxford: The Clarendon Press, various dates 1922-34).

[8] It is normal for histories of British military aviation and its administration prior to and during the First World War to include at least some mention of Henderson and he is referred to in, for instance, more than thirty of the titles and articles consulted in the preparation of this paper, many of which are specifically cited among these endnotes.

[9] Papers held by the Department of Research and Information Services, RAF Museum (henceforth RAFM) (AC 71/12/558-570) show that in the 1920s Lady Henderson turned to H A Jones to produce a life of her husband. However, the draft chapters that he prepared found little favour amongst her circle of friends, and this – combined with Jones' workload as official air historian and his inability to interest publisher Sir John Murray – led to the project being abandoned by 1929. A draft introduction and four chapters prepared by Jones (together with a forward by Major-General the Rt Hon J E B Seely) are also held by the RAF Museum as AC74/4/2.

[10] Cooper, Malcolm, *The Birth of Independent Air Power: British Air Policy in the First World War* (London: Allen and Unwin, 1986), p25-6, fn40; Pugh, James, 'David Henderson and Command of the Royal Flying Corps,' in *Stemming the Tide: Officers and Leadership in the British Expeditionary Force 1914*, ed. Spencer Jones, Wolverhampton Military Studies No 1 (Solihull: Helion 2013), p263.

[11] RAFM AC74/4/2, draft introduction, p2.

[12] A draft copy of the Hatchard reprint (and covering letter from Jones to Lady Henderson) is held by the RAFM as AC 71/12/572-73. A transcript of this text was reprinted as 'Sir David Henderson, Father of the Royal Air Force,' *Royal Air Force Air Power Review, 95th Anniversary Special Edition*, 2013: p9-15. All quotations from Jones' text in the following paper are drawn from the *Royal Air Force Air Power Review* transcript.

[13] Pugh, 'David Henderson and Command of the Royal Flying Corps.'

[14] Smith, Richard A., 'Henderson, Sir David (1862-1921)', Oxford Dictionary of National Biography, Oxford University Press, Sept 2004; online edn, May 2008, http://www.oxforddnb.com/view/article/33808, accessed 7 July 2010.

[15] 'The Late Mr David Henderson', *Engineering*, 29 December 1893, p790.

[16] Jones, 'Sir David Henderson, Father of the Royal Air Force,'p9. 'The University of Glasgow Story: Lieutenant General Sir David Henderson', https://universitystory.gla.ac.uk/biography/?id=WH0213&type=P, accessed 30 March 2020.

[17] 'The Royal Military College, Sandhurst', *The Times*, 5 August 1882, p10.

[18] 'Royal Military College, Sandhurst', *The Times*, 9 August 1883, p4; The *London Gazette*, Issue 25262, 24 August 1883, p4171.

[19] The National Archives (henceforth TNA) WO 76/459; 'Naval and Military Intelligence', *The Times*, 12 January 1884, p10.

[20] TNA WO 76/459; *The London Gazette*, Issue 26090, 23 September 1890, p5093; Issue 26109, 25 November 1890, p6463; Jones, 'Sir David Henderson, Father of the Royal Air Force,' p9.

[21] 'Naval and Military Intelligence', *The Times*, 21 August 1891, p10; 2 March 1892, p10; 21 March 1892, p6; 24 March 1892, p6.

[22] Jones, 'Sir David Henderson, Father of the Royal Air Force,' p9.

[23] Hussey, John, "A very substantial grievance', said the Secretary of State: Douglas Haig's Examination Troubles, 1893,' *Journal of the Society for Army Historical Research*, Vol 74, No 299, 1996: p172; n16, p175; Jones, 'Sir David Henderson, Father of the Royal Air Force,' p9.

[24] 'Death of a Glasgow Shipbuilder', *The Glasgow Herald*, 27 December 1893, p4.

[25] TNA WO 339/50025 File 82977/19; WO 339/4357 File 5999/5; Smith, Richard A., 'Henderson, Sir David (1862-1921)'.

[26] TNA WO 339/50025 File 82977/4; *The London Gazette*, Issue 26926, 4 January 1898, p8.

[27] *The London Gazette*, Issue 26988, 19 July 1898, p4355-56.

[28] *The London Gazette*, Issue 27009, 30 September 1898, p5728.

[29] *The London Gazette*, Issue 27019, 1 November 1898, p6376; Issue 27023, 15 November 1898, p6690. Henderson's entry in *The Quarterly Army List for the Quarter Ending 30th June 1914* (London HMSO, 28 July 1914), p80, confirms that Henderson was formally granted the Brevet rank of Major on 16 November 1898, and the substantive rank on 12 December 1903.

[30] *The London Gazette*, Issue 27068, 4 April 1899, p2229. Henderson's replacement as Staff Captain was Captain W R Robertson, DSO, 3rd Dragoon Guards – later Field Marshal Sir William ('Wully') Robertson

[31] Gudgin, Peter, *Military Intelligence: The British Story* (London: Arms and Armour Press, 1989), p32.

[32] *The London Gazette*, Issue 27131, 31 October 1899, p6534; Parritt, Brigadier Brian, *The Intelligencers: British Military Intelligence from the Middle Ages to 1929* (Barnsley: Pen & Sword Military, 2011), p156, 166. White was appointed formally 'to command the Troops in Natal' on 16 September 1899; *The London Gazette*, Issue 27117, 15 September 1899, p5693.

[33] London Gazette, Issue 27282, 8 February 1901, p917.

[34] Parritt, *The Intelligencers: British Military Intelligence from the Middle Ages to 1929*, p167.

[35] London Gazette, Issue 27282, 8 February 1901, p929.

[36] Parritt, *The Intelligencers: British Military Intelligence from the Middle Ages to 1929*, p193.
[37] *The London Gazette*, Issue 27282, 6 February 1901, p923.
[38] Parritt, *The Intelligencers: British Military Intelligence from the Middle Ages to 1929*, p193.
[39] *The London Gazette*, Issue 27286, 19 February 1901, p1232. This rank was not made substantive until 1 January 1907; *The London Gazette*, Issue 27983, 4 January 1907, p119.
[40] TNA WO 108/269 'Report on Field Intelligence from 29 November 1900, until the Cessation of Hostilities', 3.
[41] Beach, Jim, *Haig's Intelligence: GHQ and the German Army, 1916-1918* (Cambridge: Cambridge University Press, 2013), p15.
[42] Pakenham, Thomas, *The Boer War* (London: Weidenfeld and Nicholson, 1979), p540.
[43] Arthur, Sir George, *Life of Lord Kitchener*, Vol 2 (London: Macmillan, 1920), p78.
[44] Atwood, Rodney, *Roberts & Kitchener in South Africa 1900-1902* (Barnsley: Pen & Sword Military, 2011), p231.
[45] *The London Gazette*, Issue 27459, 29 July 1902, p4836; Issue 27490, 31 October 1902, p6897.
[46] TNA WO 339/50025 File 82977/4; *The London Gazette*, Issue 27286, 19 February 1901, p1232.
[47] Beach, *Haig's Intelligence: GHQ and the German Army, 1916-1918*, p15.
[48] *Ibid*.
[49] *Ibid*, p66; Clayton, Anthony, *Forearmed: A History of the Intelligence Corps* (London: Brassey's, 1993), p13.
[50] Henderson, Colonel David, *The Art of Reconnaissance*, first edition (New York, NY; E. P. Dutton, 1907), Preface.
[51] *Ibid*; Henderson, Colonel David, *The Art of Reconnaissance*, second edition (London: John Murray, 1908); Henderson, Brigadier-General David, *The Art of Reconnaissance*, third edition (London: John Murray, 1914).
[52] French, who had been appointed to command 1st Army Corps on 15 September 1902; *The London Gazette*, Issue 27477, 28 September 1902, p6151.
[53] *The London Gazette*, Issue 27863, 12 December 1905, 8990. Henderson's Brevet rank of Colonel was made substantive on 27 November 1907; *The Quarterly Army List for the Quarter Ending 30th June, 1914*, p80.
[54] *The Quarterly Army List for the Quarter Ending 30th June, 1914*, p80.
[55] d'Ombrain, Nicholas, *War Machinery and High Policy: Defence Administration in Peacetime Britain, 1902-1914* (London: Oxford University Press, 1973), p187.
[56] *The London Gazette*, Issue 28097, 7 January 1908, p139; Issue 28092, 24 December 1907, p8982.
[57] TNA WO 27/508, 'Annual Report of the Inspector-General of the Forces: 1908' 12 November 1908, Appendix I, 25; Holmes, Richard, *The Little Field Marshal: A Life of Sir John French* (London: Cassell, 2005), p129.

[58] Jones, 'Sir David Henderson, Father of the Royal Air Force,' p10; Holmes, *The Little Field Marshal: A Life of Sir John French*, p131.

[59] Bond, Brian, *The Victorian Army and the Staff College, 1854-1914* (London: Eyre Methuen, 1972), p268.

[60] TNA WO 27/508, 'Annual Report of the Inspector-General of the Forces for 1911: Together with the Reply of the Army Council', 62.

[61] Henderson, *The Art of Reconnaissance*, first edition, pp11-12.

[62] Cassar, George H, *The Tragedy of Sir John French* (Newark, NJ: University of Delaware Press, 1985), p67; Gibbs-Smith, Charles H., *Aviation: An historical survey from its origins to the end of World War II* (London: HMSO, 1970), p145. An image of Sir John French, Henderson and Major-General James Grierson (General Officer Commanding 1st Division) with the French Minister of War, General Jean Jules Brun, at Rheims can be found in *Flight*, 4 September 1909, p541. Although this image is undated, a newspaper report published on 25 August states that on the previous afternoon the aviation meeting had been visited by the President of France, Armand Fallières; the President's party included 'General Brun, War Minister, who spent nearly the whole of the short official stay with General Sir John French'. *The Times*, 25 August 1909, p6.

[63] Gollin, Alfred, *The Impact of Air Power on the British People and their Government, 1909-14* (Stanford, CA: Stanford University Press, 1989), p198.

[64] Raleigh, Walter, *The War in the Air: Being the Story of the part played in the Great War by the Royal Air Force*, Vol I (Oxford: The Clarendon Press, 1922), p199. *Flight*, 26 August 1911, p745; 2 September 1911, p756. A second report on page 759 of the latter issue noted that Henderson, 'stands out prominently as the first officer of such high rank to take up aviation practically. His passing for the *brevet* in one week is quite a remarkable performance, for which Mr C H Pixton, his instructor, deserves his share of praise and congratulation.' While *Flight* for 2 September, notes, in a table (p759), that Henderson's 'Date of Passing' was 16 August, his RAeC Certificate No 118 is dated a day later.

[65] TNA AIR 1/653 17/122/489, CID 139-B 'Report of the Standing Sub-Committee of the Committee of Imperial Defence on Aerial Navigation', 29 March 1912; Gollin, *The Impact of Air Power on the British People and their Government, 1909-14*, p184-85.

[66] TNA AIR 1/653 17/122/489, 'Report of the Technical Sub-Committee', paras 1 and 2, p1,

[67] Driver, Hugh, *The Birth of Military Aviation: Britain, 1903-1914*, Studies in History (Woodbridge: The Boydell Press for the Royal Historical Society, 1997), p270. The Technical Sub-Committee's report was not approved formally by the CID until 25 April 1912; TNA AIR 1/653 17/122/489, 'Extract from the Minutes of the 116th Meeting of the Committee of Imperial Defence, held on April 25, 1912'.

[68] Report of the Technical Sub-Committee', para 12, p3.

[69] *Ibid*, para 12, p3.

[70] Driver, *The Birth of Military Aviation: Britain, 1903-1914*, p271.

[71] TNA AIR 1/2317 223/24/3, Air Committee Paper AC-15 'First Annual Report by the Air Committee on the Progress of the Royal Flying Corps', 7 June 1913, para 8, p3.
[72] Dale, B A, *The War Office List, 1913*, (HMSO, 1913) p56; *Flight*, 1 July 1911, p569.
[73] *The London Gazette*, Issue 28624, 5 July 1912, p4879.
[74] Holmes, *The Little Field Marshal: A Life of Sir John French*, p135.
[75] TNA T1/11770, file Treasury 12694.
[76] *The London Gazette*, Issue 28670, 10 December 1912, p9397.
[77] Sykes, Major-General The Right Hon Sir Frederick, *From Many Angles: An Autobiography* (London: George G Harrap & Company, 1942), p95.; *The London Gazette*, Issue 28609, 17 May 1912, p3583.
[78] TNA T1/11770 File 8709.
[79] War Office Memorandum No 722 Part 1 *Formation of a Military Aeronautics Directorate*, 28 August 1913; AHB collection. A transcript of this memorandum can also be found in TNA AIR 1/520 16/10/1.
[80] Raleigh, *The War in the Air: Being the Story of the part played in the Great War by the Royal Air Force*, I, p415. *The London Gazette*, Issue 28752, 2 September 1913, p6235.
[81] *Ibid*.
[82] Macmillan, Norman, *Sir Sefton Brancker* (London: William Heinemann, 1935), p33.
[83] Dye, Peter, *The Bridge to Airpower: Logistics Support for Royal Flying Corps Operations on the Western Front, 1914-18*, ed. Paul J. Springer, The History of Military Aviation (Annapolis, MD: Naval Institute Press, 2015).
[84] TNA AIR 1/118 15/40/56 enc 10A; Raleigh, *The War in the Air: Being the Story of the part played in the Great War by the Royal Air Force*, I, p283.
[85] Sykes, *From Many Angles: An Autobiography*, p122.
[86] TNA AIR 1/118 15/40/56 enc 11A. Brooke-Popham had been responsible 'for the RFC's training and mobilization at Farnborough' from 27 July 1914; Dye, Peter, "*The Man Who Took the Rap*": *Sir Robert Brooke-Popham and the Fall of Singapore*, ed. Paul J. Springer, The History of Military Aviation (Annapolis, MD: Naval Institute Press, 2018), p31.
[87] Sykes, *From Many Angles: An Autobiography*, p122. Sykes (then a Capt, Brevet Maj and Temporary Lt Col) became a General Staff Officer, 1st Grade (GSO1); Brooke-Popham was appointed Deputy Assistant Quartermaster-General (DAQM). Other members of Henderson's staff included Capt Geoffrey Salmond (General Staff Officer, 2nd Grade (GSO2), Lt Basil H Barrington-Kennett (Staff Captain), and Lt Maurice Baring.
[88] TNA WO 339/50025 file 82977/18; Baring, p19.
[89] TNA WO 330/50025, file 82977/11, minute 1; War Office Memorandum 794, 26 December 1914, item 2, p3; AHB collection
[90] TNA AIR 1/718/29/3.
[91] Ash, Eric, *Sir Frederick Sykes and the Air Revolution 1912-1918*, ed. Sebastian Cox, Studies in Air Power (London: Frank Cass, 1999), p50.

[92] Harris, Paul, *The Men Who Planned the War: A Study of the Staff of the British Army on the Western Front, 1914-1918*, ed. John Bourne, Ashgate Studies in First World War History (Abingdon: Routledge, 2016), p40.
[93] Spencer, John, '"*The* big brain of the arm": Sir William Robertson as Quartermaster-General,' in *Stemming the Tide: Officers and Leadership in the British Expeditionary Force 1914*, ed. Spencer Jones, Wolverhampton Military Studies No 1 (Solihull: Helion 2013), p91.
[94] Sykes, *From Many Angles: An Autobiography*, p122.
[95] Pugh, 'David Henderson and Command of the Royal Flying Corps,' p284.
[96] *Third Supplement to The London Gazette of Tuesday the 8th of September 1914*, Issue 28897, 9 September 1914, p7192.
[97] *Second Supplement to the London Gazette of Friday, the 16th of October 1914*, Issue 28942, 19 October 1914, p8344
[98] *The London Gazette*, Issue 28961, 3 November 1914, p8881.
[99] Jones, H A, *The War in the Air: Being the Story of the part played in the Great War by the Royal Air Force*, Vol II (Oxford: The Clarendon Press, 1928), p79.
[100] Ash, *Sir Frederick Sykes and the Air Revolution 1912-1918*, p62; Baring, Maurice, *Flying Corps Headquarters 1914-1918*, reprint ed. (London: Buchan & Enright, 1985), p68.
[101] Sykes, *From Many Angles: An Autobiography*, p146.
[102] Baring, *Flying Corps Headquarters 1914-1918*, p75.
[103] Jones, *The War in the Air: Being the Story of the part played in the Great War by the Royal Air Force*, II, p456-57. Additionally, the headquarters and one flight of an eighth squadron – No 9 Squadron, commanded by Captain H C T Dowding – was located at St Omer.
[104] Baring, *Flying Corps Headquarters 1914-1918*, p85-6.
[105] *Ibid*, pp86 and 89.
[106] Dye, "*The Man Who Took the Rap*": *Sir Robert Brooke-Popham and the Fall of Singapore*, p37.
[107] *Ibid*, p38.
[108] War Office Memorandum No 764, 17 August 1914, item 5, p3; AHB collection. Brancker was promoted to colonel and his appointment formally raised to Deputy Director of Military Aeronautics (DDMA) in March 1915'; Jefford, Wg Cdr C G, 'The Moss on the Rolling Stone of History', *Royal Air Force Historical Society Journal 55*, 2013, p124, fn 3.
[109] Cooper, *The Birth of Independent Air Power: British Air Policy in the First World War*, p23. Brancker served as ADMA until March 1915; as Deputy Director of Military Aeronautics (DDMA) between March and August 1915; as Director of Air Organization (DAO) between March 1916 and February 1917; and once again as DDMA from February 1917 until October of that year. Brancker, pp423-4; Jefford, Wg Cdr C G, 'The Moss on the Rolling Stone of History', *Royal Air Force Historical Society Journal 55*, 2013, p124, fn 3.
[110] TNA AIR 1/718/29/9.
[111] Macmillan, *Sir Sefton Brancker*, p57. Brancker found the Kitchener in particular to be 'an enormous asset to the RFC. He instinctively understood aviation, and

realised fully its vast possibilities; he saw me constantly, perhaps four or five days a week at least, and often twice a day; he was always driving me to run before I could walk, and demanding more and more and more – a delightful change to the old regime, who usually wanted me to remain lying down because we couldn't prove that we could walk.' *Ibid*, p67.

[112] *Ibid*, p106-7 (italics as in original).

[113] *Ibid*, p108.

[114] TNA WO 339/50025 file 82977/13; Jones, *The War in the Air: Being the Story of the part played in the Great War by the Royal Air Force*, II, p124.

[115] TNA WO 339/50025 Files 82977/13 and 82977/12.

[116] Jones, *The War in the Air: Being the Story of the part played in the Great War by the Royal Air Force*, II, p124.

[117] Spaight, J.M, *The Beginnings of Organised Air Power: A Historical Study* (London: Longmans, Green and Co, 1927), p58.

[118] *Ibid*, p58-9.

[119] Lanchester, F W, *Aircraft in Warfare: The Dawn of the Fourth Arm* (London: Constable, 1916), pv-vi.

[120] Hobbs, David, *The Royal Navy's Air Service in the Great War* (Barnsley: Seaforth Publishing, 2017), p76-7.

[121] Powers, Barry D, *Strategy Without Slide-Rule: British Air Strategy 1914-1939* (London: Croom Helm, 1976), p25.

[122] TNA AIR 1/2317/223/20 'Army: Final Report of the Committee on the Administration and Command of the Royal Flying Corps, &c', November 1916 (henceforth Bailhache Committee report), para 1, p3

[123] *Ibid*, para 3, p3.

[124] 'Death of Sir David Henderson: Maker of the RAF', *The Times*, 19 August 1921, p11.

[125] TNA AIR 1/2317/223/20 Bailhache Committee report, para 172, p19.

[126] *Ibid*, paras 171 and 173, p19.

[127] *Ibid*, Recommendation I, p18.

[128] *Ibid*.

[129] Cd.9005 The War Cabinet: Report for the Rear 1917 (London: HMSO, 1918), p57.

[130] Hansard HL Deb 9 March 1916, Vol 21, col 358.

[131] TNA CAB 23/3 War Cabinet, 181, 11 July 1917, item 3, p2.

[132] Overy, Richard, *The Birth of the RAF, 1918: The World's First Air Force* (London: Allen Lane, 2018), p23.

[133] *Ibid*, p25.

[134] TNA CAB 24/22 GT 1658 'War Cabinet: Committee on Air Organisation and Home Defence Against Air Raids (2nd Report)', 17 August 1917.

[135] Overy, *The Birth of the RAF, 1918: The World's First Air Force*, p27.

[136] TNA CAB 23/2 War Cabinet, 223, 24 August 1917, item 12, p7.

[137] TNA T172/624.

[138] Jones, H A, *The War in the Air: Being the Story of the part played in the Great War by the Royal Air Force*, Vol V (Oxford: The Clarendon Press, 1935), p437.

[139] *The War in the Air: Being the Story of the part played in the Great War by the Royal Air Force*, Vol VI (Oxford: The Clarendon Press, 1937), p13.
[140] Jones, H A, 'The Birth of the Royal Air Force,' *The Journal of the Royal United Service Institution*, Vol LXXXIII, No 529, 1938: p6.
[141] TNA AIR 2/73 File A7964.
[142] Beaverbrook, Lord, *Men and Power, 1917-1918* (London: Hutchinson, 1956). Appendix IV, No 12, p378.
[143] *Ibid*.
[144] *Ibid*, p379.
[145] TNA WO 339/50025 File 82977/16. The Air Ministry confirmed subsequently that while Henderson had 'ceased to do duty with the Air Ministry as from the 17th April', Trenchard had 'now received another appointment in the Air Force, and his application to be allowed to revert to the Army may therefore be regarded as withdrawn.'
[146] Beaverbrook, *Men and Power, 1917-1918*, p378.
[147] *The London Gazette*, Issue 29038, 12 January 1915, p387.
[148] TNA AIR 76/221; *The London Gazette*, Issue 29283, 3 September 1915, p8730; *The Edinburgh Gazette*, Issue 13001, 23 October 1916, p1890-91.
[149] TNA AIR 76/221. Lieutenant H B Redler MC RAF also lost his life in this accident; 'Personals', *Flight*, 4 July 1918, p752.
[150] 'Memorial Services: Captain I H D Henderson', *The Times*, 28 June 1918, p9.
[151] TNA WO 339/50025 File 82977/16.
[152] TNA WO 33950025 File 82977/17.
[153] Papers on TNA WO 339/50025 File 82977/18 indicate that although Henderson may have been appointed Director-General of the League of Red Cross Societies in May 1919, he did not actually vacate the post of Military Counsellor until 13 June 1919.
[154] 'Maker of the RAF', *The Times*, 19 August 1921, p11.
[155] 'The Death of General Henderson: Late Director-General of Military Aeronautics', *Flight*, 25 August 1921, p572.
[156] Hansard HL Deb 15 April 1953, Vol 181, col 757.

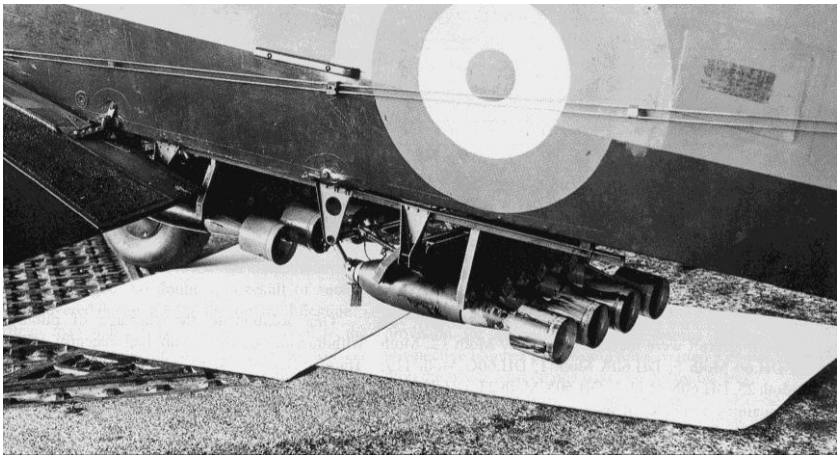
## RESERVE SQUADRONS

### by Wg Cdr Jeff Jefford

The practice of applying a parenthetic 'Reserve' suffix to selected squadron number plates ceased in 2018, making it timely to review the origins and evolution of this qualification.

Beginning as early as June 1940, and periodically revised and updated until October 1943, contingency plans (Operation SARACEN, later BANQUET) were prepared which would have mobilised the entire RAF training organisation in the event of a German invasion. Bearing in mind that the conduct of almost all basic and advanced flying training was moved overseas during 1941, later editions of these plans involved only those elements that remained. This included units like gunnery schools, along with, under BANQUET LIGHT, several hundred Tiger Moths, drawn from the Elementary Flying Training Schools.[1]

The more advanced, post-graduate, training units would have provided the backbone of this force, of course, foremost among them being the fighter Operational Training Units which would have become additional squadrons. These units would have been



*Had BANQUET ever been implemented, several hundred Tiger Moths would have been employed as light bombers. Flown solo, unusually from the front seat, they could have delivered up to eight 20 lb Cooper bombs.* (RAE Farnborough)

designated as Nos 551-566 Sqns. Although these plans were never formally activated, there was some sporadic use of these squadron identities on a number of occasions.

Although Fighter Command had been considerably expanded during the Korean War, the heightened tensions of the early Cold War era prompted the Air Council to consider ways of further strengthening the front line. In mid-1954 CAS approved a proposal that three additional squadrons should be formed on the outbreak of war, one day and one night fighter unit from the resources of the Central Fighter Establishment (CFE) and another day fighter squadron from the Armament Practice Station. It was envisaged that these units would be embodied only briefly to assist in blunting the initial attack, their assets subsequently being used to replace battle casualties in front line squadrons.[2] A year later HQ Fighter Command took this idea a stage further and proposed the formation of five more such squadrons using the resources of the Fighter Weapons School and four OCUs. There was some concern that this approach might conflict with the 'First Reinforcement Scheme' (the plan to increase and/or sustain the strength of the front line by, *inter alia*, redeploying instructors from training units). Since very little expense would be involved, however, it was agreed to approve the formation of the, now eight, additional squadrons on a contingency basis. That is to say that, in responding to a crisis, the Air Ministry would have the options of mobilising some, or all, of these units or of using their assets to reinforce the existing front line.[3]

In January 1956 the eight potential squadrons were allocated the number plates of Nos 122, 124, 127, 129, 131, 137, 165 and 176 Sqns.[4] It is interesting to observe that the letter earmarking these number plates had stated that they were for use by squadrons which were '*due to form* in war'. Two days later this clause was amended, however, to read '*may be formed* in war' (author's italics in both cases), thus stressing the strictly conditional status of these notional units.[5]

It is worth noting that, for many years, there appears to have been no attempt to standardise the terminology involved. A mid-1956 Air Council paper referred to these potential units as 'shadow' squadrons, the inverted commas suggesting that this was not an officially recognised title, while contemporary staff correspondence

was using reserve squadron.[6] In related staff correspondence, by 1958 reserve squadron had become commonplace but 'shadow' re-appears in 1970, with and without inverted commas. In correspondence raised between 1976 and 1979 both shadow and reserve are used repeatedly and interchangeably but by 1981 reserve squadron had become the norm.

Meanwhile, so many notable squadrons had been disbanded in the wake of the 1957 White Paper on Defence that in July 1958 HQ Fighter Command had suggested that some of their identities might be used in place of the less historically significant number plates which were currently available for use by reserve squadrons, of which only five now remained. While this idea was well received, four of the five number plates which had been specifically requested (Nos 141, 219, 222, 245 and 247) were unavailable, as they were expected to be restored to use in connection with the imminent introduction of Bloodhound. In October the Air Ministry finally agreed to the replacement of the number plates of Nos 122, 127, 131, 137 and 176 Sqns with those of Nos 63, 234, 145, 253 and 219 Sqns respectively, accompanied by the usual proviso to the effect that their use was to be, 'confined to "operational" use only.'[7] That included exercises, of course, and, as examples: No 127 Sqn took part in Exercises VIGILANT in May 1957 and IRONBAR in the following November; Nos 122, 127, 131 and 176 Sqns were all activated in October 1958 in order to participate in Exercise SUNBEAM; and Nos 145 and 234 Sqns operated from Horsham St Faith for Exercise MANDATE in July 1959. Meanwhile, following an appeal, the No 253 Sqn number plate had been withdrawn in favour of No 137's which remained in use – or, strictly speaking, would be used if it were ever activated.

While the letter authorising the allocation of these number plates had stressed (again) that they were for 'operational use only', the appeal of a squadron identity is such that it was almost inevitable that some of the personnel who would form these units, if/when they were mobilised, wished to mark their association with them by wearing squadron badges and ties. This resulted in the Air Ministry clarifying the prevailing policy in a loose minute at the end of 1959.[8] This laid down the following rules:

a. Reserve number plates were confined to operational use only;


*The markings of No 145 Sqn were being worn, illicitly, by this Hunter F4, XF575, of No 229 OCU as early as 1959.* (MAP)

for routine administration the unit's peacetime title was invariably to be used.

b. Time spent as a reserve squadron did not count towards the time (normally twenty-five years of active service) necessary to qualify for the award of a Standard.

c. Reserve squadrons were not entitled to use the badge, or to hold the property, of their namesakes.

d. Reserve squadrons were not required to submit a F540, ie to maintain an Operations Record Book.

e. There was no guarantee that a number plate would be allocated to a unit in perpetuity.

f. Reserve squadrons were not to feature in the SD 155 or SD 161 (classified documents recording, respectively, organisational changes and the locations of all units).

It was quite clear from this that a reserve squadron had no substance whatsoever in peacetime; it simply did not exist until it was mobilised. That said, as noted above, these units did begin to be embodied on an occasional, and strictly temporary, basis to take part in major exercises. Furthermore, despite the rules laid down in 1959, the terms of which were always included in subsequent allocations of additional number plates, the Hunters of No 229 OCU were openly masquerading as No 145 Sqn before that year was out. This practice


*The markings of No 145 Sqn being worn by a Lightning T5, XS457, of No 226 OCU in 1969; a year later they were replaced by the red chevrons of No 65 Sqn.* (MAP)

was sustained by No 226 OCU who applied No 145 Sqn's markings to its Lightnings when the number plate passed to that unit in 1963.

While the idea of reserve squadrons had initially been confined to Fighter Command, the concept had soon been extended to embrace Bomber and Coastal Commands. In June 1956 the Air Council approved the creation of two eight-aircraft 'shadow' squadrons of Lincolns to operate in the mining role, pending the establishment of a mining capability within the V-Force. It was also agreed that, between them, the V-bomber OCUs should eventually field a total of three four-aircraft 'shadow' flights, that the resources of the Maritime Operational Training Unit (MOTU) and the Anti-Submarine Warfare Development Unit (ASWDU) should contribute two eight-aircraft 'shadow' squadrons and one three-aircraft 'shadow' flight of Shackletons but that the aircraft and crews of second-line transport units would be used to reinforce the existing front-line rather than forming additional squadrons. Implementation of all of these arrangements was, incidentally, conditional upon the prior demands of the aforementioned 'First Reinforcement Scheme.'[9]

Little of any substance came of these proposals because the Lincoln had ceased to be regarded as an operational asset before the end of 1958 and, while staff crews of V-bomber OCUs would be allocated targets within the overall war plan, they were never

actually organised on an autonomous 'flight' basis. None of these potential units ever established sufficient of a presence to warrant the allocation of a discrete identity until 1963 when, to meet a NATO obligation, Coastal Command was given the formal task of fielding an additional operational squadron in an emergency. This became No 220 Sqn, the commitment being doubled in 1967, resulting in the allocation of a second number plate, that of No 38 Sqn.[10]

In the meantime, the Hunters of No 229 OCU having been allotted the wartime identities of Nos 145 and 234 Sqns in November 1958, the former had been renumbered as No 63 Sqn in 1963 (when No 145's number plate had been transferred to No 226 OCU) and No 79 Sqn's number plate was added in 1967. As in the 1950s, No 229 OCU was regularly participating in exercises. For example, operating as No 234 Sqn, it fielded twelve aircraft for Exercise KINGPINs in May 1964 and June 1965, BARRAGE in September 1964 and QUICKTRAIN in July 1965 – there were others, some of which involved detachment to other operating bases.

By that time consideration was being given to the introduction of the Phantom and it was anticipated that, once the OCU had built-up to strength, it would be required to field a twelve-aircraft reserve squadron. In 1966 HQ Fighter Command was offered four number plates; it chose No 68 Sqn.[11] Shortly after this, however, the OCU was transferred to Air Support Command which had no relevant wartime obligation and, at its request, the No 68 number plate was withdrawn in April 1968 without, apparently, ever having had much more than a notional existence.[12] On reflection, however, the MOD decided that a unit with the potential of No 228 OCU was bound to have an operational commitment so, in May 1968, it was allocated the number plate of No 64 Sqn. In the event it would be 1970 before the unit was in a position to adopt its wartime identity but by July it had begun to display No 64 Sqn's distinctive markings on its aircraft.[13]

At much the same time, 1968, the policy underpinning the allocation of number plates was subjected to a thorough review. Among its conclusions was that they, 'should not be given to squadrons whose primary function is training.'[14] Nevertheless, it was still considered appropriate to assign squadron identities to units that would mobilise in wartime and it was agreed that their number

plates could now be relatively senior ones, rather than having to be drawn from the 'bottom of the deck', as most of the earlier allocations had been. This concession went so far as to include units which had been awarded their Standards, eg Nos 38 and 64 Sqns, and it was Strike Command's specific request that the wartime identity of its reserve Lightning squadron should have Standard-bearing status that had led to the withdrawal of No 145 Sqn's number plate from No 226 OCU in 1970 in favour of No 65 Sqn's.[15]

In 1976, AOCinC Strike Command wrote to CAS suggesting that, because the resources of all OCUs would be used to strengthen the front line in an emergency, there would be some advantage in assigning them squadron number plates, noting that Cranwell currently held the Standards of nine dormant squadrons.[16] CAS ruled this out, citing a number of reasons among them, 'that it is time we stopped deluding ourselves, and consequently possibly others, about our front line strength' and that, 'We do not count Warsaw Pact OCUs as part of their front line (*so*) why should we count our own?' He was also concerned that giving OCUs squadron identities would devalue the 'elite' status of front line squadrons and could start a trend that would see squadron number plates being assigned to advanced FTSs and, 'even the helicopter basic training unit whose Gazelles could have a reserve operational role in support of the Army.'[17] It was another robust defence of the 1968 policy – but while the current CAS, was determined to defend the party line, resolve within the upper reaches of the hierarchy was clearly beginning to weaken.

Not long after this exchange, the status of dormant Standards was reviewed. By 1977 there were eleven hanging under College Hall's cupola; they were, in order of seniority, those of Nos 216, 45, 99, 58, 205, 204, 210, 209, 65, 74 and 78 Sqns. In addition, there were, at Uxbridge, the Standards of Nos 40 and 90 Sqns, which had never been consecrated, because both units had been disbanded before their Standards could be presented. It was suggested that, since several of these units were unlikely to be re-formed, some of these redundant Standards should be withdrawn and permanently laid-up.[18]

By the later 1970s, most of the RAF's combat units had been formally 'declared' to NATO and, in order to conform to the requirements of SHAPE's bureaucracy, it became necessary to

define more precisely the arrangements under which reserve squadrons would be activated and to specify any limitations which applied to them in peacetime. There were several possibilities. At one extreme, a unit assigned to NATO with a classification of A1 was deemed to be ready for combat within 48 hours, which implied that it was vulnerable to a no-notice Tactical Evaluation (TACEVAL), whereas a C3 unit had 5-15 days in which to become operational.

The implications of this sort of distinction were highlighted in 1978, by which time No 226 OCU had become a Jaguar unit and was seeking a squadron number plate. This request was denied on the following grounds:[19]

> 'Current Air Force Board policy authorises the award of a reserve number plate to a Training Unit provided it has a wartime operational task which requires it to operate as an autonomous unit. Such plates may be used during Exercises, but the award does not include the right to the Sqn standard or the Unit's silver. Neither, because the Sqn remains "inactive", does the unit accrue seniority.
>
> Thus, although No 226 OCU has a commitment to NATO in war, it is ineligible for a reserve squadron number plate because it does not become a "shadow squadron", but augments other units with 9 of its aircraft.'

While that decision had been clear enough, it had prompted the Org Staff to review the situation regarding unit property. It had concluded that there were three options:[20]

a. Maintain the status quo, ie withhold all property.

b. Relax the rules sufficiently to permit the release of property to units from which it was planned to form shadow squadrons, ie maintain their non-effective status while acknowledging an appropriately unobtrusive low-profile presence.

c. Raise the status of shadow squadrons by acknowledging them in peacetime, as 'No XX (Shadow) Sqn'.

The staff recommendation was the second option, but this exercise had raised another question. The reserve number plates in use in 1979 were those of Nos 38, 64, 63, 79 and 234 Sqns. The last three were assigned to the Tactical Weapons Unit (TWU) at Brawdy but it was planned to establish a second TWU at Chivenor and

*Brawdy's No 79 Sqn should probably have lost its red arrow markings in 1968, but the rules were suitably 'adapted' to permit it to retain them, as evidenced by this 1976 shot of a Hunter FGA9, XJ687.*

AOCinC Strike Command was pressing for this new unit to be given a squadron number plate. This was proving to be a contentious issue, as the new unit was expected to be a dozen Hawks assigned to NATO at only C3 and, as the recent rejection of No 226 OCU's case had explained, current, ie 1968, policy dictated that 'squadron number plates should not be given to squadrons whose primary function was training' (see Note 14).

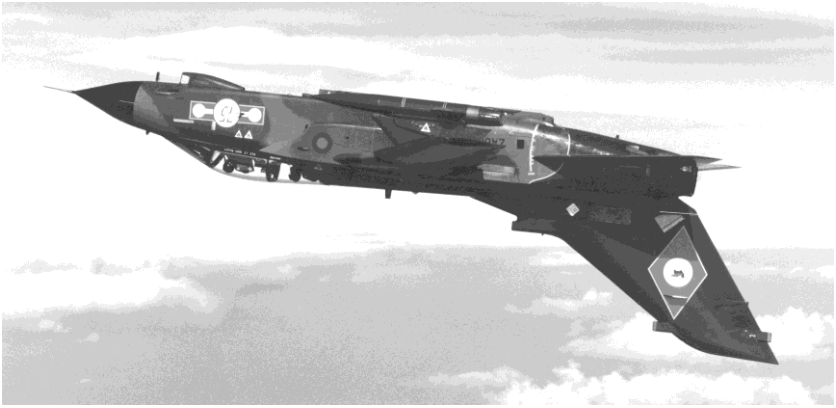
The problem was compounded by the fact that Brawdy's three, previously A1 reserve squadrons of Hunters, were about to be reclassified at C3, which implied that they should all lose their number plates. Some impression of the amount of heat that this issue was generating may be inferred from a contemporary Note of Action to the effect that, 'AOC No 11 Gp has issued instructions that OC No 2 TWU is to be gagged and remain mute on the subject of No plates.'[21] The eventual outcome was that, regardless of the technicalities of their NATO assignments, it was considered inappropriate to withdraw the current number plates from Nos 63, 79 and 234 Sqns.

This was not the end of the saga, however, because the new un-numbered Hawk unit at Chivenor was to be partnered by No 63 Sqn which moved across from Brawdy in 1980, retaining its number plate. Needless to say, and despite the 1979 'gagging order', by 1981 OC Chivenor was asking for a number plate for the anonymous

*A Phantom FGR2, XV470, of No 228 OCU, with the markings of No 64(R) Sqn on its fin, getting airborne in 1982.* (Shaun Connor)

half of his unit. Since neither unit was assigned at A1, however, the staff pointed out that, rather than introducing an additional number plate, the proper solution would be to withdraw that of No 63 Sqn! As before, however, the positive morale effect of a squadron identity was considered to trump the logical argument so, rather than withdrawing No 63 Sqn's number plate, it was decided to double-down and the previously un-numbered Hawks became No 151 Sqn.[22]

This outcome had been the main conclusion of a jointly-sponsored Note that had been drafted for AMSO and VCAS to submit to the Air Force Board (AFB). This 1981-paper was never actually submitted, but the drafting exercise had served to clarify the situation regarding shadow squadrons and is also notable in that its Annex A had pointed out that the constraints imposed in 1959 were still (supposed to be) in force, ie that shadow number plates were for use in 'operational circumstances only', that seniority was not accrued, and that Standards and silver would not be held.[23] While the draft Note was being circulated among the relevant staffs, however, it had provoked an argument in favour of reserve units declared at A1 being permitted to hold their Standards; at the time this would have involved only No 64 Sqn, although, as was pointed out, it was expected that the forthcoming Tornado Weapons Conversion Unit (TWCU) would also be declared at A1. The



*No 45(R) Sqn was the alter ego of the TWCU 1984-92. Seen here practising an upside down bit of its display routine, ZA606, wore this '75th Birthday' scheme for the 1991 season.* (BAE Kingston)

opposition countered that this was 'special pleading' and that, regardless of any wartime obligations, No 228 OCU was primarily a training unit (as would be the TWCU) and to allow such a unit to hold its Standard would, 'lower the status of operational squadrons and, frankly, cheapen the honour and distinction intended by the Sovereign.' [24]

Furthermore, No 64 Sqn's Standard had been laid up in St Clement Danes which complicated the issue. The Order of Service says that when a Standard is laid-up it is presented at its chosen resting place, 'for safe lodging in the House of God until such time as it shall pass to dust', and it is duly received by the officiating cleric, 'into the safe keeping of God's House, here to hang for all time'.[25] Recovering No 64 Sqn's Standard would, therefore, confound the principle underpinning the laying-up ceremony, hence the practice of preserving, at Cranwell, the Standards of units that might stand a chance of being re-formed.[26] That said, recovery of a laid-up Standard is not impossible, and it had been done on at least three previous occasions.[27]

In the meantime, while a specific response to the 1978 staff recommendation (at Note 20), that a reserve squadron should be permitted to hold its property, has yet to be traced, and notwithstanding the counter-argument expressed in 1981 (Note 24),

the idea was eventually accepted and implemented. Thus, when the TWCU was assigned the wartime identity of No 45 Sqn in 1984 it was permitted to recover its silver from storage at Quedgeley and to take possession of its Standard which had been among those hanging under the cupola at Cranwell. By this time, it had become the practice, as had also been recommended in 1978 (see Note 20) for reserve status to be reflected in the title of such units, as in No 45 (Reserve) Sqn, abbreviated as No 45(R) Sqn

With the ending of the Cold War, one might have expected that, with the considerable decrease in international tension, the reserve squadron concept would be abandoned. In fact, the reverse happened. From the accompanying table, it will be apparent that, until the 1990s, the allocation of number plates on a contingency basis had been, more or less, strictly confined to units which would (or might) mobilise in their own right. Thus, for instance, No 228 OCU had a reserve identity, because it was to become an additional Phantom squadron, whereas No 233 OCU did not, because its Harriers were to be used to reinforce existing front-line squadrons. It soon became apparent that, in an attempt to give them at least some illusion of continuity, the number plates of squadrons being disbanded in the interests of realising a post-Cold War 'peace dividend' were being reassigned to practically all OCUs and even to certain flying training schools.

A halt was eventually called to this corrosive process when responsibility for the flying element of the VC10 conversion course was reassigned from No 241 OCU (aka No 55(R) Sqn) to the operational squadrons. As a consequence of centralised servicing, the RAF had long since become accustomed to some of its squadrons not actually having any aeroplanes of their own, but it now had one which did not even have a flying commitment and in 1996 No 55(R) Sqn's number plate was withdrawn from No 241 OCU for subsequent reallocation to the Dominie squadron at Cranwell.

There had been another subtle development during the 1990s. While a reserve squadron had eventually been allowed to hold its namesake's property, it had not been permitted to display its Standard in public. This was because a Standard is the sovereign's personal gift to a unit and, on disbandment, it has to be permanently laid-up or stored in some suitable location. As noted above, in the

case of a squadron with sufficient seniority to give it some prospect of re-formation, its Standard is usually put to rest in College Hall at Cranwell. By the mid-1980s the regulations regarding the holding of property had been relaxed to the extent that a Standard could now be recovered and held by a reserve squadron. It was still considered inappropriate for it to be displayed in public, however, unless and until the unit was formally embodied. This rule was so strictly enforced that when the TWCU infringed it in 1991 (when RAF Honington exercised its freedom of the Borough of Bury St Edmunds by marching through the town 'with drums beating, colours flying and bayonets fixed'), it was directed to return No 45 Sqn's Standard to Cranwell.[28] Only a year later, however, the rules were changed – again.

As part of the backdrop to the presentation of a new Queen's Colour for the Royal Air Force in the United Kingdom, in a ceremony to be held at Marham in 1993, it had been decided to parade the Standards of all active squadrons. But, because the RAF now had a mere fifty-two such units (the lowest count since 1926), it had also been decided that, in order to make a reasonably brave show, it would be necessary to include the Standards of reserve squadrons. No 45 Sqn (by now the Jetstream-equipped Multi-Engined Training Squadron of No 6 FTS at Finningley) was accordingly directed to recover its Standard from Cranwell.[29] But a Standard has a notional life of about twenty-five years and No 45 Sqn's banner had been presented as long ago as 1955. Since it was in relatively poor condition, there were concerns that it would be unable to withstand the strain of being unfurled in a wind. This raised the question of whether a replacement Standard could be presented. Since a reserve squadron did not really exist, this seemed highly unlikely, and the fact that time spent as a reserve squadron 'did not count' towards seniority (and thus the award of a Standard) tended to reinforce the logic underpinning this conclusion. While this was the correct interpretation of the rules, however, it was not the 'right answer', so the rules were changed in 1992 to permit the provision of replacement Standards to reserve squadrons. Thus, is pragmatism transmuted into policy.

Nevertheless, the Service continued to shrink and, in an attempt to present to the public, at least the illusion of, a still substantial


*A Cranwell-based Dominie navigation trainer, XS728, sporting No 55(R) Sqn's 'spear in a hand' on a white disc at the top of its fin, seen at low level over Cumbria in 2007.* (Shaun Connor)

force, the early 21st Century saw reserve squadron number plates being applied to an increasingly diverse selection of units. For example, in a 180º reversal of policy, units that did not even possess aeroplanes of their own, like the Air Warfare Centre's Trials & Tactics Squadron at Waddington and Boscombe Down's Heavy Aircraft Test and Evaluation Squadron, were assigned the identities of the defunct Nos 92(R) and 206(R) Sqns respectively, as were all flying training schools.

By 2018 the RAF had only twenty-nine 'proper' squadrons but, with effect from 1 February, the (Reserve) suffix was deleted from the titles of all such units and, while there was no provision for backdating, they all began to accrue seniority. While the nominal strength of the RAF had been increased by more than 50% overnight – it could actually drop no more bombs, fire no more missiles and move no more freight than the day before. This development was, of course, totally at variance with the concept of the reserve squadron as originally conceived in the 1950s and periodically re-stated thereafter. But, once again, as with the provision of replacement Standards to non-effective units, pragmatism trumps policy.

In closing, it may be of some interest to note that, as early as 1919, the CAS, Sir Hugh Trenchard, had noted that he was, 'not in favour of allotting numbered squadrons to any of the Schools or Training Wings.'[30] One wonders what he, and a number of other 20th Century CASs, would have thought about the current state of play, notably Sir Andrew Humphrey, who had counselled 'that it is

time we stopped deluding ourselves […] about our front line strength.'[17]

**Notes:**

[1] AIR2/7305. This file contains a number of representative Orders of Battle, that for 7 February 1942, for example, noting the availability of one Harrow, 7 Whitleys, 28 Battles, 24 Masters and no fewer than 325 Tiger Moths, two thirds of the latter to be fitted with bomb racks. For much more detail on the latter see Stuart McKay's *Tiger!* (Crecy; 2014) pp 79-85.

[2] AIR6/123. The decision to form three squadrons on a contingency basis is recorded at para 1 of Note SC(55)16 of 20 July 1955 submitted to the ACSC by DCAS, Air Mshl Sir Thomas Pike.

[3] *Ibid*. The formation of up to eight 'shadow' squadrons was recommended by Note SC(55)16 of 20 July 1955; the proposal was approved on 12 September at Meeting SC(18)55 (see AIR6/118)

[4] AIR2/12982. The number plates were specified in Air Ministry letter A.224198/55/O.5(b) of 11 January 1956.

[5] *Ibid*. This change was notified via Air Ministry letter A.224198/55/O.5(b) of 13 January 1956.

[6] For example, in his Note AC(56)51 of 6 June 1956, DCAS refers to 'shadow' squadrons (AIR6/149), whereas HQ Fighter Command letter FC/S.41127/Org.1C(i) of 30 July 1956 advised the Air Ministry that 'Reserve Squadrons' participating in the forthcoming Exercise STRONGHOLD would be using their wartime number plates (AIR2/12982).

[7] AIR2/12982. HQ Fighter Command letter FC/S.44563/Ops.1 of 7 July 1958 requested a reallocation of number plates. The Air Ministry's eventual response was conveyed by letter A.224198/55/DDO2 of 22 October 1958. Selection of the date on which the change was to be implemented was delegated to Fighter Command; it was 30 November.

[8] AIR2/15220. Loose Minute C.117042/59/OG1 of 25 November 1959.

[9] AIR6/149. The various proposals were laid before the Air Council by DCAS, Air Mshl Sir Thomas Pike, in his Note AC(56)51 of 6 June 1956; they were approved on 21 June at Meeting AC(14)56 (see AIR6/109)

[10] AIR2/18569. Annex K to MOD letter AF/CT2844/64 of 11 March 1969 notes that the No 220 Sqn number plate was allocated to the MOTU with effect from 1 October 1963 followed by that of No 38 Sqn on 15 June 1967.

[11] AIR2/17537. MOD letter AF/CT2844/64 of 14 March 1966 offered the number plates of Nos 62, 68, 79 and 93 Sqns but with the same, very specific, constraints that had been imposed in 1959 – see Note 8.

[12] AIR2/18048. The No 68 Sqn number plate was withdrawn on the authority of MOD letter AF/CT2844/64/OG1(RAF) of 4 April 1968.

[13] *Ibid*. The allocation of the No 64 Sqn number plate was notified by MOD letter AF/CT 2844/64 of 16 May 1968. No 228 OCU's ORB for February 1970 records that it 'is now officially recognised as No 64 (Reserve) Sqn' (AIR29/3672).

[14] AIR6/160. This statement is at para 3e of the Conclusions of AFB Meeting 9(68) held on 26 September 1968, which endorsed the proposals contained in

AMSO's Note AFB(68)27 (AIR6/172).

[15] AIR20/12515. On the authority of loose minute AF/CT725/70/BF1/1382 of 26 August 1970, the 'shadow squadron element' of No 226 OCU, previously No 145 Sqn, was renumbered as No 65 Sqn with effect from 1 September 1970. Unusually, however, it was also immediately directed to 'take up an active status', thus, while it was to retain its training function, it ceased to be a reserve squadron.

[16] AIR20/12643. Letter STC/125/4/CINC SEC of 5 March 1976 from Air Chf Mshl Sir Dennis Smallwood to CAS.

[17] *Ibid*. CAS 90216 of 11 March 1976 from CAS, Air Chf Mshl Sir Andrew Humphrey, to AOCinC Strike Command.

[18] DEFE71/829. The position was summarised in loose minute AF/CT535/75 of 25 January 1977.

[19] *Ibid*. Letter CAS.91171 of 8 November 1978 from PSO to CAS to OC RAF Lossiemouth.

[20] *Ibid*. These options were put forward by Air Cdre R C Simpson, the DofO&AP, in a loose minute D/DDO(RAF)/191 of 9 November 1978. It does not appear to have provoked an immediate decision.

[21] *Ibid*. Para 3 to Minute 11 of 14 February 1979.

[22] AIR8/3393. PSO to AMSO explained the situation in a loose minute 32/5 of 22 April 1981. As AMSO, Air Mshl Sir John Rogers advised AOCinC Strike Command, Air Chf Mshl Sir Keith Williamson, of the allocation of the No 151 Sqn number plate in his 32/5 of 7 September 1981.

[23] AIR20/13236. The draft Note, DGO/38, was dated 24 June 1981.

[24] *Ibid*. The case for No 64 Sqn to be permitted to hold its Standard was argued by Air Cdre B J Jackson in his D/D Air Plans/36/1308 of 3 July 1981 and countered, the same day, by AVM M M J Robinson in his loose minute DGO/38.

[25] AIR2/18048. An extract from the Order of Service for the laying up of No 152 Sqn's Standard in 1967, providing the specific form of words, is appended to an unreferenced letter, dated 7 March 1968, from DF(R&D), Air Cdre H Bird-Wilson, to DofO&AP, Air Cdre J Miller.

[26] Until the 1960s, pending their re-formation, the Standards of disbanded squadrons were held in the safe custody of the Queen's Colour Squadron. In 1965 the AFBSC decided that, rather than being locked away, the Standards of squadrons that were considered likely to be reinstated should be displayed in an appropriate location at Cranwell. AOCinCs were notified of the eventual outcome, which was that such Standards were to be mounted under the cupola of the Senior Flight Cadets Mess, ie the main RAF College building, by letter P1(Cer)(RAF) of 28 October 1965. This continues to be the practice at the time of writing

[27] AIR2/18048. MOD letter AF/CT 2844/64/DDOG(RAF) of 21 March 1968 notes, *inter alia*, that No 16 Sqn's Standard, which had been 'laid-up' in St Boniface Church, Rheindahlen in 1957, was recovered with due ceremony on 7 May 1958. With hindsight, it had surely been ill-advised to have laid-up the Standard of a unit as senior as No 16 Sqn (along with those of Nos 3 and 26 Sqns), since it was almost bound to be re-formed; indeed it was only out of the line on this occasion for little over a year. That said, this may have been loose terminology, because the Order of

Service for the withdrawal ceremony makes no reference to the Standard having been 'laid up', only that it had 'for a space (*been*) held in the safe custody of God's House'. As an example, a copy of the Order of Service for the recovery of No 26 Sqn's Standard from St Boniface Church on 11 September 1958 is on file at AIR2/14135.

[28] The TWCU, having been allocated No 45 Sqn's number plate on 1 January 1984, recovered the unit's Standard from College Hall on the 19th. Following its infringement of the rules, however, it was obliged to return it to Cranwell in June 1991.

[29] A Standard party collected No 45 Sqn's banner from College Hall on 22 July 1992 in a joint ceremony with No 60 Sqn which had recently been re-formed.

[30] AIR2/1524. At Minute 50 of 27 November 1919, the Director of Training and Organisation, Air Cdre P W Game, had proposed the allocation of squadron number plates to a variety of training units. CAS vetoed that idea in his Minute 51 of the next day. To ensure that there was no misunderstanding, it went on to say, 'All we should allot squadrons to are the Service Squadrons in England, India, Mesopotamia, Egypt, and the Fleet.'

*Above, a Javelin FAW5, XA667, of No 228 OCU, aka No 137 Sqn,* (not *doing a loop*!) *in 1961, and, below, a Harrier GR9, ZD438, of No 4(R) Sqn at low level over the Lake District in 2009.* (Shaun Connor)

| Sqn | Unit | Location | Type | From | Until | Remarks |
|---|---|---|---|---|---|---|
| No 4(R) Sqn | Harrier OCU | Wittering | Harrier | 1 Apr 10 | 25 Jan 11 | |
| No 4(R) Sqn | No 4 FTS | Valley | Hawk T.2 | 24 Nov 11 | 1 Feb 18 | ** |
| No 11 Sqn | No 228 OCU | Leuchars | Javelin FAW 9 | 11 Jan 66 | 23 Dec 66 | |
| No 15(R) Sqn | TWCU | Honington | Tornado GR 1 | 1 Apr 92 | 1 Nov 93 | |
| No 15(R) Sqn | TWCU/TOCU[1] | Lossiemouth | Tornado GR 1 | 1 Nov 93 | 31 Mar 17 | |
| No 16(R) Sqn | Jaguar OCU | Lossiemouth | Jaguar | 1 Nov 91 | 21 Jul 00 | |
| No 16(R) Sqn | Jaguar OCU | Coltishall | Jaguar | 21 Jul 00 | 11 Mar 05 | |
| No 16(R) Sqn | No 1 EFT Sqn[2] | Cranwell | Tutor | 1 Oct 08 | 14 May 15 | |
| No 16(R) Sqn | No 1 EFT Sqn[2] | Wittering | Tutor | 14 May 15 | 1 Feb 18 | ** |
| No 17(R) Sqn[3] | Typhoon OEU | Coningsby | Typhoon | 19 May 05 | 12 Apr 13 | |
| No 17(R) Sqn | F-35 Lightning OEU | Edwards AFB | F-35 Lightning | 12 Apr 13 | 1 Feb 18 | ** |
| No 19(R) Sqn | No 7 FTS | Chivenor | Hawk | 23 Sep 92 | 1 Oct 94 | |
| No 19(R) Sqn | No 4 FTS | Valley | Hawk T.1 & T.2 | 1 Oct 94 | 24 Nov 11 | RN No 4(R) Sqn |
| No 20(R) Sqn | No 233 OCU | Wittering | Harrier | 1 Sep 92 | 31 Mar 10 | RN No 4(R) Sqn |
| No 27(R) Sqn | No 240 OCU | Odiham | Chinook & Puma | 30 Sep 93 | 1 Jan 98 | RN No 27 Sqn |
| No 29(R) Sqn[4] | Typhoon OCU | Coningsby | Typhoon | 4 Nov 05 | 1 Feb 18 | ** |
| No 38 Sqn | MOTU | St Mawgan | Shackleton | 15 Jun 67 | 30 Jun 70 | |
| No 38(R) Sqn | No 236 OCU | St Mawgan | Nimrod* | 1 Jul 70 | 30 Sep 92 | RN No 42(R) Sqn |
| No 41(R) Sqn | FJ&WOEU | Coningsby | Tornado/Harrier/ Typhoon | 1 Apr 06 | 1 Feb 18 | ** |
| No 42(R) Sqn | Nimrod OCU | Kinloss | Nimrod* | 1 Oct 92 | 26 May 11 | |
| No 45(R) Sqn | TWCU | Honington | Tornado GR 1 | 1 Jan 84 | 31 Mar 92 | RN No 15(R) Sqn |
| No 45(R) Sqn | METS (No 6 FTS) | Finningley | Jetstream | 1 Jul 92 | 1 Oct 95 | |
| No 45(R) Sqn | METS (No 3 FTS) | Cranwell | Jetstream/King Air/Phenom | 1 Oct 95 | 1 Feb 18 | ** |
| No 54(R) Sqn | ISTAR training | Waddington | Sentry/Nimrod/ Sentinel* | 5 Sep 05 | 1 Feb 18 | ** |

| | | | | | | |
|---|---|---|---|---|---|---|
| No 55(R) Sqn | No 241 OCU | Brize Norton | TriStar*/VC10* | 15 Oct 93 | 31 Mar 96 | |
| No 55(R) Sqn | No 3 FTS (Nav Sqn) | Cranwell | Dominie/None[5] | 1 Nov 96 | 30 Sep 11 | |
| No 56(R) Sqn | Tornado F.3 OCU | Coningsby | Tornado F.3 | 1 Jul 92 | 28 Mar 03 | |
| No 56(R) Sqn | Tornado F.3 OCU | Leuchars | Tornado F.3 | 28 Mar 03 | 18 Apr 08 | |
| No 56(R) Sqn | C2ISTAR OEU | Waddington | Sentry/Nimrod/ Sentinel* | 22 Apr 08 | 1 Feb 18 | ** |
| No 57(R) Sqn | Hercules OCU | Lyneham | Hercules* | 1 Jul 92 | 14 Mar 02 | |
| No 57(R) Sqn | No 2 EFT Sqn[2] | Wyton | Tutor | 1 Oct 08 | 6 Oct 14 | |
| No 57(R) Sqn | No 2 EFT Sqn[2] | Cranwell | Tutor/Prefect | 6 Oct 14 | 1 Feb 18 | ** |
| No 60(R) Sqn | DHFS[6] | Shawbury | Griffin/H145 Jupiter | 1 May 97 | 1 Feb 18 | ** |
| No 63 Sqn | CFE[7] | West Raynham | Hunter F.6 | 30 Nov 58 | 1 Jun 63 | |
| No 63 Sqn | No 229 OCU | Chivenor | Hunter F.4/6 & FGA 9 | 1 Jun 63 | 2 Sep 74 | |
| No 63(R) Sqn | TWU/No 1 TWU[8] | Brawdy | Hunter FGA 9 | 2 Sep 74 | 1 Aug 80 | |
| No 63(R) Sqn | No 2 TWU/No 7 FTS[9] | Chivenor | Hunter/Hawk | 1 Aug 80 | 23 Sep 92 | RN No 19(R) Sqn |
| No 64(R) Sqn | No 228 OCU | Coningsby | Phantom FGR 2 | 16 May 68 | 22 Apr 87 | |
| No 64(R) Sqn | No 228 OCU | Leuchars | Phantom FGR 2 | 22 Apr 87 | 31 Jan 91 | |
| No 65(R) Sqn | No 229 OCU | Coningsby | Tornado F.3 | 31 Dec 86 | 30 Jun 92 | RN No 56(R) Sqn |
| No 68 Sqn | No 228 OCU | Coningsby | Phantom | Mar 66 | 1 Apr 68 | |
| No 72(R) Sqn | No 1 FTS | Linton-on-Ouse | Tucano | 17 Jul 02 | 1 Feb 18 | ** |
| No 74(R) Sqn | No 4 FTS | Valley | Hawk T.1 | 5 Oct 92 | 22 Sep 00 | |
| No 76(R) Sqn | No 1 FTS (TANS)[10] | Linton-on-Ouse | Tucano | 13 May 07 | 12 May 11 | |
| No 79 Sqn | No 229 OCU | Chivenor | Hunter FR 10 | 2 Jan 67 | 2 Sep 74 | |
| No 79(R) Sqn | TWU/No 1 TWU[8] | Brawdy | Hunter/Hawk | 2 Sep 74 | 31 Aug 92 | |
| No 85(R) Sqn | No 3 EFT Sqn[2] | Church Fenton | Tutor | 1 Oct 08 | 1 Sep 11 | |
| No 92(R) Sqn | No 7 FTS | Chivenor | Hawk | 1 Sep 92 | 1 Oct 94 | |

| | | | | | | |
|---|---|---|---|---|---|---|
| No 92(R) Sqn | Air Warfare Centre, Trials & Tactics Sqn | Waddington | None* | 30 Jun 09 | 1 Feb 18 | ** |
| No 115(R) Sqn | CFS (Elementary) Sqn[2] | Cranwell | Tutor | 1 Oct 08 | 1 Jun 15 | |
| No 115(R) Sqn | CFS (Elementary) Sqn[2] | Wittering | Tutor | I Jun 15 | 1 Feb 18 | ** |
| No 122 Sqn | CFE[11] | West Raynham | Hunter F.1 | 11 Jan 56 | 30 Nov 58 | RN No 63 Sqn |
| No 124 Sqn | APS | Acklington | Meteor F.8 | 11 Jan 56 | 27 May 56 | |
| No 127 Sqn | No 229 OCU | Chivenor | Hunter F.1 | 11 Jan 56 | 30 Nov 58 | RN No 234 Sqn |
| No 129 Sqn | No 233 OCU | Pembrey | Hunter F.1 | 11 Jan 56 | 1 Sep 57 | |
| No 131 Sqn | Fighter Weapons School | Leconfield | Meteor F.8 | 11 Jan 56 | 10 Oct 57 | |
| No 131 Sqn | Fighter Weapons School | Driffield | Meteor F.8 | 10 Oct 57 | 15 Mar 58 | |
| No 131 Sqn | No 229 OCU | Chivenor | Hunter F.1 | 15 Mar 58 | 30 Nov 58 | RN No 145 Sqn |
| No 137 Sqn | No 228 OCU | Leeming | Javelin FAW 5 | 11 Jan 56 | 15 Sep 61 | |
| No 145 Sqn | No 229 OCU | Chivenor | Hunter F.4/6 | 30 Nov 58 | 1 Jun 63 | RN No 63 Sqn |
| No 145 Sqn | No 226 OCU | Middleton St George | Lightning | 1 Jun 63 | 13 Apr 64 | |
| No 145 Sqn | No 226 OCU | Coltishall | Lightning | 13 Apr 64 | 1 Sep 70 | RN No 65 Sqn |
| No 151(R) Sqn | No 2 TWU/No 7 FTS[9] | Chivenor | Hawk | 21 Sep 81 | 23 Sep 92 | RN No 92(R) Sqn |
| No 165 Sqn | No 238 OCU | North Luffenham | Meteor NF 12/14 | 11 Jan 56 | 13 Mar 58 | |
| No 176 Sqn | CFE[12] | West Raynham | Meteor, Venom & Javelin | 11 Jan 56 | 30 Nov 58 | RN No 219 Sqn |
| No 202(R) | Search and Rescue Training Unit | Valley | Griffin/AW139/H 145 Jupiter | 29 Apr 16 | 1 Feb 18 | ** |
| No 203(R) Sqn | Sea King OCU | St Mawgan[13] | Sea King | 16 Oct 96 | 14 Sep 14 | |
| No 206(R) Sqn | Heavy Aircraft Test and Evaluation Squadron | Boscombe Down | Any large aircraft as required* | 1 Apr 09 | 1 Feb 18 | ** |
| No 207(R) Sqn | No 1 FTS | Linton-on-Ouse | Tucano | 17 Jul 02 | 13 Jan 12 | |
| No 208(R) Sqn | No 4 FTS | Valley | Hawk T.1 | 1 Apr 94 | 22 May 16 | |

| | | | | | | |
|---|---|---|---|---|---|---|
| No 219 Sqn | CFE[14] | West Raynham | Javelin FAW 5/7 | 30 Nov 58 | 1 Jul 62 | |
| No 219 Sqn | CFE[15] | West Raynham | Javelin FAW 5/7/8 | 1 Jul 62 | 31 Oct 62 | |
| No 220 Sqn | MOTU | Kinloss | Shackleton | 1 Oct 63 | 7 Jul 65 | |
| No 220 Sqn | MOTU | St Mawgan | Shackleton | 7 Jul 65 | 1 Jul 70 | |
| No 234 Sqn | No 229 OCU | Chivenor | Hunter F.4/6 & FGA 9 | 30 Nov 58 | 2 Sep 74 | |
| No 234(R) Sqn | TWU/No 1 TWU[8] | Brawdy | Hunter/Hawk | 2 Sep 74 | 31 Aug 92 | |
| No 234(R) Sqn | No 4 FTS | Valley | Hawk | 1 Sep 92 | 1 Apr 94 | RN No 208(R) Sqn |
| No 253 Sqn | No 253 Sqn's number plate was allocated to No 228 OCU on 22 Oct 58 but, following an appeal from HQ Fighter Command, this was withdrawn retrospectively on 8 Jan 59, thus sustaining the use of No 137 Sqn's. | | | | | |

NB The application of the (Reserve)/(R) suffix was a result of a 1978 staff recommendation; its use became increasingly commonplace from 1981 onwards.

* Although these arrangements changed from time to time, these units tended not to be allotted any aircraft of their own, their requirements being met by drawing on the resources of operational units or from a centralised station pool.
** Reserve status cancelled and accrual of seniority restored with effect from 1 Feb 18.

**Notes to Table:**

[1] Following the closure of the Tri-national Tornado Training Establishment (TTTE) on 31 March 1999, type conversion became a national responsibility. In the RAF this task was absorbed by the existing Tornado Weapons Conversion Unit (TWCU) which became the Tornado Operational Conversion Unit (TOCU) wef 1 April 1999.

[2] On 1 October 2008 the three Elementary Flying Training Squadrons of No 1 Elementary Flying Training School, along with the CFS (Elementary) Squadron were assigned the number plates of Nos 16, 57, 85 and 115 Sqns.

[3] As has often been the case since the 1990s, the origins of No 17(R) Sqn are somewhat vague. It appears to have begun to coalesce, on a non-flying basis, at Waddington as early as April 2002, before relocating to Warton wef 1 September 2002 where it first gained access to a Typhoon in the following December. The unit moved to Coningsby on 1 April 2005 where the repossession of its Standard on 19 May 2005 was publicised as signifying the unit's formal assumption of its identity, presumably, having previously had only 'designate' status.

[4] As with No 17(R) Sqn, No 29(R) Sqn's origins are not entirely clear but references to its presence at Warton began as early as September 2003, the first aircraft in squadron markings being observed in May 2004. The unit moved to Coningsby on 1 July 2005, where it was formally recognised as the Typhoon OCU wef 4 November 2005.

[5] Following the Dominie's withdrawal from service in January 2010, No 55(R) Sqn had no aircraft of its own and was obliged to rely on the King Airs of No 45(R) Sqn when it needed to conduct air exercises.

[6] No 60(R) Sqn is the RAF element of the tri-service Defence Helicopter Flying School.

[7] No 63 Sqn's number plate (ex-No 122 Sqn) was used by the Day Fighter Combat Squadron of the Fighter Combat School within CFE.

[8] The TWU at Brawdy was redesignated as No 1 TWU wef 31 July 1978.

[9] No 2 TWU at Chivenor was redesignated as No 7 FTS wef 1 April 1992; its inherited reserve designations were changed on 23 September 1992.

[10] TANS = Tucano Air Navigation Squadron.

[11] No 122 Sqn's number plate was used by successive day fighter elements of CFE as the parent unit underwent progressive internal reorganisations:

| | |
|---|---|
| 11 Jan 56-9 Sep 57 | Fighter Leaders Squadron of the Day Fighter Leaders School |
| 9 Sep 57-15 Mar 58 | Day Fighter Leaders Squadron of Fighter Leaders School. |
| 15 Mar 58-30 Nov 58 | Day Fighter Combat Squadron of the Fighter Combat School. |

[12] No 176 Sqn's number plate was used by successive night/all-weather elements of CFE as the parent unit underwent progressive internal reorganisations:

| | |
|---|---|
| 11 Jan 56-9 Sep 57 | Night Fighter Leaders Squadron of the Night Fighter Leaders School |
| 9 Sep 57-15 Mar 58 | All Weather Fighter Leaders Squadron of the Fighter Leaders School. |

15 Mar 58-22 Oct 58 All Weather Fighter Combat Squadron of the Fighter Combat School.

[13] No 203(R) Sqn was detached to Akrotiri between April and August 2003 to bridge the gap between the withdrawal of No 84 Sqn's Wessex and the squadron's conversion to leased Griffins.

[14] No 219 Sqn's number plate (ex-No 176 Sqn) was used by the All Weather Fighter Combat Squadron of the Fighter Combat School within CFE.

[15] No 219 Sqn's number plate was reallocated to the Javelin Operational Conversion Squadron which operated briefly within CFE to meet a short-term requirement for additional Javelin crews following the closure of No 228 OCU/137 Sqn.


*Above, a Sea King HAR.3, ZE368, of No 203(R) Sqn* (Steve Ryle) *and, below, No 65(R) Sqn's Tornado F3, ZE907, wearing its 1990-display season 'Red Zebra' scheme to mark the 50th anniversary of the Battle of Britain.* (John Bilcliffe)

## ERRATA

Vol 73, p78, second para, line 3 (and in Note 2) Thompson should read Thomson.

Vol 73, p196, second para, line 1, ‘464-page’ should read ‘364-page’.

## BOOK REVIEWS

**Note that the prices given below are those quoted by the publishers. In most cases a much better deal can be obtained by buying on-line.**

**Tornado Warlord** by Ian Black. Firestreak Books; 2019. £39.99.

This is the latest Firestreak essay in a series of books dedicated to the aeroplanes with which the author was associated while flying with the RAF between 1980 and 2000, including an exchange tour with the *Armée de l'Air*. That said, 'author' is a slight misnomer because, like most of Firestreak's titles, this book isn't about words; it's about pictures. This one is a 128-page, landscape-format, hardback, using gloss paper throughout, and it's big – 31·5mm × 25mm (that's 12½" × 10" for non-francophones). The book begins with a brief summary of the Tornado's RAF career before reproducing more than 140 colour images of 'the Tonka', full advantage being taken of the format to present 120 of them full-page sized with just a brief, single sentence, caption. Ian Black provided rather more than half of the images himself; collaborator Jamie Hunter is also a major contributor with the balance being provided by ten named 'guest' photographers – all of them clearly very competent.

There is not really a lot more to say except that the pictures are all splendid. GR1s, 4s and F3s, some in close-up, some in European skies, others in the Middle East – and the Falklands. An aeroplane representing every Tornado unit is illustrated at least once. There are shots of Tornados refuelling in flight, flying in formation, firing missiles, dropping bombs, escorting Su-27s and so on. Many of the aeroplanes feature special markings, celebrating a variety of anniversaries or events, and a range of options for hanging things underneath – Skyflash, Sidewinder, AIM-120, ASRAAM, TIALD, Paveway and dumb bombs, Sky Shadow, BOZ and Terma countermeasures pods, RAPTOR, JP233, CBLS, Brimstone, ALARM, Storm Shadow and a selection of fuel tanks up to and including the enormous 2,250 ltr 'Hindenburgers' – pretty much everything except a Sea Eagle. The pictures in which they appear, often of aeroplanes banked at extreme angles, frequently at low level and over a wide variety of terrain, convey an impression of power, speed and flexibility.

Progressively updated and re-armed throughout its career, the Tornado was still as capable, indeed more capable, when it retired in 2019 than it had been when it had entered service with No 9 Sqn in 1982. For 37 years it had provided the core of the RAF's striking power and, not infrequently, its crews had been called upon to exercise its potential. The Tornado truly deserves to be described as iconic and the images presented in this book do it proud.
**CGJ**

**The Tornado Years – *More Adventures of a Cold War Fast-Jet Navigator*** by Wing Commander David Herriot. Pen & Sword; 2019. Price £25.

Following the success of his award-winning book *The Adventures of a Cold War Fast-Jet Navigator – The Buccaneer Years,* David Herriot has followed this up with a sequel, *The Tornado Years,* which charts his career with the Tornado GR1 force and the years that followed before his retirement from the RAF in 2007.

As a preface to the chapters that follow, Herriot summarises succinctly, and in his inimitable racy and eloquent style, his time with the Buccaneer force that led up to his attendance at the Tri-national Tornado Training Establishment (TTTE) at RAF Cottesmore in 1985. He graphically describes his experiences, and offers his opinions, of his time training at TTTE, and the follow-on course at the Tornado Weapons Conversion Unit at RAF Honington.

Having completed his training, he was posted to No 17 Sqn, one of four Tornado strike/attack squadrons that formed the Brüggen Wing. On completion of this tour, Herriot remained at Brüggen as the weapons member of the STANEVAL team. By October 1990, his Tornado days were over, just a few weeks before the Gulf War.

In the four chapters devoted to his 'Tornado Years', Herriot packs in a great deal of information. He describes his role as the squadron Weapons Leader, the capabilities of the Tornado force, the tactics employed and the weapons used. The technical aspects are dealt with skilfully and in sufficient detail as the narrative flows easily and at a fast pace. Prevalent throughout is humour, many anecdotes, and not a little irreverence – he is also not shy to criticise where he felt it was justified. He creates an over-riding impression of professionalism, pride and fun.

During his time as STANEVAL (Weapons) he was regularly invited to join the NATO TACEVAL team and his insights into the visits he made, and the flying he enjoyed, are fascinating.

After his earlier book, I fully expected to enjoy the Tornado era with mention of so many old chums and tales of derring-do in the mud-moving world – I was not disappointed. I found the Tornado chapters stimulating, exciting and informative, all laced with a touch of envy. These chapters add a great deal to the reader's understanding of the life of a Cold War warrior. In 30 years' time his two books will provide a very good impression of what life was like, and how things were done, in a two-seat fast-jet in the late 20th century.

In the chapters that follow the Tornado era Herriot describes his time in the MOD as a staff officer dealing with fast-jet training and his attendance at Staff College. He returned to the MOD, this time in Operational Requirements (OR) dealing with future air-to-ground weapon projects and this was followed by a period as the Detachment Commander at Gioia del Colle during Operation DELIBERATE GUARD, the operations over Kosovo. His final appointments were as the Director of Initial Officer Training at Cranwell followed by a tour at the Air Warfare Centre.

Where this book continues to score heavily after the Tornado period is in the chapters that cover these appointments. Two examples will suffice.

In the chapter he calls 'Arms Dealing – Legally!' he outlines the complex issues of staffing the requirement for what eventually became Brimstone and Storm Shadow. Other projects included Paveway and the upgraded BL755 cluster bomb. All these were technically advanced, had international aspects and were being staffed when budgets were tight. Herriot describes the inner workings of the crucially important OR world in a comprehensive but easily understood manner, making it an ideal layman's guide.

Secondly, and working in a very different environment, Herriot's description of his time as the Director of Initial Officer Training is illuminating, amusing and important. He covers the many aspects of officer training and the challenges faced by him and his staff, of whom he speaks very highly. With the knowledge of his spirited past, many of his colleagues undoubtedly raised an eyebrow when they learnt of his appointment but 'poacher turned gamekeeper' made him an ideal

candidate in many ways. He faced very little that was not familiar to him!

I highlight these two particular chapters because this book covers more than just the derring-do of flying fast-jets. It records important aspects of the wider RAF fabric that rarely receive any attention. War stories are valuable and entertaining but there is a need to record the wider aspects of RAF life, and his descriptions will be of great value to the future historian. The book also brings out the social atmosphere that prevailed in earlier decades, a lifestyle built around adventure, risk, comradeship and fun before political correctness and health and safety ruled the roost.

Herriot's excellent writing style; fast, descriptive and engaging, adds to the enjoyment and value of this 246-page hardback with its many colour plates. Highly recommended.

**Air Cdre Graham Pitchfork**

**RAF College Cranwell** by Roger Annett. Pen & Sword; 2019. £30.00.

The full title of Roger Annett's new 376-page hardback, *We seek the highest, the RAF College Cranwell, a centenary celebration*, suggests that it is a centennial record of the oldest of the 'Three Pillars' devised by Lord Trenchard as guiding principles for the future training and education of his Service. The title is misleading however and, although perhaps a disappointment to some readers, this excellent book is not the anniversary history which Cranwell might justify. Rather it serves as a detailed record of the flight cadets of No 81 Entry, of which the author was one, whose time at the College marked the beginning of the end of the traditional flight cadet era which had lasted since 1920, broken only by the Second World War. While there are some minor editing errors and incorrect picture captions, for example a Transport Command Britannia is described as being alongside nuclear bombers; the Boeing aircraft in the background are actually KC-135 tankers. But this trivial observation does not detract from the narrative which is a perceptive glimpse of the changing priorities and culture of Cranwell viewed mainly from the experience of his fellow flight cadets. Also summarised are the changes in the way in which the training of young officers has developed in the light of shifting professional and social priorities by the 1960s. In his

foreword Air Chf Mshl Sir Andrew Wilson, another 81 Entry flight cadet, captures the pressures being faced by the Air Force Board in the late 1950s as its members became increasingly concerned that recruiting the appropriate numbers and calibre of potential officers was failing, in the light of the conflicting aspirations of the increasing numbers of young men wishing to obtain a degree at one of the expanding universities.

With the passage of time, both the apprentice school at Halton and the staff college at Andover have disappeared but Cranwell has remained the focus of RAF officer training, although its various syllabi have altered substantially over the years. The professional career pattern for RAF officers widened to include all branches including engineering training, which moved to Cranwell from Henlow in the 1960s, and the intake was subsequently expanded to include female officers. Those of us who joined the college as flight cadets straight from school were in our formative years and motivated mainly by an ambition to fly. Other factors, such as the option to pursue an alternative career via a university, were mere distractions. By the late 1950s aspirations had moved on with increasing emphasis on academic studies in an attempt to match the demands of a university degree. This change conflicted with the vital development of cockpit skills and influenced the College's ambitions to blend the two. So, 81 Entry became the pioneers for a revised syllabus in 1959. External degrees were introduced for those flight cadets who were judged to have the academic potential, with an appropriate increase in studies, but coincidentally the entry was the first at Cranwell to face the challenges of learning to fly in the new Jet Provost basic trainer. While some flight cadets had previous experience from RAF flying scholarships and some private flying, the majority were introduced to aviation while undertaking basic navigation exercises in the cabin of the Valetta, followed by the cockpit of the world's first basic jet trainer. However, the increased emphasis on book studies, particularly for the external degree candidates, together with a shortfall in the flying syllabus led to mixed academic outcomes and several suspensions resulted from poor continuity in the cockpit; an unhappy combination.

The author reflects on the further changes in the syllabus which came about after his entry's graduation in 1962, the flight cadet

external degree scheme lasting for a mere three years. The course was reduced to two and a half years and the subsequent graduate entry scheme, introduced progressively from 1971, led to the disappearance of the flight cadet system. In turn, the eighteen-week graduate course, was replaced by Initial Office Training (IOT) in 1978 resulting in the author's quote, 'Since the graduation of 81 Entry the lot of the beleaguered flight cadets had been a kaleidoscope of syllabi and systems.' Despite some adjustments to the course length, it too is destined for change with a revised IOT syllabus which is currently being evaluated for introduction within the year to match the increasing training demands for the next 100 years. The character of the sprawling campus will change further as airmen's basic training is also moved to Cranwell and while the officer cadets of College Hall will not spend as long there as did their predecessors from the historic flight cadet era it is hoped that the proud spirit of *Superna Petimus* will remain.

In the final chapters, with the benefit of hindsight, several flight cadets including two from an earlier entry who went on to become Chiefs of Air Staff, express their personal views of the values and experience which they absorbed at Cranwell. Some welcomed the changes while others felt that the course should have concentrated on professional skills in the cockpit, leaving academic studies to be absorbed later in a career. No 81 Entry averaged 180 hours in the Jet Provost cockpit over about eighteen months whereas, a mere six years earlier, my Provost/Vampire entry had achieved some 300 hours before the award of our wings.

Interestingly, despite retiring from the Service after just two tours as a transport co-pilot and captain, the author has retained an admirable level of loyalty and appreciation of his three years at Cranwell. Such loyalty and comradeship are fundamental characteristics of Service life so is this observation deemed important to those who are planning the future for the Royal Air Force College or is it simply a nostalgic view of our formative years? These thoughts are pertinent when reading the words of an ex-Commandant from an early graduate entry who stated, 'Unlike the traditional flight cadets, we graduate entrants hadn't spent long enough of our formative years at the College to form a lifelong bond with it and our colleagues.' These bonds may still be relevant today and I recommend *We seek the*

*highest* to those who have an interest in the psychology of graduate training in general but, particularly, to all who, with considerable pride, have marched up the steps of the College to the strains of *Auld Lang Syne*.

**Gp Capt Jock Heron**

**Tales from the Front Line** by Ray Deacon, Pen and Sword; 2019. £30.00

From 1962 to 1964 Ray Deacon worked on the Hunter FGA9s of No 8 Squadron at RAF Khormaksar, Aden. His previous book, *Hunters over Arabia*, concentrated on the work of RAF Middle East Command's strike force based on official records from the National Archives at Kew. This book, sub-titled, *The Middle East Hunter Squadrons***,** comprises personal accounts of the period from the passing of the Venom and Meteor in 1959 to the British withdrawal from Aden in 1967.

It begins with a useful tour of the eight RAF Stations in Middle East Command, from Eastleigh in Kenya to Muharraq (Bahrein). There are then 49 contributions from a fairly wide range of people: 25 are Hunter FGA9 aircrew, from Squadron Commanders to junior pilots, including one from the RN. One is by an engineering officer and 13 are from Hunter groundcrew. They come from Nos 8, 43 and 208 Sqns. Four accounts come from pilots of 1417 Flight, which flew the Hunter FR10. To introduce a broader view, an Army Beaver pilot from 15 Flight AAC, a Shackleton MR2 navigator/bomb aimer from 37 Squadron, a ferry pilot and three staff officers complete the group.

All the personal accounts are well written, and they are illustrated by good photographs, many in colour and mostly from private collections and thus not published before. Some contributions are quite lengthy and give a comprehensive view of the squadrons' operations: others are shorter and describe specific incidents or off-duty activities. A number of pilots' tales include ferries between Khormaksar and Kemble, which could be a test of initiative and determination. There is very little overlap in the accounts but, when there is, it is interesting to read reports from different perspectives.

The period covered was lively, busy and frequently operational. In 1966 and '67, twenty-three aircraft were destroyed or damaged by hostile action in the air or on the ground. The climate was hot and

humid, and the reliable Hunter had precious few aids and systems to make the pilots' lives easier, and yet the response to tasking and the support for the Army was first class, carried out with enthusiasm and professionalism. The groundcrew's task was formidable. The aircraft were quite old and of varied modification standards, the sandstorms were a constant nuisance and there was hangar accommodation only for aircraft on scheduled servicing. They really could fry an egg on the wing of a parked Hunter and yet the groundcrew did a magnificent job, their morale was high, and they never lost their sense of humour.

Some of the contributions are taken from autobiographical books: those from two of the staff officers, John Severne and Nigel Walpole, are particularly enlightening, especially the former's description of setting up the South Arabian Air Force (for £2M) which was to take over from the British when they departed.

Taken together, the accounts in this book provide an accurate and comprehensive record of Aden in the 1960s. It is a very useful historical document and anyone who has researched the history of a military unit would give his or her eye-teeth for such an all-embracing, first-hand story. It is also a good read which comes in bite-sized chunks, ideal for bedside reading or perhaps another room.

As a well-produced hardback with good photographic reproduction, this one is well worth the £30.00 price.

**Air Mshl Sir Roger Austin**

**From the Cold War to the War on Terror** by Squadron Leader Mick Haygarth. Frontline Books; 2019. £19.99.

Mick Haygarth joined the RAF in 1977 via the School of Recruit Training at Swinderby. After trade training at Halton, his first posting, as a JT Weapons Technician, was on Bloodhounds at West Raynham. He subsequently spent time on Buccaneers with No 16 Sqn at Laarbruch and No 208 Sqn at Lossiemouth. By then a sergeant, it was back to Germany at the end of the 1980s, first with the Missile Servicing Flight at Wildenrath, where he first caught the Explosive Ordnance Disposal (EOD) bug, then Harriers at Gütersloh. After a further tour at Leeming – range clearance work and supporting the station's Tornado F3s – he graduated from Cranwell's Initial Officer Training Course in 1996 with a commission in the Engineer Branch. The first tour of Phase 2 of, now Fg Off, Haygarth's career began as

OC Arm at Leuchars – more F3s – followed by a 6-month stint at Mount Pleasant – more EOD. Apart from a, mercifully brief, 'budget management' job at Cottesmore, the rest of his career was all about EOD, including staff work with EOD Role Offices at Marham, Wittering, the MOD (at Wilton) and High Wycombe, and three tours with No 5131 (BD) Sqn at Wittering, the last one as CO. Along the way there had been a field deployment in Kosovo, a stint in the UAE with No 906 EAW at El Minhad and a final tour as OC 5001 Sqn. But this officer seems to have been quite unable to resist the urge to travel and he visited 34 countries in the course of his 38 years of service, some of them multiple times, and he gives his family due credit for their tolerance of his frequent, and sometimes prolonged, absences.

The annals of the RAF are replete with tales of derring-do by aviators, most of them pilots, and it was high time that we had a punchy account of the life and times of someone who saw the air force from a quite different perspective – and EOD was certainly that. It was, of course, a niche activity, but a vital one when it was required and, with the proliferation of campaigns from the 1980s onwards, it often was. Haygarth's book is a warts and all account and he pulls no punches. No names, of course, but, often obliged to work embedded with the Army, he was sometimes frustrated by unproductive cap badge tribalism between the REs and the RLC and impatient with some (but certainly not all) of the staff officers flying desks at higher formations who, seemingly unaware of the realities of life in the field, were, sometimes, not as helpful as they could/should have been.

There are a handful of typos and, as is often the case with military writers, the narrative is punctuated with acronyms and initialisms and I could have used a glossary. My only other criticism is that there are very few dates embedded within the narrative; it isn't too difficult to figure out roughly when postings occurred, but a brief annexed summary of major movements, with dates, would have been useful. But that aside, this 200-page hardback is a very, very good read. Since it is largely to do with the EOD specialisation, it sheds light into corners that will, I suspect, be unfamiliar to many readers. But that is a good thing, and this book is a painless way to learn something of what was involved. Haygarth's tale is told from a very personal point of view and his writing style is quite informal. He has a wry sense of humour and some of his anecdotes are of the laugh-out-loud variety.

Sadly, the book ends on a downbeat note. Unless there is a late change of the official mind, shortly before this review appears in print, the RAF will have lost its entire EOD capability, leaving it dependent upon the, allegedly feuding, REs and RLC to clear its operating surfaces. Haygarth signs off with, 'Hopefully, the RAF will not find out the hard way that "You don't know what you've got till its gone."'

We need more tales like this. Recommended.

**CGJ**

**Two/Six** by S E Jefford (Ed Gp Capt Neil Meadows). Matador; 2019. £20.00.

It is almost inevitable that, when recording the exploits of a squadron in WW II (or at any time for that matter), the narrative will focus on the aircrew. Insofar as the groundcrew were concerned, without whose efforts the aviators could have achieved nothing, space constraints usually preclude much more than a token statement acknowledging their contribution. A wartime flying tour, however, was rarely as long as a year in duration, often *much* shorter due to completion of the specified number of operations, promotion and/or posting, injuries sustained in accidents or in action and ultimately, of course, failure to return from a mission. As a result of these factors, a squadron's aircrew were a floating population with a rapid turnover. In stark contrast, it was quite normal for groundcrew, especially overseas, to spend three years or more, with a unit, sometimes progressing from aircraftman to sergeant in the process. In reality, therefore, while the aircrew were the tip of the spear, it was the unsung groundcrew who represented the very substantial shaft and who actually reflected the 'spirit' of a wartime squadron.

The literature is notably sparse with respect to the experiences of groundcrew so this account by Sid 'Jeff' Jefford (no relation!) helps to fill this significant gap. The author died in 2016, so this book is an edited version of his original memoir. Subtitled, *My service in the Middle East with 208 Squadron, Royal Air Force*, it does exactly what it says on its metaphorical tin. Having enlisted in December 1939, Sid eventually joined No 208 Sqn in March 1941 as a Fitter IIE. It would be January 1945 before he returned to the UK. During that time, while working on the squadron's Lysanders, Hurricanes, Tomahawks and Spitfires, he had served in Greece, Crete, Egypt, Libya, Iraq,

Syria, the Lebanon, Palestine and Italy. His many anecdotes, not least the tale of his escape from Crete, provide a clear insight into the, sometimes Spartan, living conditions that were tolerated and the technical ingenuity that had, on occasion, to be invoked in order to persuade a stubborn Allison or Merlin to co-operate. There are several accounts of expeditions to retrieve aeroplanes that had been abandoned or forced to land. One such involved the very stealthy recovery, within sight of enemy guns, of a flyable Hurricane by cannibalising two others; the latter were destroyed as the team vacated their hide, shortly after which the guns opened up. Another interesting recollection involved Sid and two companions, on leave, getting a lift from Syria to Haifa in a notably comfortable vehicle driven by an Army officer of indeterminate rank, at first assumed to be a major, later revised to, possibly a colonel? He turned out to be HRH Prince Peter of Greece who subsequently entertained the trio to lunch and arranged transport for the rest of their journey to Tel Aviv.

As a reviewer, if only to prove that I did read the book, I am obliged to point out one or two minor niggles, as in: an RTO was a Railway Transport (not Travel) Office(er); an RSU was a Repair and Salvage (not Supply) Unit; the AID was the Aeronautical Inspection (not Inspectorate) Directorate; the picture of a Tomahawk on page 145 is actually a Kittyhawk; and there is no ‘s’ in aircraftman – and the excellent maps of Libya and Egypt at the beginning and end of the book both look remarkably familiar (nuff sed).

The book is illustrated with over 100 photographs, mostly ‘happy snaps’ of groups of airmen, desert convoys, people working on aeroplanes and the like – all printed in sepia, which adds a contemporary feel. Of particular interest are reproductions of three programmes for ‘sports events’, including Xmas Donkey Derbys, and the 1942 Xmas menu – again oozing atmosphere.


An excellent addition to the annals of No 208 Sqn, and indeed, the RAF. As above, we need more tales like this. Recommended.

**CGJ**

*This sketch, one of a number decorating No 208 Sqn’s 1942 Xmas menu, surely tells us something.*

**Women On The Front Line (British Servicewomen's Path To Combat)** by Kathleen Sherit. Amberley Books; 2019. £20.00.

When I first joined the RAF, I was blissfully ignorant of the detail of my own Terms and Conditions of Service (there were other things of far more interest to a 19 year old) and I had no real understanding of the handicaps under which my female colleagues laboured. In later years, two things served to broaden my horizons and thus make me aware that depriving women of many of the opportunities available to men, was crass nonsense and a waste of potential.

The first issue was that I married a squadron leader who had had a frustrating tour at the WRAF Directorate, where, it seemed, some senior staff were reluctant to embrace progress, preferring the *status quo* for women. The second concerned an airwoman within the squadron I commanded who had been sent to support a detachment, preparation for which had involved live firing of small arms. Although women were not armed at the time, the RAF Regiment staff had allowed her to fire the SLR on the range and her score comfortably exceeded the standard required for the award of an RAF marksman badge. On that basis, I wrote a case for special dispensation to allow her to be awarded, and to wear, the badge. The (to me surprising) response from Command HQ, can politely be described as 'frosty' and I was 'rapped on the knuckles' for preaching such heresy.

In reviewing this book, I must declare an interest, since the author is a member of this Society, whom I know well, and who was largely responsible for putting together its 2017 seminar on the contribution of female personnel – see Journal 69.

Gp Capt Sherit has produced what is probably the first comprehensive account of the trials and tribulations of females in the armed forces over the last 100 plus years. She covers all of the services, not just the air force, and exposes the many prejudices faced by women and the intransigence of higher echelons – both service and civilian. The disbandment of the women's services at the end of the Great War, with the exception of nurses, led to an unseemly rush to resurrect those services when another war approached. This meant that those hurriedly appointed to positions of authority were sometimes not up to the job, were frequently ignored and the work of the women they represented was often belittled. She also makes clear

that the leadership of the various women's services did not always act with one accord, often due to different pressures faced by their own women. Whilst it must be allowed that the social mores of the day often influenced decisions, Sherit describes how post-1945, there remained an entrenched body of (male) opinion which thought that the armed forces could manage quite nicely without females – thank you!

The content of this 288-page hardback, with its 23 photographs, is broadly chronological, each chapter being broken down into logical 'slices' where appropriate, often with a conclusion to round it off. The narrative is easy reading and the issues are well covered and without undue complexity.

As the author makes clear, her book is based on the work she did for her PhD and it has seven pages of bibliography and more than thirty pages of references to other sources, including an impressive list of personal interviews, clearly conducted over several years. While some of the individual contributors are no longer with us, their inputs remain valid, of course, and serve to enhance the value of the account. Since much of the book is devoted to fairly recent history, it may be of particular interest to members of this Society, many of whom will recall some of the events covered and some may even have been directly involved.

Be in no doubt that, while this book exposes the difficulties women encountered prior to achieving the equal status they now enjoy, and richly deserve, this is no 'bleeding heart' account appealing for sympathy; it is a work of significant scholarship of which Gp Capt Sherit should be justly proud. I venture to suggest that this book ought to be required reading across the three services, particularly for the 'high priced help' and if it is not already, it should be added to CAS's list of required reading for 'young thrusters'.

I recommend *Women On The Front Line* without reservation and am confident that it will serve to enlighten anyone who reads it. My own copy of the book? It's on the bedside table of the former WRAF squadron leader mentioned in para 2 above!

**Wg Cdr Colin Cummings**

## ROYAL AIR FORCE HISTORICAL SOCIETY

The Royal Air Force has now been in existence for one hundred years; the study of its history is deepening and continues to be the subject of published works of consequence. Fresh attention is being given to the strategic assumptions under which military air power was first created and which largely determined policy and operations in both World Wars, the interwar period and in the era of Cold War tension. Material dealing with post-war history is gradually becoming available under the 20-year rule, *although in significantly reduced quantities since the 1970s*. These studies are important to academic historians and to the present and future members of the RAF.

The RAF Historical Society was formed in 1986 to provide a focus for interest in the history of the RAF. It does so by providing a setting for lectures and seminars in which those interested in the history of the Service have the opportunity to meet those who participated in the evolution and implementation of policy. The Society believes that these events make an important contribution to the permanent record.

The Society normally holds two lectures or seminars a year in London, with occasional events in other parts of the country. Transcripts of lectures and seminars are published in the Journal of the RAF Historical Society, which is distributed to members. Individual membership is open to all with an interest in RAF history, whether or not they were in the Service. Although the Society has the approval of the Air Force Board, it is entirely self-financing.

Membership of the Society costs £18 per annum and further details may be obtained from the Membership Secretary, Wg Cdr Colin Cummings, October House, Yelvertoft, NN6 6LF. Tel: 01788 822124.

## THE TWO AIR FORCES AWARD

In 1996 the Royal Air Force Historical Society established, in collaboration with its American sister organisation, the Air Force Historical Foundation, the *Two Air Forces Award*, which was to be presented annually on each side of the Atlantic in recognition of outstanding academic work by a serving RAF officer or airman, a member of one of the other Services or an MOD civil servant. The British winners have been:

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| 1996 | Sqn Ldr P C Emmett PhD MSc BSc CEng MIEE |
| 1997 | Wg Cdr M P Brzezicki MPhil MIL |
| 1998 | Wg Cdr P J Daybell MBE MA BA |
| 1999 | Sqn Ldr S P Harpum MSc BSc MILT |
| 2000 | Sqn Ldr A W Riches MA |
| 2001 | Sqn Ldr C H Goss MA |
| 2002 | Sqn Ldr S I Richards BSc |
| 2003 | Wg Cdr T M Webster MB BS MRCGP MRAeS |
| 2004 | Sqn Ldr S Gardner MA MPhil |
| 2005 | Wg Cdr S D Ellard MSc BSc CEng MRAeS MBCS |
| 2007 | Wg Cdr H Smyth DFC |
| 2008 | Wg Cdr B J Hunt MSc MBIFM MinstAM |
| 2009 | Gp Capt A J Byford MA MA |
| 2010 | Lt Col A M Roe YORKS |
| 2011 | Wg Cdr S J Chappell BSc |
| 2012 | Wg Cdr N A Tucker-Lowe DSO MA MCMI |
| 2013 | Sqn Ldr J S Doyle MA BA |
| 2014 | Gp Capt M R Johnson BSc MA MBA |
| 2015 | Wg Cdr P M Rait |
| 2016 | Rev Dr (Sqn Ldr) D Richardson |
| 2017 | Wg Cdr D Smathers |
| 2018 | Dr Sebastian Ritchie |
| 2019 | Wg Cdr B J Hunt BSc MSc MPhil |

## THE AIR LEAGUE GOLD MEDAL

On 11 February 1998 the Air League presented the Royal Air Force Historical Society with a Gold Medal in recognition of the Society's achievements in recording aspects of the evolution of British air power and thus realising one of the aims of the League. The Executive Committee decided that the medal should be awarded periodically to a nominal holder (it actually resides at the Royal Air Force Club, where it is on display) who was to be an individual who had made a particularly significant contribution to the conduct of the Society's affairs. Holders to date have been:

Air Marshal Sir Frederick Sowrey KCB CBE AFC
Air Commodore H A Probert MBE MA
Wing Commander C G Jefford MBE BA

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