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SELECTED GLOSSARY

ADGB	Air Defence of Great Britain
ADMA	Assistant Director of Military Aeronautics
AFHRA	Air Force Historical Research Agency
AMWO	Air Ministry Weekly Order
AOG	Aircraft On the Ground
BAFO	British Air Forces of Occupation
CALTF	Combined Air Lift Task Force
CIGS	Chief of the Imperial General Staff
DGMA	Director General of Military Aeronautics
IRISNUM	The Inferential Retrieval Indexing System maintained by the AFHRA
LCT	Landing Craft Tank
LMF	Lack of Moral Fibre
LSL	Landing Ship Logistics
MAMS	Mobile Air Movements Squadron
MPBW	Ministry of Public Building and Works
MRCA	Multi-Role Combat Aircraft
RIC	Royal Irish Constabulary
RPAS	Remotely Piloted Air System
SASO	Senior Air Staff Officer
SCAF	Supply Control and Accounting Flight,
SESO	Senior Equipment Staff Officer
SOSUS	Sound Surveillance System
TNA	The National Archives
USAFE	United States Air Forces in Europe

Our Guest Speaker, following the Society's Annual General Meeting at the RAF Club on 14 June 2017, was

Dr Peter Lee, Reader in Politics and Ethics at the University of Portsmouth and Assistant Director (Academic) at the Royal Air Force College Cranwell.

ON THE ETHICS OF BOMBING: COMPARING RAF AREA BOMBING IN THE SECOND WORLD WAR WITH 21st CENTURY REAPER OPERATIONS.

Ladies and Gentlemen.

Thank you for inviting me to this august gathering of the Royal Air Force Historical Society and for giving me the opportunity to share some thoughts with you on a subject about which I am deeply passionate, and which never ceases to challenge me: the ethics of bombing. In doing so I am bringing together a number of ideas that I have developed in *Air Power Review* articles and elsewhere. This presentation will focus on the ethics of what are probably the two most controversial uses of air power in the history of the RAF: the area bombing of Germany in the Second World War and the current use of the remotely piloted Reaper against Islamic State (IS) – or Daesh – in Syria and Iraq.

Throughout history, humankind has managed to take many new ideas and technologies and give them military applications. The advent of powered flight more than a century ago offered yet another opportunity. As early as 1909, there was a House of Commons debate on Aircraft and Bombing and Member of Parliament Arthur Lee – no relation – was particularly prescient in his concerns. He said of bombers:

> 'Their power of appearing over such places as the capital of a country, centres of mobilisation, bases of operation, and so forth [...] at a time when these places are considered to be secure against attack, and dropping explosives and bombs quite at random, must have a very demoralising effect [...]. This applies particularly to the possibilities of their use at night.'[1]

Equally relevant for tonight's presentation, Arthur Lee also predicted, 'We do not know what disturbance [*the bombing of civilians*] will cause in our laws, customs, and convenience; but these

matters will no doubt be adjusted.'[2]

In the time available this evening I shall begin by mentioning inter-war bombing theory and what bombing was expected to achieve in a major state conflict. I will then provide some basic context for the area bombing of Germany in early 1942 and for recent and current Reaper operations in Syria and Iraq. In the third part I will highlight key ethical considerations in the area bombing of Germany before drawing out key ethical features of the current use of Reaper, or 'drones' as they are more commonly referred to in public debate. In my concluding thoughts I will identify both key differences and some areas of commonality in the ethics of these very different uses of air power.

I will necessarily be limited to providing a sketch outline of these major themes but in doing so will hopefully prompt further discussion and analysis. At the end, if anyone wishes to explore these subjects in greater detail I will be happy to direct you towards sources I have used and further reading that may be of interest.

Inter-war Bombing Theory

Tami Davis Biddle describes the historical development of strategic bombing from the earliest days of flight as 'a history of the tension between imagined possibilities and technical realities.'[3] Despite the paucity of evidence from the First World War to suggest that bombing would become a strategic, decisive capability in any future war, in the 1920s key figures like Hugh Trenchard and Giulio Douhet propounded bombing theories that predicted it would.

Such was the international concern about aerial bombing that there was an attempt to limit its use by the Hague Commission of Jurists between December 1922 and February 1923. The final report set out *Rules for Aerial Warfare*, which provided for extensive protection of civilians and emphasised the need to target only military objectives. However, key powers – especially the UK with an Empire to police – refused to ratify the report and be bound by its limitations. Bombing from the air was not passed into law through an international treaty.

J M Spaight had been involved in the 1922-23 negotiations and was a key figure in the shaping of policy at the Air Ministry in the 1930s and '40s. In 1933 he warned of what was to come in a future war: 'Let there be no mistake about it: the cities will be bombed,

whatever rule is laid down.' All attempts to outlaw bombing in the 1920s and '30s had failed and the bomber was seen as the key to future victory.

Context for area bombing in 1942

The Butt Report of August 1941 is well known for highlighting the limitations of strategic bombing – with 'precision' notably absent – in the early months of the Second World War. However, it was not this report that prompted a shift towards area bombing and the targeting of civilian morale instead of key industrial nodes; the latter being a cornerstone of Trenchard's bombing theory. On 9 July 1941, the month before publication of the Butt Report, the latest directive to AOCinC Bomber Command set out a new course: '[*Y*]ou will direct the main effort of the bomber force, until further instructions, towards dislocating the German transportation system and to destroying the morale of the civilian population as a whole and of the industrial workers in particular.' However, following the internal circulation of the Butt Report at the highest levels of the military and government in August 1941, by 14 February 1942 a directive to Acting AOCinC Bomber Command, J E A Baldwin revealed the new strategic priority: 'the primary object of your operations should now be focused on the morale of the enemy civilian population and in particular, of the industrial workers.'

Significantly, these directives to successive AOCinCs Bomber Command took place in late 1941 to early 1942. They illustrate that the policy shift from a focus on bombing industrial targets such as oil production and aircraft manufacture to the focus on the morale of the enemy – bombing civilians and civilian infrastructure – had taken place before Arthur Harris was appointed AOCinC Bomber Command on 23 February 1942. Given the degree of personal responsibility for area bombing that has been directed towards Harris for 75 years it is worth noting that the policy was not authored by his pen, no matter how great his enthusiasm for implementing it. The UK was in a desperate war for national survival and the RAF bombers were not close to achieving the victory, or even war-changing influence, that had been imagined for them by the likes of Trenchard and Douhet in the 1920s.

Context for RAF Reaper operations in Syria and Iraq 2015-2017

Moving towards the present, as 2014 drew to a close, so did Operation HERRICK, the UK's contribution to supporting the International Security Assistance Force (ISAF) in Afghanistan. A key element of that support had come from the ISTAR (Intelligence gathering, surveillance, target acquisition and reconnaissance) and strike capabilities of the RAF's MQ-9 Reapers. Rather than a long-anticipated opportunity to wind down from seven years of continuous operations, the RAF Reaper Force was re-tasked to support operations against Islamic State (IS)/Daesh. The Iraqi government had been making such a request for many months as it lost ground to IS.

There is not enough time here to explore the nuances of the legal and operational implications of extending operations into Syria, but surveillance started there only weeks after operations began in Iraq. However, central to numerous debates is the question of whether Syria was a recognised and legitimate theatre of military operations. If it was, then International Humanitarian Law would apply, notably through the 1977 Protocols Additional to the Geneva Conventions; but if it was not, then the more restrictive International Human Rights Law would apply. The difference is significant because it highlights the extent to which, in the 21st century, the *individual* has legal standing and the right to life in the international arena. More than 70 years after the Second World War it is inconceivable that a liberal democratic state would adopt a policy of deliberately targeting and killing even a few civilians, let alone hundreds of thousands of them.

Syria had disintegrated into a messy combination of civil war and proxy war, with regional actors funding groups within Syria that would advance their political causes. Meanwhile, Russia was proving to be a committed ally to President Assad's regime as it sought to keep a strategic foothold in the region. The world has been shocked by images of the beheading of civilians by IS and other actors, while the UN has noted multiple serious and ongoing human rights violations.

Ethics of Area Bombing

Returning to the Second World War, hundreds of thousands of civilian deaths occurred in the area bombing of Germany – probably between 250,000 and 400,000. Many of those were killed in raids that used a combination of explosive and incendiary bombs that laid waste

to large areas of housing and other buildings. The combination of the two was carefully planned out to achieve maximum effect. The ratio of explosives to incendiaries was calculated by Prime Minister Churchill's Scientific Advisor, Professor Lindemann, in 1942.

The most famous – or perhaps infamous – assessment of the ethics of the area bombing of Germany in the just war tradition was set out by Michael Walzer in 1977 and is known as his 'supreme emergency' argument.[4] In his 'supreme emergency' – precisely in this early stage of the war – Walzer allows for the waiving of the non-combatant immunity, and it occurs when a danger to the political community is overwhelmingly clear and imminent: a danger that is 'unusual and horrifying' and would result in annihilation. Even at Britain's lowest ebb before the United States had declared war against Germany in December 1941 it is questionable that the UK faced annihilation or similar. It would also be foolish to argue that the UK could, at that time, have landed its army on mainland Europe to fight a successful ground campaign that would ultimately defeat the German army and overthrow Hitler's regime in Berlin. However, its geographical positioning as an island with a substantial navy and air force and its political positioning within the British Empire, meant effective defence could most likely have been maintained for a considerable time.

Arthur Harris therefore took up leadership of Bomber Command at a crucial time in the war. None of the ethical choices were palatable and neither he nor any of the military hierarchy up to Churchill, faced simple choices about the degree and nature of force to be used. At one extreme, pacifists reject any taking of human life, and their approach would not have halted the march of Nazism across Europe. At the opposing extreme, political realists recognise only the importance of power and see no place for morality in their calculations. In this regard, perhaps Hitler is the most fanatical example, though it would be unfair to most political realists to equate their position with fascism.

Between these positions sits 'just war' reasoning and its demand for proportionality of means and discrimination of military targets. If area bombing is approached simplistically as a straight choice between good and evil, the targeting of civilians renders it unjust. However, there was no choice between good or evil, only between lesser and

greater evils. Harris could not have done his job without killing civilians even if he wanted to because of the limitations of the aircraft at his disposal. As the war progressed increasing bombing accuracy could be achieved but often with unsustainable losses of aircraft and personnel. An approach that ultimately destroyed the bomber force would be self-defeating, not enemy-defeating. In philosophical terms, to follow a strict interpretation of historical war conventions about not killing civilians – which are not the same as laws against aerial bombing, which did not exist at the time – would have been to severely constrain the RAF bombing of Germany: the only means of offensive war available to the British in the early years of the war.

This would have been to adopt a deontological approach which is primarily concerned with the obligation to observe whatever rules or norms that could be found. However, the *outcome* of such an approach could or would have been calamitous for Britain and Europe. The alternative ethical approach was consequentialist, ultimately the one that was pursued. Consequentialist ethics are primarily concerned with desired positive outcomes – or consequences – and less so with the means to achieve those outcomes. This is the 'lesser of two evils approach' and the approach that I would defend in the circumstances that Harris and the UK found themselves.

As the war progressed and bombing technology and accuracy improved, the ethical arguments changed with them. By late 1944 and early 1945 there was clear disagreement between Harris and Chief of the Air Staff Charles Portal, his superior, as to the best use of the bombers. Harris remained convinced that to hit anything you had to hit everything: especially the cities. Despite Harris's prioritisation of area bombing above oil or other 'panacea' targets, as he called them, he was not removed from his position. He continued to have support from above.

Then came the directive to Harris to attack Dresden, Berlin, Leipzig and Chemnitz – with Churchill's full knowledge and complicity. Harris's night bombers would provide the means of 'destroying these industrial cities.' In the weeks that followed the attacks on Dresden on 13/14 February 1945 (the Bomber Command attack and the two follow-up American attacks), public disquiet began to emerge, eventually prompting Churchill, shamefully, to try and distance himself from the controversy of area bombing. Similarly,

others in Harris's chain of command – Portal, the other Chiefs and the Air Ministry – left him isolated. Victory was nigh, reputations – especially Churchill's – were being made and protected. Thoughts were turning to what a post-war Germany might look like. The scapegoating began in earnest with Harris too focused on his task, too politically inept, to sense the winds of change.

What responsibility did Harris bear for his actions? He had been directed by the Chief of the Air Staff, the Air Minister and Churchill, who was both Minister of Defence and Prime Minister. If moral responsibility is apportioned according to one's freedom to shape events Harris clearly bore greater responsibility than the crews he ordered into action over Germany. Yet he had little more room for personal choice than they did.

Some, like A C Grayling, argue that the area bombings should never have taken place, that the crews should have refused to fly and that Harris only avoided being a war criminal by being on the winning side. Harris's determination to publicly, almost aggressively, stand by the actions of Bomber Command without apology or regret was, from a leadership perspective, no doubt a comfort and inspiration to the crews who had dropped the bombs. Harris stood alone, defiant and destined to publicly bear much of the moral culpability of his superiors. Churchill's actions were the most damning and damnable: they indicate a willingness on the part of Britain's great war-time leader to abdicate moral responsibility for acts that he co-authored and on whose authority they rested.

Ethics of Reaper Operations

Travelling once more through time to the present-day use of Reaper in Iraq and Syria, we find a very different kind of air campaign to the one fought by Bomber Command and led by Arthur Harris. The differences are so extreme that they serve primarily to show how much the world and modern warfare has changed. The remote nature of Reaper operations has some obvious, major differences to bombing operations 75 years ago.

The Reaper itself carries only a tiny fraction of the destructive firepower of a Lancaster bomber. By the end of the war a specially modified Lancaster could carry the 22,000lb 'Grand Slam' bomb. The MQ-9 Reaper can carry four 100lb laser-guided Hellfire missiles and

two 500lb GBUs (Guided Bomb Units). The RAF would deploy hundreds of bombers on a single night attack against a city during the Second World War – with the massive bomb loads involved – while it currently owns only 10 Reapers and they are used both precisely and sparingly in an attack role.

Reaper crews (pilot, sensor operator and mission intelligence coordinator) are not exposed to the physical dangers faced by those bomber crews flying over enemy territory. The greatest danger they face most of the time is crashing on the drive home after a 12-hour shift. However, they face other psychological challenges that previous generations could not have dreamt of. For example, they see their targets on screen in great detail: no anonymous cities or areas to bomb. Instead, images of bodies, limbs and distressed children and widows

The context in which the Reaper is used in Iraq and Syria is very different from the war of national survival in which Lancaster and other bombers were deployed against cities. Today, the UK is engaged in a 'war of choice' as part of a broad coalition against IS and its goal of creating a caliphate in the Middle East. The Reaper is used in a counter-insurgency role where seeing what the enemy is doing through persistent surveillance can be more important than striking small, specific targets – though the latter must take place as well if an enemy is to be defeated.

Crucial to the whole endeavour is the targeting only of enemy fighters and objects and the preservation of non-combatants. Ethically, this approach is necessary on both deontological grounds – the obligation to use proportionate and discriminate means – and on consequentialist grounds. In a modern 'war of choice' – as opposed to a war of survival – the targeting of civilians by the RAF would damage or destroy any moral claim to be promoting freedom, advancing the rule of law or otherwise supporting attempts to bring peace to a troubled region.

The precision available from the Hellfire missile is well known and has to be seen in real time to be believed. However, it can still be abused if there are permissive (in the sense of allowing civilian deaths) Rules of Engagement or poor professionalism and ethical standards among operators. In my research over the past few years I have found a high level of commitment to both professional and

ethical standards in RAF Reaper personnel. However, there is vociferous criticism of Reaper from a number of quarters.

Cole *et al* claim that: 'Operators, rather than seeing human beings, perceive mere blips on a screen. The potential for this to lead to a culture of convenient killing may well be reason to consider banning this new type of lethal technology'.[5] There is minimal evidence offered that this is the case. My own research with the RAF would contradict Cole's position, though I cannot speak knowledgeably about the practices of every major user of lethal drones in the world.

On practical grounds alone such a simplistic argument should be rejected: the political and reputational cost to both the UK and the RAF of allowing 'disconnected' sociopaths to indulge in such so-called 'easy' and 'convenient' killing (even ignoring the inconvenient presence of multiple layers of legal and institutional oversight and accountability) is beyond calculation. In contrast, one Reaper pilot describes his experience:

> 'I have killed the enemy from both [*conventional aircraft*] and from the Reaper. The body's reactions are the same – it surprised me. Your mouth goes dry and the hairs on the back of your neck stand up. Everything goes tense and you get that sick feeling in your stomach. You know what you are about to do.'[6]

The mental effects on Reaper operators is not yet fully understood but one aspect of what they do is already recognisable: physical distance does not equate to emotional or psychological distance. The intimacy of the live video footage they watch brings them very close to their targets thousands of miles away: visually, probably closer than the view a longbow archer would get of his enemy in the Middle Ages.

In response to a question about whether ethical considerations entered the pre-strike calculations, another RAF Reaper pilot wrote to me:

> 'Ethical considerations are a large part of the pre-strike assessments. Where can we strike a target? Will this strike, by hitting a valuable piece of equipment the person/target is on/in/near affect a village's ability to harvest/work? Is the person close to his family compound, thereby meaning are the

first people to find the body post-strike his own family? These are some of the questions I've been asked and asked of myself prior to the decision to strike a target.'

From the operators' perspective, the Reaper offers another important ethical advantage. The crew can ask for second, third or fourth opinions about a strike if necessary, from the legal aspect to tactical considerations. There is the connectivity to multiple sources of support and expertise and image analysts can check and recheck vital identifications of targets. However, that entire infrastructure only works successfully if the individuals involved are committed to upholding ethical standards because it is that commitment that will govern any subsequent decisions that are made or actions taken. Ultimately, despite the available support, opinion and checking by the mission intelligence coordinator, one person (the pilot) still has to make a judgement about whether or not to pull a trigger and a second person (the sensor operator) still has to actively guide that bomb or missile onto a target.

Concluding thoughts

It seems unthinkable in the 21st century that the UK would, today, use the mass killings of civilians to achieve its national aims. However, history shows again and again that people will go to extraordinary lengths to survive against an aggressor – especially an aggressor like Nazi Germany in the Second World War. We can look back at Harris and the area bombing of German cities from the safety and security of seven decades of political stability and relative peace in Western Europe. If the morality of the actions of Harris and his bombers are to be judged in simple, absolute terms then they will be forever guilty and their names will live on in ignominy. However, when Harris's actions are assessed comparatively, the outcome is somewhat different. The lesser evil prevailed over the much greater evil, even if there remained evil on both sides.

In subsequent post-war analysis, the world learned much more about the successes and failures of the RAF's – and the USAAF's – bombing strategy, especially the impact of attacking Germany's oil supplies. In parallel, however, the world also has a greater appreciation of Hitler's Final Solution, which has similarly to be weighed retrospectively. In the obscene calculus of human catastrophe

how do 25,000 deaths in Dresden measure against more than a million men, women and children killed with malevolent efficiency at Auschwitz? – or the million Soviets who died defending Stalingrad?

If Harris and Bomber Command reduced the length of the war by one day how many lives were saved? What if Bomber Command reduced the length of the war by a week? By a month? Such a grotesque numbers game can never be accurately completed and it would seem perverse to even try. However, these numbers remind us that when great evil stalked Europe and Britain took the fight to its Nazi enemy, Harris more than anyone was prepared to embrace a lesser evil in order to defeat it.

Harris never shirked from his duty, never denied it, never apologised and never regretted his actions. He had blood on his hands and never tried to hide it, and it was this more than anything that singled him out personally for blame. Churchill wanted his legacy and many in the country wanted to forget what they had demanded of 'Bomber' Harris in the darkest of hours when the stench of fear and danger was overwhelming. The area bombing of Germany remains an uncomfortable reminder of a different time.

When we look at the remotely piloted Reaper and its current use those differences with area bombing – operational and ethical – become even starker. Much of that difference is dictated by societal developments over the past 75 years, with individual human rights taking on great legal and ethical importance – in much of the world at least. The Reaper itself is not the fulfilment of Trenchard's vision for air power and bombing he set out in the 1920s. He wanted a strategic weapon that would win wars from the air without having to repeat the suffering of trench warfare. The Reaper provides great accuracy in small-scale tactical engagements, but he could not have imagined the computer and satellite technology necessary to make it work. Trenchard envisioned something more akin to the destructive capabilities of the United States Air Force Strategic Air Command, a vision that was not matched by the practical realities of bombing in the Second World War.

Ultimately, the ethics of bombing comes down to decision-making by individuals, from political leaders down through military commanders to the aircrew who conduct the strikes. Area bombing – and its ethics – by Bomber Command stands in its own historical,

cultural, legal and military context, as does the use of Reaper today. It is the responsibility of every generation of political and military leaders to understand and learn from the past, while not living in it. Current ethical challenges in the delivery of air power – and preparations to meet those challenges – demand an understanding of politics, international law, human rights, military theory, air power doctrine and much more. For it is out of that broader understanding that individuals can make good ethical choices. It is my hope this evening that current members of the Royal Air Force, at every level, will continually reflect upon its practices and maintain a desire to act ethically even in the harshest of human environments: the domain of war.

Thank you.

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Notes:

[1] Hansard. HC Debate, 2 August 1909; col 1582.

[2] *Ibid*; col 1576.

[3] Biddle, Tami Davis; *Rhetoric and Reality in Air Warfare: The Evolution of British and American Ideas About Strategic Bombing, 1914-1945* (Princeton and Oxford: Princeton University Press, 2002) p11.

[4] Walzer, Michael; *Just and Unjust Wars: A Moral Argument with Historical Illustrations*, (New York: Basic Books, 1977) pp251-255.

[5] Chris Cole, Mary Dobbing and Amy Hailwood, *Convenient Killing: Armed Drones and the 'Playstation' Mentality* (Fellowship of Reconciliation: Oxford, 2010) p4.

[6] Personal communication by a UK Reaper pilot, 16 July 2013, Creech Air Force Base.

DISCUSSION

AVM Nigel Baldwin. I spent 1996-2007 with Combat Stress and one of our main objectives was – and it still is – to persuade the young men and women who had been in stressful situations to seek help before it became a real problem. But it still tends to be more than ten years before they do – so, rather than a 19-year-old private, the typical customer tends to be a 30-plus year old ex-sergeant in the Paras. The problems can take a long time to manifest themselves, but the earlier they seek help, the easier it is to help them. I hope that someone is giving some thought to this, because what you have just told us suggests to me that, in ten years' time, maybe longer, there will be a problem with these young men and women.

Dr Peter Lee. I have two responses to that. First, my personal awareness of stress – and I should apologise in advance, because I just might become a bit emotional as I revisit these incidents.

In 2003, when I was a chaplain at the RAF Hospital at Akrotiri I was very profoundly affected by the battlefield casualties being brought back from Iraq. I'm a very squeamish person and it affected me quite badly; indeed, it is one of the reasons why I am a former, and no longer a serving, chaplain. So, to some extent, I am a victim of stress myself. I will cite just one example; it involved a tank crew. One of the team had been loading the gun with a shell that turned out to be faulty. It detonated and removed his lower arm. When the crew arrived at Akrotiri, all four had perforated eardrums but, apart from the amputee, the other three *looked* to be OK. But one of them was actually suffering from survivor guilt. He was the person who *should* have been loading the gun, but he had been briefly distracted at that moment and it had been done by a colleague – which had cost him, the *wrong* guy, his arm. The three men who were not seriously injured were keen to be sent back to their unit, which they eventually were. But I was very concerned at this outcome, and I made my views plain to the medical staff. It was my opinion that, while their hearing would recover and they could walk, talk and fight, that did not mean that they had not been profoundly affected by their experience. I believed that they had, and I was afraid that they would slip through the cracks of the support networks. As to the amputee, he was certainly distressed. He had brought forward his wedding to the week before he deployed

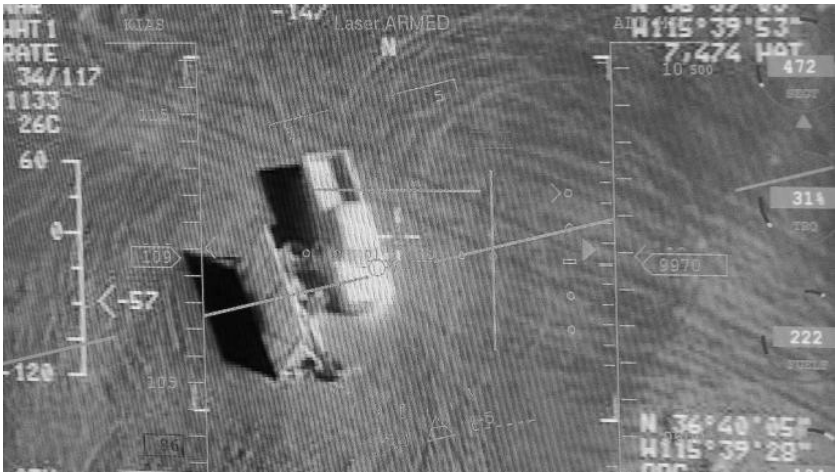
and, at his bedside, he was saying, ‘Padre, my wife won’t want me now. I’m not a full man.’ Even now recalling that makes me quite emotional . . .

Secondly, I am, personally, equally well aware of the long-term issue. I spent 2004-05 in the Falklands, and during that time I held twenty-five private memorial services for returning veterans of the 1982 conflict who were dealing with PTSD – because, as you said, that’s how long it can take for people to come forward. I recall a serving Royal Marine brigadier, and a couple of other serving officers, who had taken part in the landings back in 1982 – men with rows of medals on their chests – who dissolved in tears, laying wreaths on their comrades’ graves. It can be quite emotional, even for a bystander like myself.

So, as you can probably tell from my demeanour, I am heavily invested in this mental ‘thing’ and have been for many years, most recently, in the context of Reaper crews. They are a unique case. They are actually an elite, although the self-effacing culture of the RAF means that they would never admit to that. Some of them are *very* experienced, which means that they have fired dozens of missiles which will have killed scores, perhaps hundreds, of people. In their mind’s eye, some can see every one of those shots, because the nature of an engagement using an RPAS means that the climax is, visually, up close and personal – and it is difficult, if not impossible, to forget these images, because they are preserved, in detail, in the squadron’s archive.

When I am interviewing the Reaper personnel, sometimes when I raise the issue of their families, the mask slips and there can even be tears. The individual will be surprised, and embarrassed, at their emotional reaction and insist that they are OK. But is he – or she? I believe that this sort of inadvertent response comes from bottling up the fact that they have killed dozens of people! – and often do not feel able to talk about it. For some there might also be a macho factor – a perception that, if you do go to seek help, from the chaplain or the psychological services, it somehow makes you a lesser person. The Service just has to get past this.

So, that’s been a very long answer to your question. But I can also report some progress. I’ve not yet analysed all my interviews, or embarked on any of the scholarly papers, but, back in March, I was



This still from a Reaper video conveys some impression of the precision with which targets may be engaged and thus the operator's intimacy with that target.

contacted by the All-Party Parliamentary Group on Drones and asked to make a submission. So, as recently as this week [*12-16 June 2017*], I have offered some preliminary observations and made some recommendations – which the RAF has also received.[1] My most important recommendation is that every member of the crews that actually 'fly' Reapers should have a compulsory appointment with a psychologist at least once, possibly twice, a year, with the same facility available on an optional basis to all other members of the Reaper Force. I believe that this should simply be added to the familiar annual routine – medical check; dental check; fitness test; health & safety test; fire training; see the psychologist. Why not? Since the new RPAS technology differs from the old, it follows that the way of dealing with the issues that it raises should also be new.

While I think that everyone should see the psychologist, those who don't actually *need* a consultation will tick the box by attending, and I should make it very clear that I do *not* think that the Reaper Force is full of basket cases. And if some of them burst into tears occasionally,

[1] Dr Lee's submission may be accessed on-line by Googling 'Peter Lee APPG Drones'.

I think that they may actually be among the healthier members of the force, because they are able to express their feelings. The chap I mentioned earlier? – the one who surprised himself with tears when discussing his family? – he dried his tears and went back in the box and within a few hours he had launched another Hellfire.

So – are people looking after this? Yes. I have submitted my recommendations and we shall see whether it flies. After all, if a Typhoon squadron can have a dedicated physical education instructor to help people strengthen their necks in order to deal with G forces, why shouldn't a Reaper squadron have a specialist psychologist – especially if it avoids some people possibly coming apart ten or eleven years later. We'll see what comes out of this – only time will tell.

Gp Capt Jock Heron. Could I ask what steps are taken to prepare Reaper pilots mentally, before they are committed to action? As fighter/ground attack pilots, we weren't given any at all!

Lee. Interestingly, the first generation of Reaper crews *were* fighter/ground attack pilots – and navigators in some instances. In broad terms, the pilot fires the missile but it is the sensor operator – usually individuals who were previously navigators or weapons systems operators – who controls the missile onto its target once it is in the air. But, as to induction, there is currently a study group looking at the way that people are inducted into the RAF – and I have view on that too! When I was a chaplain at the RAF College Cranwell, about twelve years ago, I used to introduce people to the idea of killing – from a chaplain's perspective, an ethical perspective. I would use photographs – some of them quite gruesome – and challenge the officer cadets to think about what it really means to take a life and, every year, one or two would withdraw from training because, having really thought about it, they had concluded that it wasn't for them.

At that time, most of them would have been prospective aircrew, of course, but today the same applies to those destined for the Reaper Force – perhaps even more so. There is a difference between taking battle-hardened veterans from the Tornado or Harrier and putting them in charge of a Reaper, and doing the same with young direct entrants. The *ab initio* people will, inevitably, lack some of the robust self-confidence and resilience that experienced aircrew will have acquired over time. And even some of them are affected by the surprising

degree of intimacy – the close-up, and often prolonged, nature of an engagement – involved in combat within the Reaper community. Direct entrants only do thirty to forty hours of flying training in a light aircraft; I have over a hundred myself – more than twice as many as a direct entrant Reaper pilot! They then spend several months training on the Reaper in the United States, followed by a short conversion course after which they are rated as 'limited combat ready'. After a few more months they become combat ready and begin to use weapons. What that means is that, as a lecturer, I still find myself speaking to people at Cranwell who, within less than a year, could be killing people. So they need to think about what that entails before they start.

Air Cdre Graham Pitchfork. From what you have told us it seems almost inevitable that some people are going to have a major problem and will have to be taken off the Reaper Force. What measures are in place to avoid the distressing business in the last war when people in that position were labelled with LMF. We really don't want to see that again.

Lee. At the moment, there is a risk management arrangement that makes people aware of the pressures involved and the potential for psychological harm, and provides support when requested. But it's a voluntary system, which is why I have proposed a compulsory approach – the annual visit to a psychologist. However, even today psychologists are available, and sometimes people do refer themselves, but not as many as perhaps should. Perhaps I can illustrate the way that tension – stress – manifests itself.

I have sat in on a ten-hour sortie where, within the first hour-and-a-half the crew already had six '9-lines' or 'authorisations to strike' running concurrently, two of which I witnessed to their conclusion. Believe me, that's an intense experience. At the end of a sortie, a crew comes back to the Ops Room to do its in-brief. By the way, the out-brief and in-brief – pre-flight and post-flight – is exactly same as a regular flying squadron. The second last question asked on an in-brief is, 'Have you seen any TRiM-worthy events?' In other words, 'Have you seen anything that's gruesome that might affect you?

On the sortie that I had observed, I had actually jumped ship an hour before the end, so I didn't attend the in-brief. When I entered the

Reaper cabin. (RUI VIEIRA/PA)

crewroom the following morning, three concerned people grabbed me and said, 'Pete – sit down; you didn't get the in-brief last night, but you watched several people being killed. How are you today?' That is some indication that the Reaper team is well aware of the risks of stress. The last question asked at every post-sortie in-brief, is, 'Are you fit to drive home?' It sounds a bit obvious, but after ten or twelve hours of that intensity, sometimes finishing in the early hours of the morning, people really can be too mentally exhausted to drive home safely. At Creech, they've got rooms set aside in a separate building, specifically provided to permit people to sleep for the night. I know that one of the biggest concerns for most of the spouses and partners is their other half driving home.

So, things have moved on since WW II; the problems associated with stress are openly acknowledged, so LMF is not going to become an issue. But, while some steps have been taken to deal with stress, I think everyone recognises that more could be done. There are one or two people who have struggled/are struggling – but it's not widespread as far as I have encountered. The interesting question, for me, is, why are some people *not* affected – or very minimally

affected? As I see it, at one extreme there are a few people who are going to be seriously affected, while at the other end of the spectrum there will be people who are really *not* affected and can do this for years; they just seem to thrive on it. Most fall between the two poles and we don't yet know the extent to which they will be affected and, as yet, I am not sure that any obvious indicators have been identified. I like to think that, when I have analysed my material, I might come up with something, but we shall see. I have a feeling that it may have something to do with the issue that Jock raised – preparation, the nature of previous experience, expectation management and so on – and all of this beginning long before they fire any missiles. That said, while I think that this may help people, the fact is that, when you ask them about it, they just want to do their job, and they don't want any fuss . . .

Sqn Ldr Bob Hall It strikes me that the pilots and sensor operators are more like snipers than aircrew. Have any comparisons been done? – with the Army, for example – to see how they handle post traumatic stress with snipers? – because their bullet is definitely going to take somebody out.

Lee. The sniper probably is the closest comparison to the Reaper crew. I think they have more in common with a sniper than they do with a fast-jet pilot who comes in at 420 kt and leaves at 420 kt, the actual engagement lasting just a few seconds. I believe that some work has been done on this in the USA – although, I can't identify any specific papers off the top of my head. I don't think that anything has been published in the UK – and if it hasn't, I think that it would definitely be worth investigating.

Hall? There is a significant difference, isn't there? – the insulated remoteness and safety of the Reaper crew, which may have a bearing on some of the issues that you have been speaking about, compared to the relatively exposed situation of the sniper, who is located within range of the enemy and is, potentially at least, at risk of becoming a target himself.

Lee. Yes, the sniper is clearly in-play *on* the battlefield – although, interestingly, what the Reaper crew will see will probably be in greater detail than what the sniper will see. A remotely-located Reaper

crew in America will actually get a much better view than a sniper only a mile-and-a-half away. So, there are some really odd dynamics here – factors that you might not expect. For instance, from his hide, the sniper has a very restricted perspective, so he will not appreciate the full pattern of communal life that the Reaper crew will see as their aircraft constantly circles the village, providing a long-term bird's eye view. The sniper has only a very small window of vision through his telescopic sight whereas the Reaper crew sees everything, and in much greater detail. And I don't imagine that a sniper hangs around very long afterwards to see the effect of his intervention, but the Reaper crews can, and do.

Baldwin. Peter – thank you very much for that. Before closing, I want to emphasise the central importance of the time factor, which became very apparent to me during my experience with Combat Stress. It takes a long time for many people to be affected – and when it does materialise, nine times out of ten there is more to it than just the fact that they were a sniper or a Reaper pilot – their marriage has broken down; they have started drinking too much; they have lost their job or been passed over for a promotion – for whatever reason, their world is beginning to come to an end and the psychiatric problems begin. They enter a downward spiral and, by the time that Combat Stress gets hold of them, they are usually close to the bottom and we spend our time trying get them back up somewhere near the top. So, the thought I will leave you with is that, just because a chap looks OK today, he may not be in ten years' time.

SUMMARY OF MINUTES OF THE THIRTY-FIRST ANNUAL GENERAL MEETING HELD IN THE ROYAL AIR FORCE CLUB ON 14 JUNE 2017

Chairman's Report

AVM Baldwin noted that the recently published Journal 66 contained last year's AGM minutes and the address by our newly-elected President, Air Chf Mshl Sir Richard Johns. Further articles had been written by the Editor's own pen, and two other committee colleagues.

There had been two seminars since the last AGM. The first, in October at the BAWA, Bristol under the chairmanship of Air Mshl Sir Peter Norriss, had looked at air systems procurement during the Cold War, while the second, in April at the RAF Museum, Hendon, marked the 75th anniversary of the RAF Regiment. A former Honorary Air Commodore of the regiment, Air Chf Mshl Sir Richard Johns, chaired a successful day. The coming autumn seminar, at the RAF Museum on Wednesday 11 October 2017, under the chairmanship of Air Chf Mshl Sir David Cousins, would examine the history of women in the RAF.

The Society's finances remained healthy in 2016 and there was a balance of some £28,080. Accordingly, annual subscriptions would remain at £18 and seminar fees at £20 per head.

Concluding, the Chairman thanked the Committee for its 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, seven new members had joined, including one who was formerly a PMRAFNS officer. Membership stood at 660, but many of these had no known current address and were uncontactable. Given the slow decline in numbers, every effort to recruit new members would be most welcome, and the Committee would be taking steps to advertise more widely.

Treasurer's Report

Mr Boyes reported on the 2016 accounts. The year had achieved a

small surplus of some £2,500. Income of £19,823 was an increase over the 2015 figure of £18,922, and expenses had been reduced from £19,172 in 2015 to £17,283 in 2016. Total funds at 31 December 1916 stood at £28,080 which the Committee considered to be comfortable.

A proposal by Air Cdre Wilkinson, seconded by Wg Cdr Jefford, that the accounts be accepted and that Mr Bryan Rogers be re-appointed independent examiner was carried.

Appointment of Executive Committee

The Chairman noted that all of the main members of the Committee were prepared to continue serving, While Gp Capt Jim Beldon, newly appointed D(Def)S(RAF), had agreed to serve as an *ex-officio* member. A proposal by Sir Roger Austin, seconded by Air Cdre Tyack, 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	

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

J S Cox BA MA	Head of AHB
Maggie Appleton MBE	CEO RAF Museum
Dr Ross Mahoney BA PGCE MPhil	
Gp Capt J R Beldon MBE MPhil(Cantab) MA BSc FRAeS RAF	DDefS(RAF)
Wg Cdr J Shields MA RAF	JSCSC

Discussion

Mr Ryan asked if any progress had been made on the question of missing RAF mess silver. Mr Cox, Head of the Air Historical Branch, explained that a Heritage Branch had been created within the AHB which had conducted a survey of the holdings at all RAF stations.

Waddington was found to have extensive holdings. Stations had been reminded that silver could only be sold with Heritage Branch approval, and this would only be given if the proceeds were used to enhance collections. A proposal to build a repository at the RAF Museum had foundered since the museum would have had to take ownership. Investigations to establish any losses or unauthorised sales were continuing.

Two Air Forces Award

The Vice-President, Air Mshl Sir Frederick Sowrey, presented the Two Air Forces Award to the Rev (Sqn Ldr) David Richardson for his paper on RAF Operations in Ireland During WW1.

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 2016. ***Ed***

THE ROYAL AIR FORCE AND THE IRISH WAR OF INDEPENDENCE 1918-1922

Rev Dr (Sqn Ldr) David Richardson

In the autumn of 1923, some two decades before the battles of Alamein and Singapore made them household names, Bernard Montgomery and Arthur Percival engaged in correspondence concerning their recent campaign service in Ireland. Of aircraft, Montgomery had this to say, 'These were really of no use to us, except as a quick and safe means of getting from one place to another […] the pilots and observers knew nothing whatever about the war, or the conditions under which it was being fought, and were not therefore in a position to help much'.[1] Subsequent histories of the Irish War of Independence have tended to echo Montgomery's verdict that the Air Force was of limited utility.[2] In particular, most of the limited academic interest in the RAF's Irish deployment has focused on the vexed question of arming aircraft in Ireland, to the relative neglect of other aerial operations. Nor has much work has been done to analyse how the IRA actually viewed the Bristol Fighters and Airco DH 9s droning overhead.[3] The Bureau of Military History in Dublin contains a considerable number of IRA accounts on the subject, which have received little attention from historians in the decade since their release.[4]

By offering an account of air operations across the period from 1918 to 1922, using a range of British and Republican sources (including some previously unpublished private papers), this paper will argue that the airmen contributed rather more than Montgomery allowed. By 1921 the Royal Air Force had, in fact, become a central and highly effective element of the Crown forces in Ireland.

Military aviation first appeared in Ireland in September 1913 when

seven aircraft were briefly detached from Scotland on a training exercise.[5] A more permanent presence was established after the outbreak of the First World War, when new airfields were required across the United Kingdom to train the expanding Royal Flying Corps. Although Ireland was primarily regarded as a training facility, a number of anti-submarine patrols were also flown from the west coast.[6]

By 1918, the political situation in Ireland was in a state of flux as the third Home Rule Act remained in suspension, and the shock waves of the 1916 Rebellion continued to reverberate. Even as those first aerodromes were under construction, the Royal Air Force was already being employed on security duties, seeking to observe the Irish Volunteers drilling in the Dublin hills. As an Irish nationalist activist later recalled, 'When we could be seen from the Phoenix Park, an aeroplane would be sent over to try and find out what we were doing […] Captain Cullen would have the men so arranged when the plane came over that she could not find us.'[7] Nor was the activity limited to observation. Flight Lieutenant Edward Taylor was sent to patrol the Irish countryside searching out Sinn Fein gatherings and records, 'that we dived upon the motley crowd, endeavouring to break up the meeting.'[8] This tactic was not invariably successful; as one eyewitness recorded at Eyries in Cork in the summer of 1918, the crowd simply 'jeered and booed' at the low flying aircraft.[9] However, even at this inchoate stage of the conflict, the RAF was having an impact. Patrick Kelly of the Irish Volunteers records how an aircraft scattered his unit on parade and subsequently co-operated with ground forces to ensure the detention of some suspects.[10]

The newly appointed Viceroy, Lord French, was certainly in favour of employing air power against the developing threat of armed nationalism as early as April 1918. In a letter to Lloyd George, he advocated that aircraft armed with bombs and machine guns would 'put the fear of God into these playful young Sinn Feiners.'[11] Although it would take almost exactly three years until military aircraft in Ireland were permitted to carry lethal ordnance, aviation was able to fulfil numerous other roles in the interim. Two squadrons were despatched to Ireland in the spring of 1918 and were tasked on communication and reconnaissance.[12] Within six months of French's letter, plans had also been drawn up to use aircraft in the event of

Nos 105 and 106 Sqns were sent to Ireland in May 1918, both equipped with RE8s. Since it was photographed at Omagh, this one probably belonged to the former. (Dr Haldane Mitchell)

disruption to the postal system, operating alongside mobile columns and overflying outlying garrisons on a daily basis.[13] Thus even before the end of the First World War, the RAF was beginning to acquire a defined role in the British security plan for Ireland.

The armistice of November was swiftly followed by a General Election, which in Ireland saw the pre-war mandate of the Irish Parliamentary Party overturned by a Sinn Fein victory. Clearly, the Irish question could not be resolved by simply defrosting the Home Rule Act that had been placed into cold storage in 1914. The new parliamentarians refused to assume their seats at Westminster and established their own conclave in Dublin on 21 January 1919. In an entirely unrelated development, a group of restive Irish Volunteers in County Tipperary chose that morning to ambush a cartload of gelignite en route to a local quarry, killing the pair of Royal Irish Constabulary (RIC) escorts. Although this was but one of a growing number of attacks on the RIC, the chronological coincidence has proved irresistible to historians, who tend to regard the shots at Soloheadbeg as the opening of the War of Independence.[14]

It was by no means apparent at the outset that Britain was about to be embroiled in a major campaign; the Irish Republican Army, as the Irish Volunteers were increasingly being called, initially conducted

low-level attacks that were 'sporadic and directionless.'[15] The British Government had plenty of other distractions to deal with; peace making at Versailles, civil war in Russia, and unrest in Iran being just some of the concerns facing the Cabinet. In the face of this, ministers 'did their best to avoid Irish affairs altogether', and management of the developing crisis was left, at least initially, in the hands of the sclerotic British administration in Dublin Castle.[16] However, even as the IRA campaign intensified, the Cabinet's interest in Ireland was intermittent at best; not until the spring of 1921 did Lloyd George fully engage with the Irish situation.[17]

At the same time, Britain was trying to divest itself of the huge armed forces it had amassed.[18] The Royal Air Force, formed a bare seven months before the end of the war to deal with a specific German threat, was especially vulnerable with the advent of peace.[19] In January 1919, the Air Ministry was disestablished as a separate department, and as the year wore on the RAF was trimmed of some 90% of its personnel.[20] Faced with swingeing defence cuts, the leadership of the Army and Navy were not overly solicitous for the welfare of their young rival. Indeed, the Chief of the Imperial General Staff opined that 'the sooner the Air Force crashes the better.'[21] The strategy adopted by Sir Hugh Trenchard, Chief of the Air Staff in 1919, was 'to preserve the vital essentials of a skeleton force whilst giving way on every possible detail on which he felt that expense could be saved.'[22] It was against this backdrop of a distracted Government and a shrinking military capability that the RAF conducted its campaign, and these factors help explain many of the decisions that were subsequently made.

As 1919 wore on, the IRA campaign was initially focused on obtaining weapons, generally from lightly defended police barracks; one early raid in March also netted a substantial haul of arms from RAF Collinstown, just north of Dublin.[23] Under the RAF 'Defence of Ireland Scheme', all Royal Irish Constabulary and military units were instructed to select aerial dropping stations close to their headquarters to facilitate communication by air mail.[24] The scheme also adumbrated proposals for the RAF to work in close co-operation with the Army in Ireland, carrying out reconnaissance and patrols, with the especial aim of deterring IRA training meetings on Saturdays and Sundays.[25] One pilot later recalled patrolling the Wicklow Mountains, firing Very

The reinforcements sent in May 1919 included this DH 9 of No 117 Sqn. (J M Bruce/G S Leslie Collection)

lights to indicate the location of IRA activity.[26] Some additional aircraft were transferred across the Irish Sea and initial steps were also taken to consolidate the various fragmentary RAF units in Ireland into two effective squadrons.[27] Aerodromes were retained in Dublin, Fermoy in the south and Oranmore in the west, together with a number of additional landing grounds.[28] Although an RAF inspecting officer noted that 'no particular animosity' had yet been evinced against the RAF, by the summer the 'hopeless, defenceless state of […] aircraft […] and living quarters' had become apparent.[29] The lessons of Collinstown had clearly not been learnt and special instructions were issued to RAF personnel for the securing of arms.[30]

Despite limited resources, the RAF had been continuing to conduct useful activity in early 1920. British policy during the conflict tended to veer uneasily between conciliation and coercion and opted for the latter in the aftermath of an attack on the Viceroy. The RAF thus found itself involved in the Crown's efforts to curtail Republican activity.[31] A proscribed Sinn Fein demonstration in County Armagh had been carefully choreographed to mislead the RIC, who set off on a false scent. However, the real location of the gathering had been identified by an aircraft which then dropped a message at

Ian Bonham-Carter as an air commodore.

Blackwatertown barracks, enabling the police to carry out a raid.[32] Regular reconnaissance reports were also issued, helping to build up the general intelligence picture for the Crown forces by recording such phenomena as the appearance of large crowds.[33]

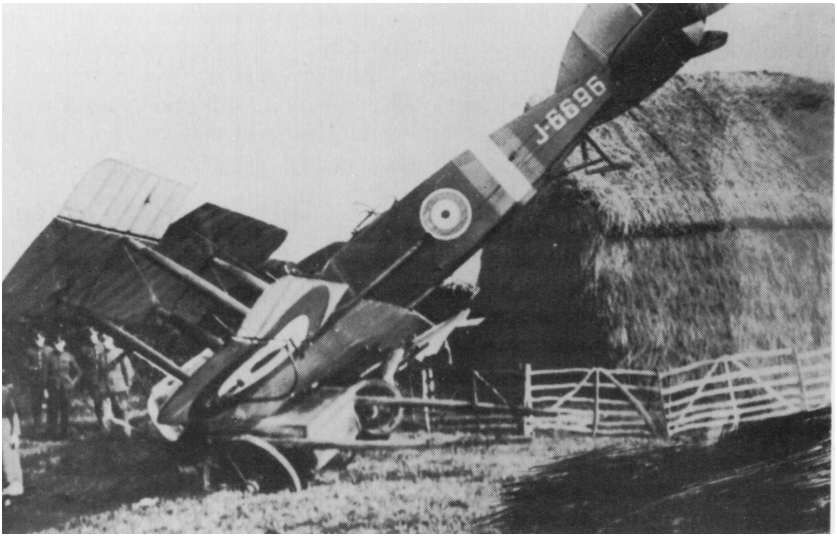
Group Captain Bonham-Carter, the new local commander, was determined to expand the role of the air force in Ireland still further, however. In a letter to Trenchard, Bonham-Carter gave a useful *tour d'horizon* of RAF activity in the early spring of 1920. Personnel were engaged in conducting spring drills, weeding out surplus stores, and improving airfield defences, in addition to occasional patrols for the Army. A great deal of time seems to have been spent simply tidying up detritus from the war; 'the work of closing stations and straightening up the aftermath is dispiriting.' Aviation activity was restricted by the fact that many of the pilots based in Ireland had not yet trained on the Bristol Fighter, which was becoming the preferred type for local use. Many of the local Army units were also composed of new recruits who were simply not ready for the demands of working with aircraft. Bonham-Carter was anxious to achieve more, and even devised a plan for potential nocturnal flights, dropping flares to deter IRA units attacking police barracks.[34]

As the year passed, there were encouraging signs of a developing liaison between the air force and the Army, which Bonham-Carter sought to foster. In April, No 2 Sqn advised the local Fermoy brigade in advance of a reconnaissance mission and offered to drop information if anything significant was discovered.[35] The Army was also actively seeking aerial assistance; for instance, the general commanding troops in Kerry sought to develop a landing ground and petrol dump at Killarney or Tralee to enhance access to air services. The carriage of an Army officer as an observer was also suggested as a way of enhancing coordination between air and land.[36] The aerial mail service was enhanced throughout the south west of Ireland,

although at least one successful attempt was made to dupe aircraft into dropping military mail on to an IRA-constructed receiving station.[37] Liaison work developed with all three brigades in the area, and by late summer a programme had been drawn up for practice with Popham Panels, a basic ground-air signalling system.[38] It seemed as if real progress was being made in the employment of air assets in Ireland.

However, those assets were proving rather fragile in the Irish environment. By August 1920, only one aircraft was serviceable at Oranmore airfield in Galway, which meant that the aerial mail service and 'anti Sinn Fein operations' suffered accordingly.[39] Bonham-Carter wrote to Trenchard for assistance, expanding on the RAF's situation. Breakdowns and forced landings were common, and pilots were beginning to 'grouse' about flying the increasingly unreliable Bristol Fighters. The repairs unit was patching up machines which really required a proper overhaul, whilst the weather conditions on the west coast were quickly degrading even the newest aircraft.[40] In a splendidly blimpish response to the pilots, Trenchard opined that 'this sort of grousing started in France' but nonetheless agreed to try and despatch some more aircraft to Ireland.[41] Pleading that Bonham-Carter was 'practically at war', he urged the RAF's Director of Equipment to send more machines across.[42] As it turned out, however, this would not be the end of the matter. Trenchard's absence from the office one day in late September would result in the shortcomings of the RAF's Irish operation being closely scrutinised by a Cabinet minister.

General Tudor, the police commander in Ireland, had travelled to London to ask for more resources from the Secretary of State for War, Winston Churchill. Although Tudor had apparently only intended to discuss the provision of armoured vehicles, the discussion also ranged over the role of aircraft in Ireland. Churchill may have raised the subject, as he had recently commented on the potential for employing the RAF against IRA members found drilling, 'using [...] no more force than is necessary to scatter and stampede them.'[43] In Trenchard's absence that day, aviation advice was provided by the Air Secretary, Group Captain Scott. He was ill-prepared to answer Churchill's probing questions, such as why only half of the three-dozen aircraft in Ireland were in working order.[44] In a subsequent letter to Trenchard, Churchill urged that the RAF dredge its reserves to provide fifty effective aircraft in Ireland, and personally charged the Chief of the



'The increasingly unreliable Bristol Fighters'. This is one of No 2 Sqn's aeroplanes after it had lost an argument with a haystack and a farm cart. (RAF Museum)

Air Staff to 'give the Irish position a searching overhaul yourself.' Churchill also despatched the Air Secretary to Ireland on a tour of inspection to establish the facts.[45]

This must have been a galling development to Trenchard who had, after all, been taking steps to reinforce Ireland before Churchill intervened. From previous experience, the airman felt that that the minister 'had an imagination [...] too strong for comfort and [...] tended to be swayed by the last devil's advocate he happened to meet.'[46] Nonetheless, he responded to the political pressure; ten additional Bristol Fighters were made ready immediately and quickly despatched across the Irish Sea.[47]

Bonham-Carter quickly produced his own justification to Trenchard to explain the embarrassing serviceability record. Many of the aircraft were stored in canvas hangars which proved less than resistant to Irish weather conditions, whilst aircraft log books had not been properly kept, with deleterious effects on maintenance schedules. A shortage of spares and technical personnel such as fabric workers further exacerbated the situation. Bonham-Carter also explained that

the RAF had been seeking to meet a rising Army demand for aviation services, whilst conducting its own reorganisation from its wartime footing.[48] It should be noted that the RAF was not the only service in Ireland to be afflicted by mechanical problems; the summer of 1920 had also seen a high rate of breakdowns in the Army vehicle fleet.[49] Even so, given that he had offered similar pleas for the parlous condition of the Irish detachment six months before, Bonham-Carter was effectively admitting that his command had failed to address some fundamental issues.

Meanwhile, Group Captain Scott had crossed to Ireland with Tudor and submitted his report on 28 September, exposing even more shortcomings than Bonham-Carter had admitted to. Scott visited most of the RAF estate, and found the aerodrome at Fermoy to be hazardous for aviators and ill-equipped for all, with most of the men living in tents. Overall, the station was 'squalid to the last degree'. Simply adding more aircraft to the Irish roster would not resolve matters, as there was nowhere to put them.[50] Some mitigating circumstances were pleaded by Air Vice-Marshal Steel, Director of Operations and Intelligence. Arguing that the excessive number of machines out of service detected by Churchill's census was a temporary affair, Steel felt that the arrival of the promised repair unit would greatly enhance aircraft availability.[51]

Nonetheless, the state of military aviation in Ireland clearly left a lot to be desired, and Trenchard convened a special meeting to discuss Scott's findings. After a lengthy discussion of just what powers would be required to cut down trees at Fermoy aerodrome, the conclave considered the matter of aircraft serviceability. Some of the problems had been caused by industrial action in mainland Britain which interfered with the flow of military supplies to Ireland, such as heavy aircraft equipment. In Trenchard's view, however, unserviceable aircraft were not necessarily a bar to operations. After all, it had been acceptable to fly machines during the War when not airworthy, and the 'present position practically amounted to War.' The Chief of the Air Staff also dismissed the complaint that the RAF stations in Ireland had lacked technical advice; 'Officers in Units should be able to look after this themselves.' Had complaints been made about RAF rations in Ireland, Trenchard would presumably have commended the consumption of cake. Some progress was at least made by the close of

At least two of the Bristol Fighters operated in Ireland acquired exotic colour schemes. This one was with No 2 Sqn at Fermoy in 1920. (J M Bruce/G S Leslie Collection)

the meeting in agreeing to look into alternative means of transporting materiel to Ireland, such as military shipping.[52] Given that the most senior commanders of the Royal Air Force had been gathered to discuss affairs in Ireland, it was hardly a decisive outcome. This was due in part to a lack of enthusiasm for Irish operations, but also to severe financial constraints. The Treasury had made it quite clear to Trenchard that extra money would not be granted to support 11 (Irish) Wing – any expenditure would be borne from the RAF's standard budget.[53]

A further meeting on Ireland was held within a few days, with Bonham-Carter in attendance. Trenchard was loath to spend more money than necessary on improving RAF Fermoy and wanted to know if the Army would still require support from the airfield in three months' time. Given that Fermoy was the principal aerodrome in one of the most contested areas of Ireland, and that the conflict showed no sign of ceasing, this should have been a fairly safe assumption. Trenchard did call Bonham-Carter to account for failing to give an accurate picture of how acute the stores shortage had been and instructed him to 'see that all the Officers were doing their work.' The Chief of the Air Staff had been particularly exercised by the inefficiency of the squadron commander at Fermoy and dismissed Bonham-Carter's defence that he was new in post. Nor did Trenchard

feel that Irish conditions were an excuse for poor aircraft husbandry, pointing out that machines had been field-stripped and overhauled in France. The meeting effectively concluded with a consensus that there were no facilities for a further squadron to be housed in Ireland, but replacement aircraft would be provided whenever possible.[54]

In early October, Trenchard wrote to Churchill to summarise the state of military aviation in Ireland. He argued that the serviceability figures which had so shocked the minister were atypical but admitted that more aircraft in working order were required. The air marshal did suggest that Churchill's proposal for fifty aircraft was unrealistic, given the difficulties of maintaining and housing such an increased number of machines. Trenchard was especially resistant to Churchill's proposals to denude training establishments of airmen and aircraft, pointing out the impact this could have on the developing air force. Only one squadron remained in Great Britain for use with the Army, and even that had been depleted to augment Ireland.[55] Clearly, Trenchard had limited room for manoeuvre in resolving Irish matters, given the paucity of resources at his disposal. However, matters in Ireland had been allowed to drift and Churchill's enquiries had uncovered a number of shortcomings which should have been addressed by local commanders. Although the campaign against the IRA continued until the following summer, there were to be no more summit meetings on Ireland in Trenchard's office. The immediate political pressure had been satiated, and some basic remedial work had been done, but the work in Ireland never really fired Trenchard's imagination. Army co-operation, the primary focus of the Irish squadrons, was not an aviation role that the air chief favoured; indeed, he had considered returning this capability to the Army in order to concentrate on more offensive roles.[56]

Some of Trenchard's lack of enthusiasm can also be explained by the contention over the arming of aircraft in Ireland. Although first raised by the Viceroy in 1918, the idea was taken up again by Bonham-Carter soon after his arrival in Ireland in March 1920. In a letter to the Chief of the Air Staff, he suggested that in due course the RAF might be allowed to take 'more drastic measures' against the Irish insurgents, employing bombs and aerial gunnery.[57] No response from Trenchard is recorded to this request, but developments in another theatre provide an insight into his views.

In the aftermath of events at Amritsar, when aircraft had fired on a crowd at Gujranwala to lethal effect, the RAF commander drafted a response to the India Office which recommended that, given the difficulty of identifying targets from the air; 'the use of aircraft in industrial unrest or risings for several years to come should be definitely confined to reconnaissance and communication purposes'. Offensive air power could only be considered against obvious 'murder and arson' in an area where 'the majority of the inhabitants are definitely hostile.'[58]

Trenchard's concern for discrimination was understandable; it was clearly not in the interests of the fledgling air force to repeat the Indian experience. Bonham-Carter received Trenchard's memorandum in May, but within three months had apparently discovered circumstances which would allow the employment of armed aircraft in Ireland.[59] A mail lorry had been ambushed by the IRA, and during the ensuing gun battle an RAF aeroplane flew past. The aircrew considered that their weapons could have been used to decisive effect, without 'any question of the innocent suffering with the guilty.' Bonham-Carter pleaded this case to the Air Ministry, asking that the memorandum be altered to permit aerial engagement if 'the rebels could be clearly distinguished.'[60]

A reply was drafted by the Director of Operations and Intelligence at the Air Ministry, pointing out that the General Officer Commanding in Ireland could issue orders to this effect, but warning against the 'possible misemployment of aircraft.'[61] The letter was not sent in the event; the surviving correspondence on this subject shows that senior military and Government figures in London were generally chary of endorsing requests from Dublin for airborne weapons. It is particularly noteworthy that the Irish and Indian documents are interleaved in the same Air Ministry file – there was clearly an anxiety about recreating Gujranwala in Galway. However, the pressure to arm RAF aircraft was growing as the Irish military and police commanders became involved in the debate. In August 1920, General Macready, the Army commander in Ireland, wrote to his superiors in the War Office, asking that Trenchard's memorandum be amended to allow the use of ordnance against identifiable assailants.[62] Although the War Office did not hasten to reply, the concerns of General Tudor were being thoroughly discussed at the Air Ministry.

In the course of his September discussions in London, General Tudor had asked that aircraft be armed, as he felt that the existing unarmed patrols were an insufficient deterrent to the rebel forces. Group Captain Scott, the Air Secretary, initially made some objections on the grounds of distinguishing friend and foe but came up with some compromise solutions. These included RAF stations in Ireland conducting regular target practice as a demonstration of capability and painting British lorries with coloured roundels to facilitate discrimination from the air.[63]

After his inspection visit to Ireland, Scott had more suggestions which included the occasional use of machine guns, 'the very greatest pains being taken to ensure that no mistake is made […] Bonham Carter said that he had two or three really careful and reliable pilots who could be trusted not to fire unless they were certain that they were attacking Sinn Feiners.' The remaining careless and trigger-happy pilots could presumably have been employed on Scott's other scheme which involved designating the Wicklow Mountains as an RAF bombing range, where the echoing detonations could demonstrate the potential of air power.[64]

Scott's rather offbeat efforts to find a way of employing armed aircraft found scant support from his superiors in the Air Ministry. The Director of Operations and Intelligence argued that it was difficult to find clear opportunities for the use of weapons, and the RAF should focus instead on communication and reconnaissance work in Ireland.[65] Trenchard was in complete agreement with this, arguing that the use of armed aircraft would simply leave the IRA 'annoyed and exasperated without being impressed.' Any resulting 'mistakes' would result in a press campaign against 'irresponsible pilots', whilst downed aircrew might find themselves at the mercy of an incensed populace. The Chief of the Air Staff also adduced previous military experience to prove his case, arguing that road strafing in wartime France had little impact in reducing enemy traffic.[66]

Macready had in the meantime renewed his petition to the War Office, further adumbrating circumstances in which aerial firing could be employed with confidence. In the General's view, aircraft responding to road ambushes in isolated country could do so with impunity as the 'open hostility of the assailants' would be obvious, 'even to a man in an aeroplane.' In more populated areas, crowds

Another highly-decorated Bristol, at Fermoy in 1920. (J M Bruce/G S Leslie Collection)

could be dispersed by dropping warning leaflets before opening fire.[67]

The matter was discussed at the highest military level when Trenchard met with the Chief of the Imperial General Staff, Sir Henry Wilson. The airman pointed out that even Macready's isolated roadside battle would by no means offer a pilot clear and undisputed targets. Dropping pamphlets before opening fire was also unreliable, as there was no guarantee that the information would fall where it was intended; pilots could be opening fire on people who had received no warning. Given the damage that could be caused from 'a runaway gun', Trenchard decried Macready's proposed policy as 'ineffective and highly dangerous.'[68] Wilson and the War Office followed Trenchard's line, considering that the proposition entailed enormous risks of public opprobrium with little military gain. This is illustrated by a memorandum from a Colonel Braine opining that 'the whole responsibility would be placed on […] a very young air officer with plenty of dash and keenness but perhaps little idea of responsibility or judgement.'[69] Patronising and stereotypical as Braine's statement may have been, it perhaps contained an element of truth. Finally, at the end of October, Macready obtained his official answer from the Army Council. Authority would not be given for the arming of aircraft, as concerns of discernment, accuracy and communication precluded 'the

exercise of that delicate control which is necessary.'[70] Within six months, however, the issue of arming aircraft would again be back on the agenda, albeit with a different outcome.

Indifferent weather had delayed the despatch of more Bristol Fighters to Ireland, but the squadrons were slowly building up strength, albeit by denuding British home defence and Army co-operation squadrons.[71] By late October, Bonham-Carter was also able to advise Trenchard that progress was being made on enhancing Fermoy aerodrome, whilst an extra hangar was due to arrive at Oranmore within the week.[72] The improvements soon began paying dividends in operational output.

For instance, intelligence officers had noticed that Dennis Galvin was leading a rebel band near Kanturk who tended to muster on Thursdays for activity on Fridays – the brigade requested aerial reconnaissance to monitor Mr Galvin's activities.[73] Army brigades were also submitting requests for missions such as low flights at random times to detect ambushes.[74] In addition to the quotidian task of mail carriage, reconnaissance was also carried out for illegal drilling, and damage to communications, whilst thousands of leaflets were dropped with descriptions of wanted men. In one notable episode on 13 December 1920, three DH 9 aircraft from 100 Squadron worked with 16 Brigade in Tipperary. An area of three square miles was sealed off and searched by police, soldiers and Auxiliaries, the aircraft co-operating with ground forces through the use of Very lights and dropped messages. Wireless transmissions from the aircraft were used to update the squadron headquarters.[75]

One especially positive development was the circulation of a memorandum in February 1921 by 6 Division in Cork. The authors of the document were keen to ensure that aircraft were used in a manner that kept pace with rebel tactics, the key issue being effective ground to air communication.[76] This proposal was considered by 2 Squadron in Fermoy, who set out a sample list of signals involving Klaxons and Very lights.[77] The brigade operating in Kerry had also been considering these issues, and decided to use a method of reporting map references that had been used in the War; this established practice should, however, have been revived long before the spring of 1921.[78] Air power was at least being used with increasing care and planning.

One of the arguments that had been advanced by Tudor, Bonham-

Carter and Macready in the debate over the arming of aircraft was the fact that the IRA would not be intimidated for long by unarmed machines.[79] However, there is clear evidence to show that the insurgents took the RAF seriously despite its lack of offensive capability. As early as 1918, the Irish Volunteers had experienced something of air power's ability in reconnaissance and learned to take avoiding action.[80] Although early attacks on RAF stations may have simply been part of the IRA's weapons harvesting campaign, as the war progressed the Republican forces considered that aircraft themselves were worth destroying. When machines had forced landings in the Irish countryside due to mechanical failures, it was not uncommon for the local Republican forces to attack the guard force and incinerate the unfortunate biplane.[81] At least two aircraft were spotted by rebel forces on railway wagons and burned in transit.[82] These attacks may of course have simply been part of a general campaign to destroy British materiel, similar to the burning of military laundry.[83] By January 1921, however, it was clear that the IRA had begun to specifically target aircraft, as orders were issued to local commanders to log known air routes and snipe machines 'at least once weekly if flying low.'[84]

In early February 1921, a group of IRA volunteers in County Limerick had the opportunity to put this order into execution. Six separate Republican statements concerning the incident have survived and provide a credible account. An aircraft flying low over Kilfinane, apparently in mechanical difficulty, was fired on by an IRA column and subsequently landed, with bullet holes in the petrol tank.[85] The laconic British account of the incident makes no mention of hostile fire whilst the rather diffident insurgent records state that 'it was never learned whether the 'plane came down directly as a result of the I.R.A. fire.'[86] Whatever the ultimate cause of the aircraft's demise, the pilot had sufficient time to make good his escape towards the local town to seek help, leaving the hapless observer, Flying Officer Mackey, to face the advancing IRA.[87] The aircraft was set on fire and Mackey became a guest of the Irish nation, although his silk socks and light shoes were ill-suited for his marshland trek with the IRA column.[88] The observer, who was 'a very likeable person and fairly well educated for an Englishman', spent several days in the company of the rebels, and promised at least one of them a flight when the conflict

Bristol Fighters of No 100 Sqn at Baldonnel. (Guy Warner)

was over.[89] Mackey's hosts ensured that he was provided with boots and he commented that the IRA was 'far different […] from what he had been led to believe.'[90]

Whilst this exercise in Anglo-Irish understanding was going on, the RAF was making its own efforts to recover Mackey, dropping leaflets and even smoke grenades on a local town to encourage his release.[91] These efforts had no apparent influence on the IRA decision to free Mackey, who was deposited unharmed at Charleville railway station, complete with a letter from his captors assuring the RAF that he had been held against his will.[92] Some genuine rapport does seem to have been established between the airman and his captors – on a subsequent visit to the area with local security forces, Mackey did not betray his erstwhile hosts.[93] Despite the rather picaresque flavour of the airman's adventure, however, there were some sinister undertones. British troops burned a local house as a reprisal after Mackey's capture, whilst at least one of his guards had suggested his execution.[94]

Although this was the only episode where IRA ground fire may have been a factor in bringing down an aircraft, insurgent units persisted in their efforts.[95] There are also numerous examples of IRA units withholding anti-aircraft fire to avoid detection, whilst various instructions to Volunteers urged the need for camouflage and concealment from aerial observation.[96] Kautt has argued that the IRA showed a 'disproportionate' reaction to aircraft, and states that unarmed machines posed little real threat to the rebels.[97] However, the IRA reaction was hardly excessive – Republican leaders simply had a healthy understanding of the dangers posed by RAF reconnaissance.

In the spring of 1921, as rumours grew of a planned general uprising in Kerry, Macready decided to renew his argument for the arming of aircraft.[98] In a letter to the War Office, he argued that the

situation in Ireland had changed since the autumn of 1920. The IRA was now operating as 'large commandos' and developing 'minor military engagements' rather than small ambushes. Macready did propose that armed aircraft should be confined to the martial law area of south west Ireland, in cases where 'a definite action was taking place, or when an aeroplane itself was fired at.'[99]

In an echo of the October correspondence, the War Office again sought the views of the Air Ministry, enquiring whether Trenchard's views had changed. For their part, the War Office felt that the changing circumstances in Ireland might now permit the use of armed machines under strict conditions. The issue was not simply a matter of inter-service consultation, however; 'if we agree together on any modification it will have to receive the sanction of the Cabinet [...] since whatever we do in Ireland we will have to meet severe criticism from various quarters which would be particularly aggravated [...] by some unfortunate mistake.'[100]

In contrast to the comparatively drawn out debate of 1920, the operational tempo in Ireland ensured that the discussion proceeded with brio. Macready wrote to Sir Henry Wilson, citing the Kerry divisional commander's desire to have aircraft equipped with bombs and machine guns immediately.[101] British intelligence indicated that the suspected imminent general rising would afford an opportunity to engage substantial rebel forces in open conflict – an ideal arena for air power.[102] The War Office accordingly sought a rapid reply from the Air Ministry, stating that 'the matter has now become very urgent.'[103]

Although the Royal Air Force still inclined to Trenchard's views, the airmen were prepared to concede that in the martial law areas 'a state of war may [...] be considered to exist.' This meant that air assets would no longer be supporting the civil power but providing support to an Army commander in a campaign.[104] The general thrust of the letter was that the RAF would use weapons if the Army was responsible for issuing the necessary orders.

This understanding was emphasised at the political level when the Minister for Air, Lord Londonderry wrote to the War Minister, Sir Laming Worthington-Evans on the subject. Londonderry pointed out that the Air Ministry had altered its views only at the request of the Chief of the General Staff. Indeed, the peer wanted reassurance that 'this has been done with your full knowledge, and that you are

prepared to support the policy in Parliament should the question arise.'[105] Worthington-Evans quickly responded that no aircraft were to be armed 'without my express direction, as this is a matter for the Cabinet.'[106]

The issue was debated at a Cabinet meeting on the following day. The politicians were under no illusions regarding the 'great risk of death and injury to innocent people' that could result from the use of aircraft weapons. However, they were also aware that Macready was 'fully alive to the risks and his personal responsibility in the matter' and was still pressing his claim. In the event, the Cabinet decided that the General could draft instructions for the use of armed aircraft, with the caveat that weapons were only to be used when operating with land forces. Macready's plans would have to be approved by Lloyd George, who could bring them before the Cabinet again if he chose.[107]

Five days after the Cabinet meeting, Lloyd George gave his approval without further discussion.[108] Increasingly desperate to solve the Irish question, allowing the use of aircraft weapons was simply a step beyond the 'official reprisals' the premier had already authorised.[109] Brigade commanders could now approve aerial weapons in rural areas, although bombs were only to be used on 'effective targets', such as thirty men in close order. Any orders issued were to include clear objectives and limits for the operation. Even then, the pilots bore a heavy responsibility for opening fire, and should be prepared to break off or delay attacking if in doubt.[110] This was hardly *carte blanche* for the use of aerial firepower but allowed some opportunity at least to prove French's hypothesis of 1918.

Bruited though it had been, the 'Kerry Rising' never materialised. The permission to use aircraft, however, remained in force. The records of the Irish squadrons show that occasional requests were made by the local brigades for the provision of armed escorts, such as 16 Brigade's desire to have aerial support on an 'official reprisal' operation.[111] The neighbouring brigade requested support two days later, asking for armed aircraft to 'engage any rebels seen' near Bandon.[112] Given the sheer amount of effort which had gone into acquiring this permission, however, it was to be employed on comparatively few occasions. The Royal Air Force in Ireland was, nonetheless, developing its role and proving highly effective, with or without weapons.

A key development had been the fostering of even closer relationships with the Army. The early work in developing ground-air signalling through Klaxon horns and Very lights was paying dividends, ensuring that aircraft co-operated more effectively with land forces. Each Brigade headquarters had an RAF liaison officer, who was able to advise on the capabilities and limitations of air power, leading to 'much closer and more useful co-operation.'[113] A clear example of this was the development of aerial escort procedures for military trains, marking carriage roofs with identifying white crosses, and establishing a Very light code for communication between the aircraft and the train.[114] Evidence from the IRA archives suggests that the presence of aircraft had a notable deterrent effect on railway ambushes. Thus Seamus Finn, a member of a County Meath column, later recalled how he and his comrades ordered a 'general retreat' from a carefully planned attempt to blow up a troop train when spotted by the escorting aircraft.[115]

Trenchard was, however, unimpressed by the activity in Ireland, commenting that 'it seems to me that the work done in Ireland is very, very little.'[116] The air chief scrawled these words on an RAF minute sheet just days after his return from the Cairo Conference.[117] This gathering of Imperial leaders had endorsed Trenchard's view, based on the success of a 1920 air campaign in Somaliland, that air patrolling and armoured cars offered a cost-effective means of controlling Britain's colonial badlands.[118] Indeed, one commentator argues that the Cairo Conference 'probably saved the RAF from extinction.'[119] By comparison, the work in Ireland of mail runs and support to Army operations was rather mundane and never really aroused Trenchard's enthusiasm. For the Chief of the Air Staff, the future role of the RAF lay rather in air-centred operations than as an accessory to land and sea engagements.[120]

Whatever Trenchard's feelings may have been, the Irish squadrons were proving increasingly effective in operations alongside ground forces. In the first week of April alone, for instance, aircraft thwarted a planned ambush, advised troops of numerous damaged railways and bridges, escorted prisoners, dropped supplies and patrolled roads. In an impressive feat of co-ordination, aircraft were employed in relays to assist the Kerry Brigade, dropping reports at pre-arranged locations.[121] A party of Royal Fusiliers operating in a remote RIC

barracks in Kerry were also sustained for some weeks by rations dropped from aircraft.[122] A high level of activity continued throughout the month into May, including the dropping of propaganda pamphlets, transporting spares for an armoured car and assisting with round-ups of suspected rebels. RAF reconnaissance skills even earned a grudging tribute from the IRA, who realised that effective aerial observation had diverted a patrol from a freshly demolished bridge.[123] In one particularly ambitious operation, four aircraft worked together on a reconnaissance mission following an ambush in County Galway. For remote garrisons with no access to wireless telegraphy, 'aeroplanes were the only means of getting news through.'[124] Aerial photography was also proving useful in identifying IRA dugouts and tracks in mountainous areas, leading on at least one occasion to the capture of ammunition and bandoliers.[125] This capability was initially limited to 100 Squadron operating on the eastern coast, an unfortunate restriction as the airborne cameras would have proved highly useful in the wilderness areas of the south west.[126]

Although the British administration had long sought to underplay the IRA campaign, by June 1921 the Lord Chancellor finally admitted that 'a small war' was going on in Ireland.[127] One of the most obvious manifestations of this were 'drives' throughout rural Ireland, involving large numbers of Crown forces sweeping through an area searching for IRA units. By the summer of 1921, these operations made considerable use of aircraft. The effectiveness of these drives has been called into question by some historians, who argue that few rebels were actually caught by these means.[128] However, the IRA took such operations very seriously and ordered its members to constant vigilance against drives; although few Volunteers may have been captured, their operational freedom was drastically curtailed.[129]

The RAF records for June 1921 certainly record a great deal of activity in support of drives. On 6 June, for instance, aircraft were involved in separate operations across Kerry, Galway and the Midlands, dropping information to the advancing troops. On the following day, aircraft were in action again over Lough Allen in the west, working with police who wore special covers on their caps to facilitate identification from the air. Armed assistance was also given on occasion, including the dropping of 20lb bombs for 'moral effect', whilst aircraft searching for an IRA formation 'fired into the wood

A DH 9A of No 100 Sqn. (J M Bruce/G S Leslie Collection)

where they were supposed to be, but no one was seen.' These operations across open country were arguably the ideal opportunity to employ aircraft weapons, yet the month of June saw only four bombs and 147 rounds of ammunition expended.[130] It is therefore unsurprising that only one insurgent account mentions RAF gunfire, when a County Clare column remained in hiding as the low-flying aircraft which had followed them strafed vegetation nearby with its machine gun.[131] Aircrew recorded withholding fire on one occasion in Cork as the men in their sights 'were not in action against Crown forces.'[132] The carefully drawn rules of engagement meant that most crews would return home with their magazines intact. However, whilst the Royal Air Force did not have much occasion to bring its firepower to bear, the numerous IRA accounts of this period illustrate that aircraft still had a very significant effect.

Thus Con Leddy, a member of the Cork IRA, recorded a cross-country retreat following a gun battle at Ballyduff, seeking to elude an aircraft which pursued his unit over five miles of open country.[133] Elsewhere in the county, Thomas Barry's column was detected by the RAF and 'had no option but to withdraw.'[134] Drawing on the expertise of a former British serviceman in the column, John Bolster's unit also left their firing positions when spotted by an aircraft.[135] Michael Brennan, a commander in East Clare, similarly records how aerial reconnaissance forced his men into cover.[136] The RAF also played a

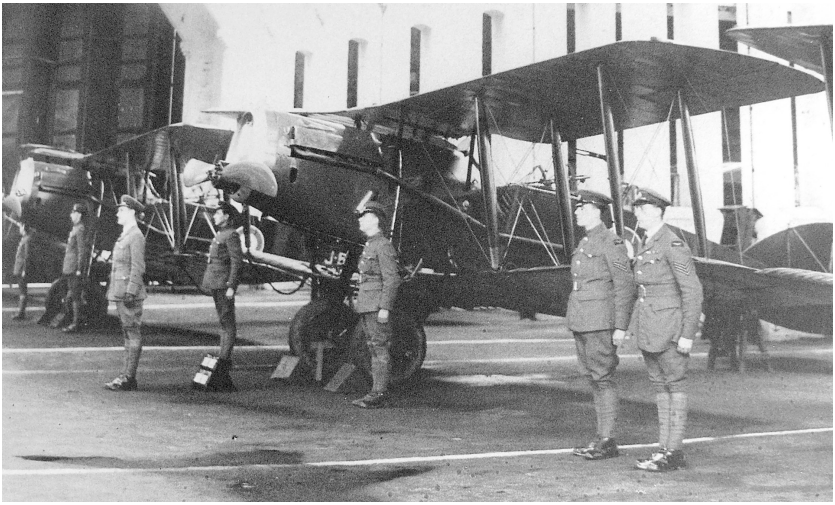
key role in the capture of Timothy Considine and Joe Toohy, circling overhead until ground forces arrested the duo.[137] Quartermaster John Feehan of the Western Division sacrificed his new hat in his haste to elude a searching aircraft, realising that detection could mean the capture of the Connemara Active Service Unit.[138] Commandant Sean Gibbons found that his sentries had 'quite a lot of trouble' from aircraft, and his unit was unable to break cover 'on account of the 'plane activity.'[139] High in the mountains of the west, Martin Conneely and a colleague also found their progress impeded by the RAF; 'our only danger was the plane, which at times skimmed quite close to the mountain tops.'[140] Nor was the city safe from aerial observation, as the weapons smuggler Peter Gough discovered in north Dublin.[141] One of the IRA's leading commanders, Sean Moylan, even records how the RAF presence effectively interdicted his column's food supply on one occasion.[142] These samples from a rich vein of IRA memoirs clearly illustrate that air power had made an impact.

Even as the drives swept across large tracts of rural Ireland, secret negotiations were in hand to find a political settlement, and a truce was arranged from 11 July.[143] It was by no means obvious at the time that the cease-fire would last, and British forces continued to train for operations. Air power was integral to this process; within a week of the truce the Army units in south-western Ireland were already seeking ways of enhancing air-ground liaison still further.[144] Throughout the summer of 1921, troops and aircraft trained together, concentrating particularly on effective communication with Popham panels.[145] Aerial reconnaissance was an ideal way to monitor the on-going activity of Republican forces; thus on 13 August, a patrol from 100 Squadron discovered numerous encampments across the Dublin region.[146] RAF aircrew also spotted IRA 'fortifications and works' in the Wicklow Mountains, and treated British intelligence officers to flights over the capital.[147]

One consequence of the Anglo-Irish Treaty eventually concluded in December 1921 was that the withdrawal of aircraft began before the month was out.[148] Trenchard certainly anticipated that 'all the Royal Air Force will be very shortly out of Ireland.'[149] As it transpired, however, elements of the RAF would remain for almost a year as Ireland disputed the political settlement. Although most of the

personnel and machines had left by the end of March 1922, General Macready thought it 'imperative' to retain an aerial capability.[150] Fearing 'more or less open warfare' on the frontier between Northern Ireland and the Irish Free State, the General wanted at least four aircraft available to cover the evacuation of British forces from Dublin.[151] As a precautionary measure, no troop trains during April were permitted without an aerial escort.[152] Working on the assumption that an outbreak of hostilities could make Baldonnel aerodrome unusable, plans were prepared for a highly mobile RAF detachment with a workshop lorry and portable hangars.[153]

The small RAF detachment, now concentrated at Collinstown in Dublin, continued its regular duties of escorting troop trains and carrying military mail as the British military presence in southern Ireland drew down.[154] There was an upsurge in activity in late June as IRA units opposed to the Treaty occupied the Four Courts in Dublin and fatally wounded Field Marshal Sir Henry Wilson outside his London home. To the British administration, it appeared as if Michael Collins' Provisional Government was unable to keep militant Republicanism in check, and the fate of the Treaty hung in the balance. Under pressure from London, Free State troops attacked the Four Courts, but failed to penetrate the masonry walls, even after the British garrison in Dublin provided Collins' troops with artillery.[155] Winston Churchill, now Colonial Secretary, was increasingly anxious to bring matters to a conclusion, commenting that the 'consequences of a failure may be fatal.'[156] To expedite the defeat of the rebel troops, Churchill offered Collins the use of aircraft painted in Free State colours, but flown by RAF personnel, to drop bombs on their stronghold.[157] Accordingly, Bonham-Carter ordered aircraft to be made ready, fitted with a variety of 'good sized eggs.'[158] Trenchard had initially endorsed the scheme in principle, bar the camouflage ruse which he deplored. However, even as preparations proceeded he decided that the plan was politically mistaken and would 'wreck the discipline of the air force.'[159] Whatever the internal consequences may have been for the RAF, the bombing of central Dublin by thinly disguised British aircraft would have been a gift to Republican propagandists. Mercifully for future Anglo-Irish relations, Rory O'Connor's garrison surrendered before the bombers could launch.



No 100 Sqn and its Bristols drawn up for a formal inspection.
(Guy Warner)

The threat to the RAF from ground fire remained, and anti-Treaty forces attacked a cross-border mail flight on at least one occasion.[160] At least the requirement for a permanent aircraft presence in southern Ireland was rapidly diminishing as British forces withdrew into Dublin. The Irish RAF headquarters relocated to Aldergrove in September, whilst the aerodrome at Collinstown was evacuated on 1 November.[161] However, even as the last vehicle convoy crossed the border into Ulster, a small RAF presence remained in the Irish capital. Based in Phoenix Park, half a dozen airmen maintained a landing ground and wireless equipment for Macready's headquarters.[162] Only as dusk fell on 14 December, in the closing phases of the British departure, were the last RAF personnel withdrawn.[163]

There were undoubtedly failings in the application of air power in Ireland; one egregious error being the drawn-out discussion over the arming of aircraft. The Cabinet's failure to develop a consistent Irish strategy lay at the root of this, by leaving military officers in Ireland to implement the Prime Minister's 'erratic coercion policy' as best they could.[164] Trenchard's original advice to use aircraft in unarmed roles was sound and should have sufficed; a great deal of nugatory work would have been avoided.

The staff work expended on discussing aerial weapons would have been better spent considering aircraft cameras; the IRA did not fear destruction from the air so much as detection. As a writer for the Republican military journal *An T'Oglach* expressed it, 'the best means the English have at their disposal for locating our standing positions, strong points and dumps in the country is the aerial photographer.'[165] This insight was not sufficiently appreciated by the RAF until late in the conflict, and a specialist photographic unit was not deployed to Ireland until the summer of 1921.[166] For Trenchard, seeking to justify the continued existence of his infant service, the RAF role in Ireland was not a central concern. Uninspired by the supporting role of the Irish squadrons, he tended to take a reluctant interest only when importuned by Bonham-Carter or pressed by Churchill.

A high level of air-land integration had been achieved in the Great War, but much of this had been allowed to lapse by 1920.[167] Basic issues such as common map referencing between air and land units could have been resolved at a much earlier stage of the operation. Again, this echoes a wider malaise; co-ordination between the Army and the Royal Irish Constabulary was similarly slow in developing.[168] The piecemeal British approach to security in Ireland, with no overall strategy or commander, did little to foster co-ordination between the various force elements.[169]

Despite these caveats, however, there is much evidence to suggest that the Royal Air Force accomplished a great deal in Ireland. Montgomery's scepticism was certainly not shared by General Macready, who came to regard Bonham-Carter as 'his most trusted divisional commander.'[170] Brigade commanders described the RAF in equally glowing terms, commending the airmen's efforts in co-ordinating the work of ground forces.[171] By the time of the Truce in 1921, air power had become an integral part of British military operations in Ireland. As the history of the 6th Division noted, the Irish experience demonstrated 'of what great use planes could be in all guerrilla operations.'[172]

Although Townshend contends that there was 'little military contact with the RAF and little development of ideas', this is not borne out by the evidence.[173] As the conflict progressed, the army and air force worked closely in tandem to refine suitable techniques for Irish operations. The 1921 monthly résumés of RAF activities in

Taking a leaf from the RAF's book, before the end of 1922 the newly-established Irish Air Corps had acquired eight Bristol Fighters including this one; the absence of a serial number suggests that this may have been the first of them.

Ireland are liberally peppered with references to requests from the Army for aerial assistance, whilst aviators and soldiers frequently trained together.[174] The lessons of air-ground integration may have taken some time to learn, but they were well applied. By April 1921, aircraft escort had 'been found to be the best means of preventing ambushes on either roads or railways', and the squadron diaries record almost daily co-operation with troops and police.[175] It is surely a testament to the utility of the RAF that the Dublin garrison-maintained access to air services right up to the withdrawal in December 1922.

Evidence from the IRA also indicates that aircraft had a definite effect on Republican activities throughout the War of Independence. The IRA developed a healthy respect for the reconnaissance capabilities of the RAF, and members were reminded that 'the most dangerous thing was being observed by [...] aircraft.'[176] Michael Brennan, the commander of Republican forces in County Clare later commented that the 'addition of [*more*] aeroplanes and armoured vehicles would have made short work of us.'[177]

Indeed, it was perhaps the quondam enemies of the Royal Air Force who paid the ultimate tribute to its effectiveness in Ireland. As an insurgent leader, Michael Collins had admired the British use of air power, and his new Provisional Government wasted little time in acquiring an aerial capability of its own.[178] Once again, the skies of south-west Ireland witnessed Bristol Fighters engaged in reconnaissance, leaflet dropping, railway patrols, and occasional

armed attacks.[179] Perhaps Collins understood better than Montgomery that, when dealing with an insurgency in Ireland, pilots and observers were in a position to offer a great deal of help indeed.

This article is an abridged version of a dissertation undertaken as part fulfilment of the Master's Degree in Air Power at King's College London, submitted June 2013. Sources marked TNA are drawn from the National Archives at Kew, whilst archives prefixed RAFM refer to the holdings of the Royal Air Force Museum. The Bureau of Military History (BMH) archives in Dublin are accessible online at http://www.bureauofmilitaryhistory.ie/.

Notes:

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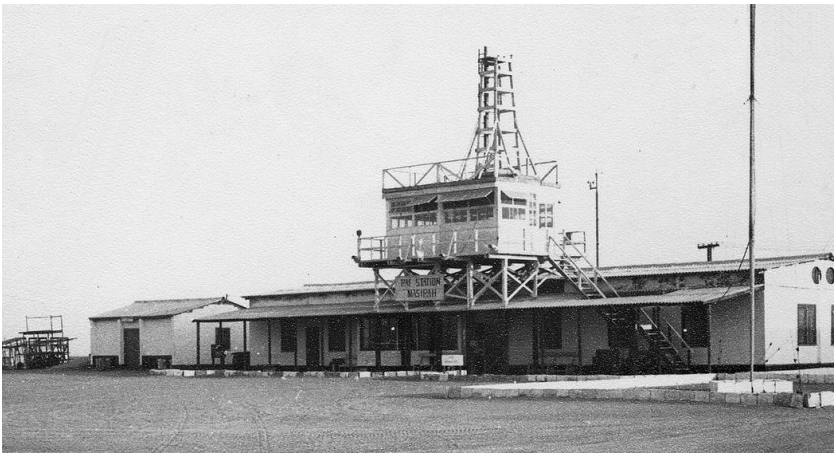
LIFE ON A DESERT ISLAND

Gp Capt David Packman

In late summer 1963 I found out that I was to be posted from a fairly relaxed existence at No 16 MU, RAF Stafford, to Aden. While warmth and sunshine appealed to me, my juniority, coupled with a distinct lack of married accommodation, meant that it would be at least 15 months before my pregnant wife could join me. This being so, and with her agreement, I ignored the first rule of RAF life and volunteered instead for a 12-month unaccompanied tour of duty. I soon learnt that I was to go to RAF Masirah as OC Supply and Movements Flight, but not until I had completed the Fuels and the Air Movements Courses. Accordingly, in early April 1964 I found myself on a Cunard Eagle charter flight from Luton to Aden. I was still unsure as to what I had let myself in for but at least I had a railway warrant in my pocket covering the journey from Aden to Masirah. This resulted from someone in the 'P' staff office at RAF Stafford having heard through the grapevine that Masirah had a railway.

After a couple of hot, sticky days staying at the 'Red Sea Transit Hotel' in Aden I duly boarded an Argosy at Khormaksar for the 1,000-mile 'RSM' (Riyan, Salalah and Masirah) flight up the east coast of the Arabian Peninsula. The delay in Aden had been occasioned by an



ATC at Masirah.

Masirah's narrow gauge railway.

uncharacteristic deluge at Salalah which had washed away part of the runway. On arrival at Masirah I found that the island base did indeed have a narrow-gauge railway of WW II vintage linking a small, coastal jetty with the main camp some 2 miles away. I soon learned that the (first) integrated, command headquarters – Middle East Command – was in Aden and that HQ Air Forces Middle East (AFME) was at Steamer Point. The Air Commander was AVM J E Johnson (*the* 'Johnny' Johnson of Fighter Command fame). There was also a subordinate headquarters in Bahrein known as HQ RAF Persian Gulf (RAFPG) – later and for political reasons, the title was changed to RAF Gulf – to which Masirah was also responsible. The RAF Commander in Bahrein, Air Cdre E G L Millington, was a regular and welcome visitor to our desert island

The Supply and Movements Flight consisted of a warrant officer, 2 SNCOs, 2 corporals, about 10 airmen and roughly the same number of Arab labourers. The total establishment of the station was approximately 100 all ranks with a squadron leader in overall command. Much of my flight's workload was directly related to the arrival and departure of PCF (passenger-cum-freight) aircraft from

Aden and Muharraq (Bahrein), Routinely there were three flights per week, one of which was an Aden Airways Dakota flown in the main by ex-RAF aircrew with a delightfully cavalier approach to life.

My arrival on the island in April just preceded the start of the monsoon season and I had only been in post for a few days when I was told that the last pre-monsoon ship would be with us shortly. I should perhaps explain that, during the non-monsoon season, we were resupplied on a monthly basis by sea. The vessels in question were chartered British India line LSLs. They had too deep a draught to berth alongside the jetty so anchored about 400 yards out to sea and outside the coral reef that surrounded the island. Further to complicate matters, there was no direct radio contact between the LSLs and the base so, quite literally, we had to scan the horizon for sight of the vessel before bursting into action. There was no sea resupply during the windy, rather than wet, monsoon period because the sea bed did not provide a sufficiently firm grip for ships' anchors when the wind was blowing.

In theory, we should have had the benefit of the services of an Army 'Z' craft to ferry stores to shore but for my first LSL this was conspicuous by its absence. As a result, we had to hire local dhows to do the job. Having a keen eye to the main chance (ie making the off-loading last as long as possible thereby making more money) the dhow owners would only load on one day and off-load the next. As a result, there were anything up to 20 dhows moored outside the reef overnight – what a golden opportunity for pilfering! Much to my relief, not to say surprise, nothing of importance went missing. It should not be forgotten that, in the early 1960s, handling aids on board ship were relatively primitive so I and my airmen spent several days in the bowels of the ship manually humping and dumping boxes containing everything from NAAFI beer to bootlaces and from small arms ammunition to desert boots. The temperature and humidity in the middle of the day were quite horrendous.

Having transferred all the inbound freight to shore it was then a matter of moving it up to the camp. Here the railway came into its own – always provided that some very reluctant MPBW engineers could be persuaded to keep the diesel engines in trim and carry out running repairs on the track and on the flat-top wagons. Once on camp, bulk stores were, in the main, held in a series of totally insecure

Stores being ferried ashore by dhow.

40ft × 20ft marquees. Again, and despite more than ample opportunity, there was very little theft. This was perhaps due to the local practice of chopping-off the hands of convicted thieves!

At this point I should add that one of my Arab labourers was the State Executioner who, every so often, was summoned by Sultan Said bin Taimur's henchmen to travel to Muscat to perform his duties.

When there was any need for urgent resupply of large items we would receive visits from Khormaksar-based Beverleys. Much of the time we would undertake the off-loading by ourselves but, every so often there were unusual loads, such as a marine craft so that the Air Commander could enjoy some deep-sea fishing, that needed either special equipment or extra pairs of hands to unload safely. On such occasions a MAMS team would be on board the aircraft. Quite apart from the very welcome professional assistance, it was always good to have a few new faces around the place for a day or two. My airmen definitely had their favourites among the MAMS team leaders and I can well remember one tasking signal being greeted with considerable glee: 'Great, Mr …… is team leader. He can unload an aircraft by just standing and swearing at it!!!'

A 24 ft Marine Tender Mk 2 being offloaded at Masirah to support a forthcoming VIP fishing expedition – those were the days.

At other times freight-carrying aircraft just arrived and we were left to get on with it. On one occasion a Britannia hove into view with a lot of mixed freight. The aircraft sill was about 12 feet above the ground and we did not have a fork lift truck. By dint of careful work with a 'giraffe' we offloaded most of the cargo but were then left with some very large tyres for our fire tender. We were reluctant just to throw them over the side in case they bounced back and hit the aircraft; accordingly, we came up with a fairly novel solution. We positioned the aircraft passenger steps very carefully and rolled the tyres down them. Naturally they gathered speed as they went and our Arab labourers were non-too-impressed at having to chase them for a couple of hundred yards or so across the airfield and to bring them back to the hardstanding.

Being an important staging post, Masirah needed large reserves of aviation and other fuels. For many years these were held in 45-gallon drums – thousands of them all stored in the open and, like the 1000 pounder bombs in the neighbouring bomb dump, unguarded and open to the full glare of the tropical sun. Efforts were made to

Oil drum city – Masirah.

return empty drums to Aden for refilling but many of them were simply given away to the indigenous Arabs on the island who made houses from them.

Fortunately, from my point of view, drums were largely a thing of the past because in December 1963 a brand new 'Ocean Fuel Terminal' (OFT) was brought into use. It held about 2 million gallons of Avtur, some 200,000 gallons of Avgas, together with a goodly amount of diesel fuel and MT gasolene, all pumped in via a single, seabed pipeline from a tanker moored offshore. The Equipment Staff at AFME was very proud of this new facility and regularly visited Masirah to assure themselves that it was really there and not just a mirage. After a while they decided that OFT was far too grand a title so they downgraded it to a 'Petroleum Supply Depot' (PSD). Even this title palled after a while so it became just a 'Bulk Fuel Installation' (BFI). By the end of my 12-month tour I was the proud possessor of a very fat file dealing solely with the name of the BFI and nothing to do with its safe or efficient operation.

In December 1964 the BFI was replenished. First of all, we had to

satisfy ourselves that the fuel was of the right quality (something of an insult to BP), and then purge the pipeline of the sea water that it had contained since the initial fill. Next, as each grade of fuel was pumped through, there was the tricky task of diverting large quantities of interface mixed fuels into slops tanks. Once discharge was complete, the line had to be refilled with sea water and persuaded to sink to the sea bed – this was a rather tricky process and gave us more than a little trouble. Finally, samples from each and every storage tank had to be drawn off and sent to Aden for a final quality check.

The 7 large and 5 or 6 small tanks of the BFI were all above ground, painted a silver colour and fitted with sea water hydrants in case of fire. These had to be tested regularly and this resulted in a series of thoroughly acerbic exchanges between the RAF and the local MPBW senior engineer (a former Sapper colonel who, at best, did not like being responsible to a 'mere' squadron leader Station Commander). The cause of discontent was quite simply that sea water corrodes metal and, to combat this, the tanks would have to be repainted regularly – something that MPBW did not want to do. Matters were exacerbated by the habit of the fire alarm activating itself at random times, a feature that produced the not-too-helpful reaction from MPBW that it should be left switched off rather than properly maintained. I am pleased to confirm that, after some months, the RAF won both arguments.

As was inevitable in a small community (the Officers Mess had only seven full members), secondary duties were plentiful. One of mine was that of Messing Member. This presented rather more of a challenge that it would have done at a larger station. However, there was one great compensation – the presence of large numbers of crayfish in the surrounding sea. These were the size of large lobsters but without the claws and, because they were sea-bed feeders, were of no interest to the local Arabs who were very conservatively-minded Muslims. The camp fisherman, Abse by name, was fully prepared to catch the crayfish and sell them to the Officers Mess for 1 East African Shilling (EAS) per 'tail'. Because they were so tasty they appeared regularly on mess menus but, fortunately for us, Abse caught more than we could eat. The surplus was cooked and deep frozen for use elsewhere. One of our regular customers was Aden Airways which would regularly buy at 2 EAS per 'tail' and serve them as lobster

A 'Bundu Bash'.

thermidor in the airport restaurant at Khormaksar at 15 EAS per portion! Better still from our point of view, was bartering the crayfish for Kenya steak which, again, Aden Airways would deliver to us. The reputation of the crustaceans quickly spread and, at Summer Ball time, we would supply messes in Bahrein, Akrotiri and on one occasion, if I recall correctly, a mess in Germany. The profit from these transactions was split between all the Masirah messes and provided the wherewithal for funding other, much-appreciated supplements to the normal diet. Merlyn Rees, who in 1965 was US of S for the RAF, visited us and was most impressed with this demonstration of RAF initiative! Barracuda were also plentiful and were remarkably good in a curry.

The Station Commander during most of my time was Sqn Ldr Dick Polgreen who was exactly the right man for the job. He was keen on relaxation and, if there was a weekend when no aircraft movements were scheduled, would authorise a 'Bundu Bash'. This involved up to twenty people of all ranks heading down towards the southern end of the island (40 miles away) by way of exploration. Some of the journey was made by lorry but quite a lot on foot – very hot but more than a

little satisfying when one's destination was achieved. An overnight stay sleeping under the stars was a marvellous experience and I suspect that some of our number fancied themselves as budding Wilfred Thesigers.

Another of Dick Polgreen's ideas was that at least the officers should make visits to the relative civilianisation of Aden at about quarterly intervals. Not only did this arrangement permit the enjoyment of a modicum of female company but, more to the point, allowed the lucky individual to do some shopping for the whole mess for items that the very limited NAAFI resources could not provide such as cricket bats, hi-fi and soft toilet paper. During one of my visits I learned that SASO (Air Cdre Mike Le Bas, an old friend of 'Johnny' Johnson) wanted to see me. En route to his office I called in to see the SESO (the then Gp Capt Don Hills – another terrific ally). He did not know why I had been summoned. Having arrived in the presence I was told that, during his most recent visit to Masirah, Johnny had been intrigued by the idea of Bundu Bashing and wanted to set up a basic desert survival school for aircrew; each course was to last a week. This was to be done without supplementing Masirah's manpower or other facilities and, as I had a reputation for knowing my way around the island pretty well, I was to run it. My protestations that I had my hands quite full in handling the station's logistics function cut absolutely no ice. Neither SESO nor the Station Commander were over-impressed with the idea but the scheme still went ahead.

In essence we taught our 'students' how best to drive Land Rovers and three tonners over rock and sand without getting into too much difficulty, also the skills and perils of existing in temperatures of more than 40ºC and of conserving limited water supplies. We then gave them some basic information about Arab culture and introduced them to a few of the locals. More to the students' liking, they had every opportunity to go fishing! Probably because military life in Aden was in the throes of becoming more than a little difficult and aircrew were increasingly heavily tasked, we ran only a few courses but the lucky students seemed to enjoy themselves and in all honesty I didn't object to a change from checking SCAF vouchers and dipping fuel tanks.

The second CO was Sqn Ldr John Sweet. He was also good but in a different way from his predecessor. Unfortunately, he only lasted a few months but his precipitate departure did not seem to do him any

great harm because his next posting was as Air Attaché in Khartoum.

My penultimate night at Masirah was spent armed with a ·38 revolver patrolling the jebel to the west of the camp. The previous day an RAF police Land Rover had been shot at by some fishermen (possibly Pakistanis) who had landed illegally.

Even now I have to admit that my tour on Masirah Island was one of the most enjoyable of my whole career.

A Beverly of No 84 Sqn at Masirah in 1963. (Ray Deacon; http://www.radfanhunters.co.uk)

‘THE AMERICANS, WITH MORE AND LARGER AIRCRAFT, CARRIED THE MAJOR PART OF THE TONNAGE THROUGH THE AIR’: RAF PERFORMANCE DURING THE BERLIN AIRLIFT

by Richard Keen

Introduction

After the Second World War whilst Berlin was located inside the Soviet Zone of Occupation it was divided into four sectors: American, British, French and Soviet. The needs of the American, British and French Sectors were supplied mainly from outside the city being delivered into it almost entirely by surface means. Movements from the Western Zones were harassed periodically but it was not until the last week of June 1948 that a blockade of road, rail and waterway traffic was mounted. The Western Powers responded with air supply – The Airlift – to supplement the stockpiles already in the Western Sectors pending diplomatic negotiations leading speedily to the lifting of the blockade. In the event, the blockade was not lifted until the 12 May 1949 and, in reality, only partially even then. A strike by railway employees coupled with continued Soviet interference (but short of a blockade) meant that the Airlift continued into the autumn of 1949 to allow stockpiles to reach a level considered adequate to meet any renewal of the full blockade.[1]

In 1949 the journalist Dudley Barker wrote on behalf of the Air Ministry and the Central Office of Information for consumption by the general public:

> ‘Let it be said at once that the Americans, with more and larger aircraft, carried the major part of the tonnage through the air; that the British, placed nearer to Berlin geographically, undertook the major part of the work on the ground.’[2]

This paper will examine the Airlift to determine if his statement about ‘more and larger aircraft’ was correct and was the whole reason for the difference in tonnage figures.

The Validity of Barker’s Statement

After the minimal French airborne participation ceased in the autumn of 1948 three fleets were involved in the Airlift:

a. The 1st Air Lift Task Force (1st ALTF) which was composed of

The 'Wet Lift' was one of the British successes of the Airlift. This is one of Flight Refuelling Ltd's fleet of twelve Lancastrian tankers.

United States Navy (USN) and Air Force (USAF) aircraft.

b. RAF transport aircraft, British military personnel in flying and ground roles, and aircrews loaned specifically for the Airlift by the Royal Australian Air Force (RAAF), the Royal New Zealand Air Force (RNZAF) and the South African Air Force (SAAF).

c. A miscellany of civilian contractors (the 'Civil Lift') hired by the Foreign Office and managed – in a loose meaning of the word – by British European Airways. Many were small organisations, under-funded, under-resourced and until almost the end, operating under poorly composed contracts.[3]

HQ British Air Forces of Occupation[4] (BAFO) recorded that from the Airlift's start in June 1948 until the 14 May 1949 – which is two and a half days longer than the blockade – 1st ALTF carried 1,233,054·3 tons (76·6% of the total), the RAF 285,887·1 tons (17·8%) and the Civil Lift 89,958·5 tons (5·6%) of which 52,611 tons were liquid fuel in bulk – the 'Wet Lift' – one of the British successes of the Airlift. (In this paper the term 'ton' is the short one of 2,000lbs which accords with most of the statistics published by the Americans and the British at the time.)[5]

There must be caution when using contemporaneous Airlift statistics owing to the number of organisations that produced them and their reason for so doing and the facts that: it was often headline weights that were publicised, which gave the tonnages despatched, not those received; that, aside from bulk liquid fuels, weights were gross, including the tare element; and that there were errors both in

The York, seen here on the ramp at Gatow, was the mainstay of the RAF Airlift.

consignment weights and in the documents from which statistics were extracted. Nevertheless, given that the HQ BAFO total for the British was less than a third of the American figure, we should accept Barker's opening premise that 1st ALTF 'carried the major part of the tonnage through the air'.

Turning to Barker's statement that the Americans had more aircraft, again the available statistics must be handled with care with even the same organisation giving different figures. Moreover, while in some cases only sample snapshots were provided, in others, figures are given as monthly or even Airlift totals. 1st ALTF reached an establishment of 225 four-engine Douglas Skymasters during January 1949 and its daily availability between 1 February and 31 May 1949 averaged 215. Five end-loading Fairchild C-82 Packets were also deployed and in May 1949 a Boeing YC-97A delivered 444·8 tons of cargo. The RAF composition in Germany during the same period averaged: 39 Avro Yorks, 48·6 Douglas Dakotas and 14·3 Handley Page Hastings, an RAF total of 101·9 aircraft. The equivalent Civil Lift figures were: 8·26 Avro Lancastrians, 5·16 Avro Tudors, 1·79 Avro Yorks, 0·84 Consolidated Liberators, and 15·51 Handley Page Halifaxes, a Civil Lift total of 31·56 aircraft. Although the Halifax was present in the greatest numbers, 'The Report on Operation PLAINFARE by No 46 Group' would write: 'It did not, however, prove highly satisfactory but was kept on as a stop-gap until more heavy types became available.' Whilst numerous Halifax deficiencies were cited in reports across the Airlift, its continued use, even possibly

in greater numbers, remained an option for a long-term Airlift extending into the 1950s.[6]

Whilst the British and Americans used terms that appeared similar they were not always the same. American figures, for example, included aircraft undergoing 200-hour inspections whilst RAF assets on 100-hour ones were not. After smoothing out the differences between the RAF and the USAF in the British Zone, using statistics for June 1949, the Chief Research Officer at HQ BAFO concluded that the numbers of USAF Skymasters (C-54s) assigned to groups at RAF Celle and RAF Fassberg did not change markedly being 41·1 and 45·9 aircraft respectively whilst the numbers of RAF Yorks and Hastings did, increasing by 71% and 82% and growing to a total of 95·9 aircraft. Dr Charlesby's exercise did not extend to the Dakota, the American aircraft based on the two airfields in the American Zone or to the Civil Lift which prevents corresponding evaluation of the total American fleet and either the RAF or the British as a whole.[7]

HQ Transport Command's planning figures for June 1949, part of an evaluation for a long-term Airlift, identified 73 Dakotas allocated to Operation PLAINFARE of which 45 would be in Germany and 28 in the UK. It is unclear, however, precisely what the latter would be doing. BAFO statistical records listed the 'Av[*erage*] Daily strength' for the 'Southern Zone', ie the American Zone's two airfields, for June 1949 at 112·5. The manager of the Civil Airlift Division gave the Civil Lift 'Average fleet strength' in June 1949 as 44 aircraft whilst the Research Branch wrote that in April 1949 'about 25%' of the Avro Tudors and Lancastrians were 'in the UK for inspection'.[8] What appears to be the case is that the RAF fleet was smaller than 1st ALTF even after smoothing, but that might not have been the case if both British fleets were considered.

The second part of Barker's explanation was that the Americans had larger aircraft. What constituted Barker's larger aircraft? Was it the tonnage hauled or the cubic capacity of their holds? Given that tonnages were the figures published, this paper will assume that to be his intention. It will also recognise that, as readers will be aware, there can be considerable differences between what an aircraft might carry theoretically – for example, the 1948 USAF 'Blitz Book' gave the C-54G cargo capacity as 33,000lbs – and what it was permitted to do during an operation where factors such as wear and tear could be an

A Sunderland of No 201 Sqn on the Havelsee. Flying boats were particularly useful for transporting salt.

important consideration.[9]

In the early days of the Airlift all three fleets operated twin- and four-engine aircraft and the British deployed a few flying boats temporarily. The Americans withdrew their Douglas C-47s during September 1948. The RAF, lacking sufficient four-engine transports to meet the targets they and their political masters aspired to, had to continue to use the Dakota. In August 1949, the Assistant Chief of the Air Staff (Operations) would write that the Dakota squadrons were 'more an embarrassment than a really effective load-carrier'. By 26 November 1948 the Civil Lift had shed all its twin-engine aircraft apart from the Bristol Freighters which continued to be used until February 1949. Thereafter, the five USAF twin-engine Fairchild C-82s provided the regular end-loading capability (augmented in May and July 1949 by the Boeing YC-97A mentioned above).[10]

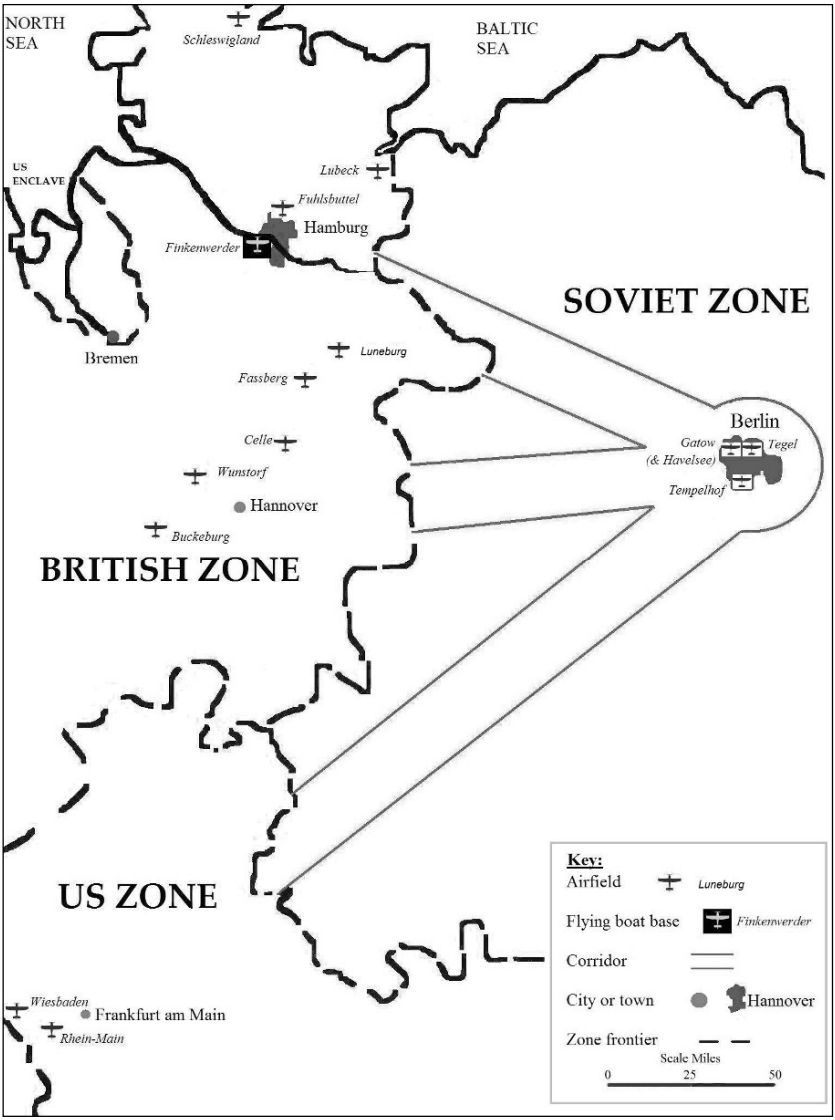
The maximum permitted load recorded for the Skymaster family during the Airlift varied with information sources and whether they were USAF C-54s or USN R5Ds. In this paper a figure of 9·96 tons will be used for comparison purposes across the fleet based on statistics for January through May 1949. The corresponding figures for the RAF were Dakota (including P.19 service) 3·38 tons, Hastings 8·51 tons and York 8·12 tons. Average tonnages for both the Hastings (which still was entering service) and the RAF York rose during the Airlift, reaching 9·45 and 8·73 respectively in July 1949.[11]

The more significant equivalent averages for the Civil Lift were:

Lancastrian tanker 6·82 tons; Tudor tanker 8·15 tons; civilian York freighter 8·51 tons, and across the whole of the Airlift, Halifax freighter 6·7 tons and Halifax tanker 6·2 tons. As mentioned earlier, bulk fuel was recorded as net weight with no allowance for the tanks when these were specially installed. BAFO recorded that the Tudor freighter could haul up to 22,000lbs but none operated in that role after 1948 and the actual averages for the two British South American Airways (BSAA] and the two Airflight Ltd freighters were 10·01 tons and 8·71 tons respectively. Again, average tonnages tended to increase during the Airlift, helped in part by contract changes in the last few months that rewarded the tonnage hauled as well as the number of flights. For example, in July 1949 the averages for Lancastrian and Tudor tankers reached 7·41 and 8·85 tons respectively and the Skyways Ltd York freighters probably averaged beyond 10 tons in May.[12]

Thus, aside from the handful of civilian Yorks and BSAA Tudor freighters, Barker was right in recognising that the Americans had bigger aircraft than the British. However, does this and the possible greater number of aircraft account totally for the differences in tonnages hauled, for example why American tonnage between 1 January and 31 May 1949 was nearly six times larger than the RAF's figure?

General Sir Brian Robertson – the British Military Governor – summed up the philosophy adopted by the British during the Airlift: 'Clearly efficiency must come before national prestige.'[13] As can be seen from the accompanying diagram, airfields on the eastern flank of the British Zone were the closest to Berlin. RAF Celle and RAF Fassberg were allocated to the Americans and used by USAF C-54s. RAF Luneburg was also being developed for Skymasters when the Airlift ceased. The longer distances to Berlin from RAF Schleswigland and the American bases at Rhein-Main and Wiesbaden are also evident.[14] What is not immediately apparent is that aircraft at RAF Wunstorf, such as the RAF Yorks, had to dogleg around the busy USAF airspace when flying to the northern corridor. As a consequence, the round trips to Berlin from Wunstorf and Schleswigland were approximately 15 and 45 minutes greater than from Celle and Fassberg in spite of the cruising speed of the York and



Airfield Locations

Hastings being faster than the Skymaster. There were also operating limitations at the Dakota base at RAF Lubeck as it was only two miles west of the Soviet Zone and instrument approaches from that direction meant flying over Soviet-occupied territory. The Command Air Traffic Control Officer at HQ BAFO, when discussing RAF Lubeck's possible use by larger aircraft, was minuted as saying that: 'The Russians seem to have forgotten about violations in this area but he felt that they would object to heavy aircraft flying up to ten miles into their zone in broad daylight.'[15] By giving priority to the Americans in allocation of airfields, the Airlift as a whole gained but the British suffered.

Routing and Scheduling

Aircraft travelled over the Soviet Zone using the three designated 20-mile wide corridors shown in the diagram. The USAF flew to and from Berlin without navigators, relying instead on advanced (for the time) ground control systems at both ends of each corridor and separation between aircraft by pre-defined altitude and strictly controlled speed. The RAF, on the other hand, carried a navigator and the avionics to permit them to pinpoint their position accurately. The Americans sought to make the corridors one-way: into Berlin along the northern and southern corridors and back from Berlin along the central one. The RAF did not need this operating constraint which increased the distance it flew and so was detrimental to the tonnage hauled. Nevertheless, with one small exception – the return of aircraft to Fuhlsbüttel (a Civil Lift base) and Schleswigland (used by Hastings and the Civil Lift) via the northern corridor – the British acquiesced as it benefited the Airlift overall because of the advantages offered by the Skymasters.[16]

Joint American-British traffic coordination became essential when the Skymasters joined the British aircraft in the British Zone and the northern air corridor. It had to allow for six airfields and the P.19 service from RAF Buckeburg (plus until mid-December 1948 a flying boat base in Hamburg) despatching to two of the three in western Berlin; 24 hours per day operations in almost all weathers (including the winter of 1948/49 which was fortuitously mild) and the unachieved aspiration of 1,440 deliveries per day. Even after the withdrawal of the twin engine civilian aircraft, the USAF C-47s, and

Aircraft Type	1949			
	January	**February**	**March**	**April**
Dakota	40%	45%	28%	24%
York	13%	22%	17%	15%
Hastings	34%	36%	13%	19%
C-54 at RAF Celle	11%	20%	13%	7%
C-54 at RAF Fassberg	8%	25%	14%	10%

Table 1. Estimated Percentage Sortie Loss owing to Flying Weather.[19]

the flying boats, a range of optimum cruising speeds and de-icing capacities remained to add to the different navigation capabilities already mentioned. There were six cruising speed groupings for the aircraft deployed in the British Zone at the end of the blockade. Formulating a directive to handle efficiently yet safely such diverse traffic became a task, perhaps the main task, of Headquarters Combined Air Lift Task Force (HQ CALTF).[17]

The British had wanted to employ a continuous despatch system as it minimised loaded, crewed and fit-to-fly aircraft waiting on the ground. Instead, because of the decision to prioritise the Skymaster with its navigational deficiencies, blocks of time were allocated cyclically to each of the six airfields during which aircraft could be despatched. Initially the block cycle was a four-hour one designed to suit the Skymaster. The British were ill-placed to achieve this. Potential slots were lost because aircraft were unable to fly at the appointed time and loaded, serviceable reserves had to be maintained at both despatching airfields and Berlin to 'fill any vacancies in the traffic pattern caused by failure to take-off' when planned. The BAFO Research Branch recorded that serviceable RAF aircraft lost 'half of the block timing.' The cycle was changed to a two-hourly one and finally for RAF Celle, RAF Fassberg and RAF Wunstorf, to an hourly one. Even then the British continued to be disadvantaged although statistics do not show exactly how many sorties were lost.[18]

Weather

A further area where the objective of keeping the larger aircraft flying disadvantaged the RAF was when bad weather 'reduced airfield handling capacity' and 'light load carriers' such as the Dakota were

Date	Cross-wind conditions	Deliveries achieved		
		Civil Lift	RAF	US
9 April 1949	Strong crosswinds	0	0	178
10 April 1949	Strong crosswinds for 12 hours	50	72	242
11 April 1949	Fine weather	93	164	295

Table 2. Loss of sorties to Berlin from the British Zone owing to crosswinds.[21]

grounded.[20] Table 1 is an extract from the findings of the BAFO Research Branch showing the impact on the Dakota.

Several of the airfields used by the Airlift, including all three in Berlin, had either a single runway or multiple ones laid in parallel. They were susceptible to strong crosswinds. The Skymaster had a tricycle undercarriage and was less badly affected than the RAF's aircraft which had tailwheel configurations. Whilst the impact of crosswinds did not result from prioritising the American aircraft it does point to another reason why the RAF delivered less.[22] Details of total losses are not available, but the sample at Table 2 may be indicative:

Aircraft Utilisation

Average daily utilisation in March through May 1949 was Dakotas 1·3 round trips, Hastings 1·5, RAF Yorks 1·9, whilst the C-54s achieved 3·3 at RAF Celle and 3·1 at RAF Fassberg.[23] Charlesby's

Among the rather motley collection of aeroplanes that constituted the CALTF were Scottish Airline's three Liberators, which were unique among the British contribution in having a tricycle undercarriage, making them slightly less vulnerable to crosswinds.

smoothing exercise for June 1949 found that the C-54s in the British Zone averaged 3·6 trips per aircraft per day whilst the corresponding figure for the RAF Yorks was 1·2 and the Hastings 1·0. BAFO tentatively ascribed low utilisation primarily to the need for: 'better design and reliability of aircraft; [*a*] more flexible system of servicing [*and*] better manpower backing'. Manpower backing covered both aircrew and technical tradesmen.[24]

The Research Branch's 'explanations advanced to account for the considerable difference' between the RAF's Yorks and Hastings and the C-54s based in the British Zone were more extensive, adding to the BAFO summary the different loads carried and the greater backloads lifted by RAF aircraft, and two points mentioned earlier in this paper, 'the longer flying time of British aircraft' and 'the effect of wave flying delaying British aircraft more than U.S.A.F. aircraft.' Elsewhere in the Research Branch report, a higher incidence of RAF aircraft unserviceable awaiting spares was cited and, when addressing manpower issues amongst the technical trades, that the USAF maintenance personnel had a much higher 'standard of experience and rank.'[25]

As mentioned already, Charlesby's smoothing exercise did not extend to the Civil Lift. Snapshots appear in documents which show cases of high performance. For example 'The Report on Operation PLAINFARE by No 46 Group' described the Lancastrians and Tudors as 'outstandingly successful' with 'high utilisation' and 'a good payload' and the 'Report by the Civil Airlift Division' cited a Tudor from the Wet Lift that averaged 3·83 deliveries per day for 30 days whilst the British Army Air Transport Organisation recorded on 30 March 1949 that the two Skyways Ltd Yorks made 11 deliveries totalling 103 tons in one day. On the other hand, the 'Operation PLAINFARE Civil Lift Monthly Reports' continued to cite poorly performing contractors even as the Airlift ran down.[26]

Coal was a dense cargo that came in standard 'man-handleable' sacks which could be pre-built into uniform loads that any Skymaster could carry. It was easy and quick to load and offload and formed 68% of the Airlift's total tonnage. The Americans hauled 90% of it with all of the C-54 capacity at RAF Fassberg and 90% of RAF Celle's committed to it. Turning to backloading, RAF aircraft had to be ballasted when flying empty to maintain their centres of gravity.

Furthermore, although the RAF, excluding the P.19 service, made only a third the number of deliveries to Berlin that the Americans did, on the return trip they carried two and a half times more passengers, 94,478, many of whom were elderly, sick or very young evacuees. Turnaround times were critical too and bulk fuel could be slow to load and offload owing to the facilities at the airfields and the *ad hoc* nature of many on-board tank configurations.[27]

The Americans formally employed suitably qualified and experienced ex-*Luftwaffe* personnel as aircraft mechanics and fitters who, by the end of the Airlift, were established at 80 per USAF squadron. The RAF also employed Germans but, at least officially, in less technical tasks.[28] The RAAF, RNZAF and SAAF provided Dakota aircrews specifically for the Airlift but the real need was for personnel, including technical tradesmen, experienced on four-engine transports. Aid from the Royal Canadian Air Force – personnel and its Merlin-powered Skymasters – was sought on several occasions but the Canadian Government felt unable to participate in the Airlift.[29]

Easter Parade

It was noted earlier, that the theoretical saturation level of 1,440 landings was never achieved. The highest figure occurred during the specially orchestrated 'Easter Parade' when, during the 15-16 April 1949 24-hour recording period, 1,398 sorties carried 12,940 tons. (Berlin's statistics recorded 1,344 deliveries totalling 12,341·9 tons in the same period). The British element was 2,035 tons including 556 tons of fuel. At first sight discussion about Easter Parade might appear to be a digression. In fact it highlights several of the themes discussed above. The objective was to deliver the maximum tonnage and for that reason the Americans concentrated on hauling coal. Low stratus cloud reduced the despatch rate from some British Zone bases for five hours and directly and indirectly stopped Dakota participation for four. Dakota sorties were not just affected by the bad weather but throughout Easter Parade they were curtailed to give priority to the larger aircraft and thus to maximise the tonnage hauled. Thirdly, whilst the objective was tonnage inbound, the RAF continued to carry passengers in and out including rotating an infantry battalion and backloading freight, albeit this was partly to satisfy the need for ballast. (It was 52 minutes after Easter Parade ended that the

The well-known image that perhaps best portrays the Berlin Airlift – an American C-54 Skymaster on finals at Tempelhof.

Regimental Mascot of the Royal Welch Fusiliers, a goat, arrived at RAF Gatow.) Finally, all this was achieved even though only one runway was in use at RAF Gatow for 13 of the 24 hours.[30]

Conclusion

To conclude, Barker correctly identified that the Americans had more aircraft than the RAF, although it is unclear if they had more when compared with both British fleets using common criteria. Similarly, they had larger aircraft than the RAF and with a very few exceptions, the Civil Lift. However, there were additional factors to explain why the RAF was not carrying what its fleet's potential implied. These were the policy decision to prioritise the Skymaster and the RAF's need – as cited by HQ BAOR – for 'better design and reliability of aircraft; [*a*] more flexible system of servicing [*and*] better manpower backing'. Its Research Branch added: the difference in loads carried; the proportionally greater backloading; the higher number of AOGs; the longer flying times – at least in comparison with the C-54s in the British Zone; and the adverse impact of the block system on RAF aircraft. Detailed exploration of these factors (and the

limitations imposed by Britain's post-war financial position and priorities) is fascinating. However, the Journal necessarily has constraints on the size of papers and such exploration requires more than is available now – perhaps a second part later?

Afternote

A Transport Command report on Operation PLAINFARE was completed after the printing of BAFO's AP3257. It was sanctioned by the Air Ministry for only 'limited' circulation owing to a lack of newsprint in Great Britain. The Air Ministry stated that the report 'resembles in some aspects that produced by HQ BAFO'. No copy of that report has been located so far; do you know of one? Given the very substantial post-Airlift reduction in the transport force announced a mere six months after the Airlift ceased and the friction between the Air Ministry, HQ BAFO and HQ Transport Command during the Airlift, its disappearance is regrettable.[31]

Notes:

[1] AP3257, *A Report on Operation PLAINFARE (The Berlin Airlift) 25th June 1948 - 6th October 1949* (Bielefeld: Control Commission, 1950) pp3-6, 71, 139-145 & 279.

[2] Barker, Dudley; *Berlin Airlift: An Account of the British Contribution* (London: HMSO, 1949), p6. Sold by His Majesty's Stationery Office at 1/6d a copy.

[3] AP3257, pp6-9, 14-15, 140, 193 & 198; Miller, Roger G; 'French eagles, too' in *Air Power History*, Vol. 45, No 3, Fall 1998.

[4] HQ 2nd Tactical Air Force had been redesignated HQ British Air Forces of Occupation (Germany) on 11 July 1945 but the 'Germany' was dropped with effect from 1 November 1948.

[5] AP3257, pp519 & 521; TNA AIR 55/110, RAF Form No STATS 120 (provisional) [BAFO compiled] for 14 May and 31 May 1949.

'The British excelled in hauling specialised commodities such as liquid fuels.' – *Berlin Airlift: A USAFE Summary, 26 June 1948-30 September 1949* (HQ Ramstein AFB: USAFE reproduction Centre, undated but circa 1950) p14. For another speciality, salt: Anon, 'A special study of Operation 'Vittles': the story of the Berlin Airlift' in *Aviation Operations Magazine*, Vol 11, No 5 (Conover-Mast Publications, April 1949) pp13-14 and TNA AIR 20/7804, BAFO AO174 5 August 1948.

[6] AP3257, pp195, 231, 243, 252; 284 & 537-539; Department of the [US] Air Force, Operations Statistics Division, *United States Air Force Statistical Digest Jan 1949 - Jun 1950, Fifth Edition* (Washington DC: US Government, 1951) USAF Airlift Data, Table 207; Miller, Roger G; *To Save a City,* Air Force History and Museums Program (Washington DC: US Government, 1998) pp92 & 116; TNA AIR 20/6893, Walmsey 3 May 1949, Interdepartmental Working Party 26 April 1949, James 20 April 1949, Meeting in Seal's Office 6 April 1949; AIR 20/7820, FO 1636 Basic 8 April 1949, HQ BAFO AOX 541 1 April 1949; AIR 55/110, STATS 120 for

the months of February, March, April and May 1949; US Air Force Historical Research Agency, Maxwell Air Force Base [AFHRA], IRISNUM 241489, CALTF Statistical Summary June 1948 to 31 July 1949; US Naval History and Heritage Command Washington Navy Yard DC, Office of the Chief Naval Operations, Location of Navy Aircraft, Reports for 1 March through 1 June 1949.

[7] AP3257, Annexure 5 to Appendix K; TNA, AIR 55/102, Charlesby 21 July 1949.

[8] AP3257, pp 243 & 355; TNA AIR 2/10064, Enclosures166-169 & 251-260; AIR 55/110, STATS 120 for June 1949; Whitfield, E P [Manager Civil Airlift Division]; *Civil Airlift Operation PLAINFARE 4 August 1948 - 15 August 1949* (Luneburg: Control Commission for Germany, forward dated 5 September 1949).

[9] Library of Congress, Vandenberg Papers, Container 38, 'Blitz Book' 1948, 'Characteristics of USAF Aircraft'. The HQ CALTF Plans Division paper of 25 June 1949 'Requirements to Lift 3,500 tons to Berlin Daily' in TNA AIR 38/301 proposed 'stripped' Skymasters each hauling 11 short tons.

[10] AP3257, pp14-15, Appendices C, D, G, K & R; TNA AIR 2/10063, Enclosure s: 45-52; AIR 2/10064, Enclosure s: 53-58 & Minute 157; *USAF Statistical Digest Jan 1949 - Jun 1950*, Table 207.

[11] AFHRA, IRISNUM 241490, CALTF Statistical Summary May 1949; AP3257, pp14-15, Apps: C, G, R & T.

Before the blockade the RAF ran scheduled 'P.19' flights between RAF Buckeburg and RAF Gatow carrying mail, official passengers and freight. These flights continued during the blockade using Dakotas provided from the Operation PLAINFARE fleet. Their achievements were often included in Airlift statistics; see AP3257, pp120, 522, 524, 526-527, 529 & 533; TNA AIR 20/10064, Enclosure 255.

[12] AP3257, pp 14-15, Apps: C, D, G, R & T; TNA AVIA 54/416, King 12 May 1949.

It has not been possible to distinguish between liquid fuels and other consignments on a monthly basis for the Halifax and so figures for the whole Airlift have had to be given. The 'Operation Plainfare Civil Lift – Monthly Report – No 5 of May 1949' recorded the return of a Skyways Ltd York to Airlift service that had been converted to a tanker. It was a failure and was speedily changed back to being a freighter but not before, it would appear, 13 deliveries had been made and 108·8 tons hauled. From Monthly Report No 6 it seems likely that these figures are included in the May statistics thereby reducing the monthly average. See AP3257 Appendices D & R and TNA AIR 20/2071, Monthly Reports Nos 5 and 6.

[13] TNA AIR 2/10063, Enclosures 158-159; TNA AIR 20/6891, Frankfurt, 920 Basic, 6 November 1948.

[14] USAF and USN Skymasters, C-82s and for short periods a Douglas C-74 and a Boeing YC-97A were based in the American Zone delivering into Berlin.

[15] AP3257, pp4, 21, 34-5, 150-152, 323-327 & 382; TNA AIR 2/10063, Enclosures 45-52; AIR 20/6892, Lt Gen John Cannon, Commanding General United States Air Forces in Europe/Air Mshl Thomas Williams, [AOC-in-C BAOR], Appraisal 14 February 1949; TNA AIR 20/7804, Dugmore 22 September 1948; TNA AIR 55/98, Enclosures: 38-46; TNA AIR 55/218, Enclosure 123; *USAF Statistical Digest Jan 1949 - Jun 1950*, Table 207.

[16] AP3257, pp20-25, 27-28, 165-167, 288-290 & 336-341; *USAF Statistical Digest Jan 1949 - Jun 1950*, Table 207.
[17] AP3257, pp9-17, 19-23 & 28, Appendices: C, D, G & H; *Berlin Airlift: A USAFE Summary,* p23; TNA AIR 20/6892, Cannon/Williams 14 Feb 49; TNA AIR 55/98, Enclosures: 81-87; TNA AIR 55/100, Enclosures: 24-26; Tunner, William H [Commanding General CALTF]; *Over the Hump* (Washington DC, US Government Printing Office, 1985 reprint of 1964 original 1964) p174.
[18] AP3257, pp 23, 141, 156-157, 160, 291-292; 355, 357, 382 & 387. TNA PREM 8/990, DO 49(6) 28 January 1949 recorded that 'a continuous stream, instead of the "time block" system, might make better use of aircraft'. Towards the end of the operation a continuous despatch system replaced block scheduling at the two airfields in the American Zone. These were almost entirely operating the Skymaster, and 79% of them were based at Rhein-Main – AP3257, pp291-292. Anglo-American recognition of the inefficiency of the block system is also evident in TNA AIR 38/301, HQ CALTF Plans Division paper 25 June 1949 'Requirements to Lift 3500 tons to Berlin Daily'.
[19] *Ibid*, p376.
[20] AP3257, pp160, 294-5, 356 & 376-377.
[21] TNA FO 944/656, Daily progress returns for sorties from the British Zone landing in Berlin.
[22] *Ibid*, pp15, 80, 158, 293, 320,356 & 384.
[23] AFHRA, IRISNUM 241489, CALTF Statistical Summary; *AP3257*, pp381-387, 520, 522-523 & 529-530; Annexure 5 to Appendix K; TNA AIR 55/102, Charlesby 21 July 1949; TNA AIR 55/110, STATS 120 records.
[24] AP3257, pp24, 79-87 & 355.
[25] *Ibid*, pp381-387.
[26] *Ibid*, pp194-235; TNA: AIR 20/2071 Monthly reports No 5 May 1949 to No 8 August 1949; WO 267/498, Rear Airfield Supply Organisation Wunstorf 30 March 1949.

Neither the RAF nor the USAF had the manpower or the vehicles to handle the freight destined for Berlin at the airfields. In the British Zone this was the responsibility of the Commander Army Air Transport Organisation (CAATO) reporting to Headquarters British Army of the Rhine. Except for bulky or heavy items, aircraft were load manually by 'Displaced Persons' or locally employed German nationals, who were controlled and closely supervised throughout by AATO with additional USAF or RAF air movements supervision within the aircraft. AATO had Rear Airfield Supply Organisation units at Fuhlsbüttel, Celle, Fassberg, Lubeck, Schleswigland and Wunstorf. The Forward Airfield Supply Organisation at Gatow reported to CAATO on technical matters. AATO was another British Airlift success. See *AP3257*, pp. 66-69, 121, 173, 175, 301, 305-306, 308, 553-596; Crowdy, R C; 'The Berlin Air Lift 1948-1949' in *The Proceedings of the Royal Air Force Historical Society*, No 6, September 1989, p81; Downes, T H; 'The Berlin Airlift' in *The Royal Army Service Corps Review*, Vol 1, No.1, 1948; Sutton, D J, ed-in-chief; *The Story of the Royal Army Service Corps and Royal Corps of Transport 1945-1982* (London;1984).

[27] *AP3257*, pp66, 70, 85, 174-175, 199-201, 226-227, 233-234, 303, 329, 521, 525-527, 529, 573 & 586-587; *Berlin Airlift: A USAFE Summary,* pp29-30; Harrington, Daniel F; *Berlin on the Brink: the Blockade, the Airlift and the early Cold War* (Lexington KY: The University Press of Kentucky, 2012) p146; Sutton, D J [editor-in-chief]; *The Story of the Royal Army Service Corps and Royal Corps of Transport 1945-1982* (London: Leo Cooper, 1984) pp110-111; TNA AIR 24/1807, 28 March 1949; TNA AIR 38/303, Enclosure 9; TNA T 236/1025, Enclosures: 206, 208 & 213; *USAF Statistical Digest Jan 1949 - Jun 1950*, Table 207. Passenger numbers include 1,345 involved in the rotation of two resident battalions.

[28] AP3257, pp60 & 286; *Berlin Airlift: A USAFE Summary*, pp 134-136.

[29] AP3257, pp13, 59 & 286; Clark, Chris; *Operation Pelican: The Australian Air Force in the Berlin Airlift* (Tuggeranong: RAAF Air Power Development Centre, 2008); Keen, Richard; 'Half a million tons and a goat: A study of British participation in the Berlin Airlift 25 June 1948 - 12 May 1949', pp152-154 at http://ethos.bl.uk/OrderDetails.do?did=38&uin=uk.bl.ethos.648027

[30] AP3257, pp148 & 292; TNA AIR 8/1649, HQ No 46 Gp. AO398 16 April 1949, AO399 17 April 1949; TNA AIR 20/2071, Report No 4; TNA AIR 20/6893, ACAS (Ops) 4 May 1949; TNA AIR 20/7285, ALREP 290 16 April 1949; TNA AIR 25/1273, Milton 11 April 1949; TNA AIR 28/1034, RAF Gatow ORB 16 April 1949; Tunner, *Over the Hump*, pp219-222.

[31] Hansard, 'Mr A. Henderson's [Secretary of State for Air] Statement' (and questions arising), HC Debate 21 March 1950, Vol 472, cc.1765-1822; HMG, 'Statement on Defence 1950', Command 7895, (London: HMSO, March 1950); TNA AIR 2/10064, Enclosures 14-15; TNA AIR 19/766, Henderson to Bevin on 27 October 1949.

HOW MANY U-BOATS WERE SUNK FROM THE AIR BY BRITISH FORCES IN WW I?

by Gp Capt Mike Peaker

Well, it had to be quite a few, didn't it? – or so I thought. After all, my hero from the Isles of Scilly, Gp Capt E J P Burling, had attacked one in the approaches to Alexandria harbour on 8 April 1918, a brave engagement for which he was awarded the DFC. I had supposed that this was the first sinking of a submarine by someone from the newly formed Royal Air Force, that there would probably be others before the end of the war, that a small number might have been sunk previously by the Royal Flying Corps, but that it was more likely that the Royal Naval Air Service would have quite a lengthy roll of honour.

The citation for Burling's DFC describes the incident as follows:

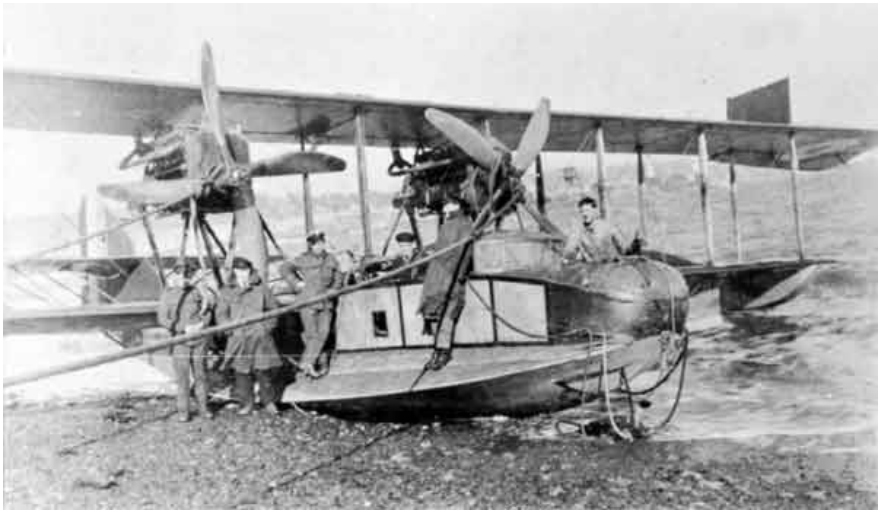
> 'On 8 April 1918 Seaplane N1581 and Observer AM3 Crisp W/T, while on escort patrol sighted a periscope of a submarine about 3/4 mile away from the convoy entering the North Channel [*off the entrance to Alexandria Harbour*]. An attack was immediately made, the first bomb dropping slightly on the quarter of the submarine which evidently upset her steering gear, as she turned sharply round with her periscope still showing. The Seaplane was then turned sharply round and the second bomb dropped just behind the periscope from a height of about 400 feet. The submarine disappeared immediately. This attack prevented any possible attack on a large convoy of ships proceeding to the entrance to the North Channel.'

I tried to find proof in official British documents that my belief in Burling's claim to fame was correct, but without success. Then I thought of looking from the other side of the house, and found a marvellous website, www.uboat.net, that lists the fate of all the 375 U-boats commissioned before the end of the war. The information on it comes from German as well as allied sources, and so the outcomes described are authoritative. Burling's incident was not there; my query to the U-boat forum on their website came up with the answer that the only U-boat that could have been on patrol in that area at the time returned safely to port some days later.

So if Burling did not sink a submarine who, if anybody, and in particular anybody in the RAF, did? I was curious to find out. Again, www.uboat.net came up with the answer, well documented and very convincingly, which was that, present knowledge indicates that a grand total of just one U-boat was sunk from the air in the whole of WW I. My romancing about the significance of aerial anti-submarine warfare in WW I was sunk as well. Nevertheless, the sinking is a story which, curiously, takes us back to Burling's stamping ground in the Isles of Scilly. As background and a scene setter I quote from an article on the RAF Museum's website written by Gordon Leith, the Library Curator, called *Flying boats over the Western Approaches*:[1]

> 'The Scilly Isles, 25 miles off the Cornish coast, was an ideal location for the RNAS's long range flying boats and the harbour near New Grimsby on the Island of Tresco provided a suitable stretch of calm water where flying boats could take off and land. Royal Naval Seaplane Base, Isles of Scilly, was established on a 20-acre site fronting the harbour. In addition to hangars, offices and living accommodation, a wooden slipway was built so that the flying boats could be brought ashore for maintenance. RNAS and RAF flying boats operated from here between February 1917 and May 1919, making an important contribution to the protection of British shipping from Germany's U-boats.'
>
> The initial complement of aircraft at Tresco was six flying boats. The first aircraft to arrive in February 1917 were Curtiss H.12 Large Americas, which had only recently entered RNAS service. American-built, these twin-engined biplane flying boats had a wingspan of 92 feet and were adapted for RNAS service by replacing their Curtiss engines with more powerful Rolls-Royce Eagles. They were relatively fast, well-armed and had an impressive range. In February 1918 a redesigned British version of the Large America – the Felixstowe F.2A – began to replace the H.12s and in July the further improved Felixstowe F.3, with a longer range and a heavier bomb-load, replaced most of the H.12s and F.2s. By mid-1918 nine flying boats and two

[1] https://www.rafmuseum.org.uk/blog/flying-boats-over-the-westrn-approaches/

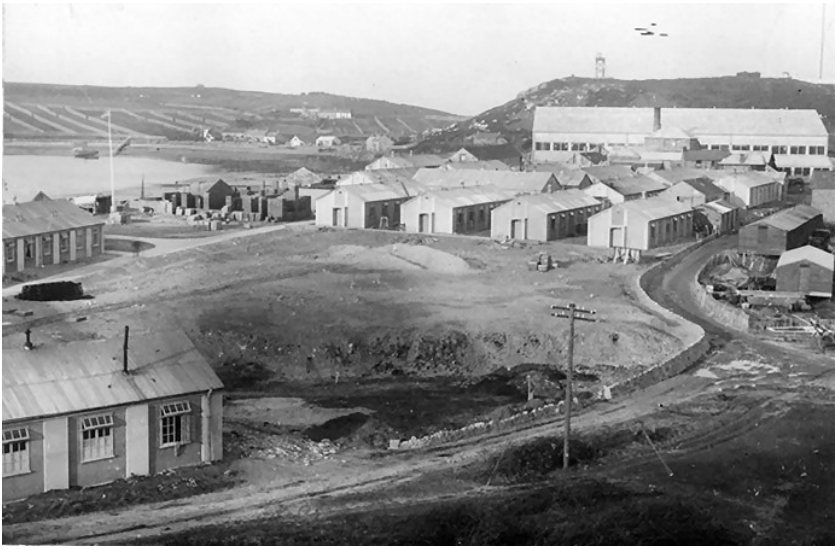


A Curtiss H12 of No 234 Sqn on the beach at Tresco in 1918.
(RAFM 003583)

seaplanes were based at Tresco – almost twice the number of aircraft originally planned.

The main job of the Tresco-based flying boats was to fly long range anti-submarine patrols looking for surfaced U-boats lying in wait for British convoys in the Western Approaches. These patrols lasted from one and a half to five hours and covered the seas around the Scilly Isles in a 250 degree arc with a maximum radius of 75 miles. Aircraft were allocated patrol areas within this large expanse of sea based on a gridded map, similar to the Spider Web used by flying boats operating from Felixstowe over the North Sea. On a good day one aircraft could cover 1,600 square miles of sea in a single patrol. Aircraft based at Plymouth, Newlyn and Fishguard patrolled adjoining areas, ensuring that there was no refuge for U-boats anywhere in the seas around the south-west of Britain. In good visibility a surfaced U-boat could be spotted from the air from up to five miles away.'

The flying boats in the Isles of Scilly were originally based at Port Mellon (alternatively Porthmellon) on St Mary's, the main island in



The RNAS/RAF Station at Tresco looking south east.

the group, but this was found to be too exposed to the rough seas often experienced there and the unit moved to Tresco in February 1917. The Curtiss Models H1 to H16 were a series of flying boats, the first two of which had been developed in the USA in response to a £10,000 prize offered by the *Daily Mail* in 1913 for the first aerial crossing of the Atlantic within 72 consecutive hours. Having potentially transatlantic range the pair were purchased by the Admiralty shortly after the outbreak of war. The RNAS subsequently acquired substantial numbers of militarised Curtiss flying boats, more than seventy of them being H12s, dubbed the 'Large America'. The H12 had a crew of four: a pilot; a second pilot as observer; a W/T operator and an engineer/mechanic. These 'relatively fast' seaplanes had a maximum speed of up to 80 kts but they would normally cruise at about 60 kts. Armed with up to four ·303 machine guns, they could carry a maximum bombload of 450 lbs.

Documents held in The National Archives describe an action on the 27 May 1917. HMS *Acton*, a Q ship (a merchantman with concealed armament acting as a decoy; *Acton* was designated Q34) on patrol to the north of the Isles of Scilly, reported sighting and engaging a submarine at long range, but after 55 minutes she lost

contact. Twenty minutes later, at 1005, Curtis H12 flying boat, 8656, got airborne from Tresco with a crew of four in response to the report from HMS *Acton*. The pilot was Flight Sub-Lieutenant Hoare with another pilot, Flight Sub-Lieutenant Anderson, flying as the observer. The other crew members were the engineer, Chief Petty Officer Tadman, and Wireless Telegraphist Chapman. The wind was from the NW with a Sea State 3. Fifteen minutes into the flight the crew sighted a U-boat on the surface on their starboard bow and Hoare immediately altered course in order to attack upwind and with the sun behind him. However, the U-boat had spotted the aircraft and opened fire with a bridge mounted machine gun. Anderson moved forward to the bomb aimer's position and the crew carried on with their attack. Anderson dropped four 100lb bombs and observed the results by looking over the side of the aircraft. He reported scoring two direct hits forward of the U-boat's conning tower and saw the submarine sink by the bow, its stern coming out of the water at an angle of 60 degrees. They observed bubbles, foam and a considerable quantity of oil appearing on the surface, and then headed back to Tresco. In his report of the mission Hoare notes that a pneumatic bomb gear, designed and constructed at Scilly, was used for the first time and 'undoubtedly assisted materially in the accuracy of the bomb dropping.'

But the excitement was not all over. The crew noticed that the submarine's machine gun fire had caused a serious leak in the starboard radiator which was affecting the cooling system. Chief Petty Officer Tadman climbed out on to the wing and staunched the leak with rags and his handkerchief, which lessened the flow sufficiently for the seaplane, despite losing height, to make the 20-minute flight back to Tresco. Only when the seaplane was about to land did Tadman come back into his seat. His conduct was singled out for particular praise by Hoare. It was subsequently discovered that the seaplane had received eight hits from the machine-gun fire of the U-boat. Hoare and Anderson were both awarded DSCs for the action, Tadman the CGM, and Chapman the DSM. Later on in the war Anderson made other attacks on submarines in the South West Approaches from the base in Tresco, but without making any more sinkings.

www.uboat.net identified the submarine as UC-66, which was known to have been on a mission to lay mines in the Bristol Channel. She was not heard from after 27 May and did not return from her

OLtzS Herbert Pustkuchen.
(www.uboat.net)

patrol. There were no recorded survivors from the crew of 23 on the submarine. A UC-11 type submarine, she was commissioned on 14 November 1916 and made a total of 5 patrols. Her captain throughout was *Oberleutnant zur See* Herbert Pustkuchen. UC-66 was very successful; during her patrols she sank thirty allied merchant ships and two warships with a total tonnage of 42,500 tons, and a further six ships were damaged.

Although it was not known at the time, Pustkuchen on his previous patrol had been responsible for an infamous attack on the British Hospital Ship *Asturias*. At the start of February 1917, the German government accused British hospital ships of violating The Hague Convention by carrying troops and munitions. From their perspective hospital ships became legitimate targets as part of Germany's widening policy of unrestricted maritime warfare. In response, the British Foreign Office promised to avenge any attack against a hospital ship with immediate reprisals. On the night of 20/21 March 1917, *Asturias* was returning to her base in Southampton after discharging patients at Avonmouth. Six miles off Start Point, Devon, UC-66 attacked without warning. *Asturias* was clearly marked as a hospital ship. She was steaming with all navigation lights on, and with all the distinguishing Red Cross signs brilliantly illuminated. One (or possibly two) torpedoes, struck the ship starboard, destroying one of her propellers and the rudder, as well as flooding the engine room. A lifeboat that was launched capsized and threw the people on board into the sea. *Asturias* could still make slow headway and was eventually beached off Salcombe. A total of 35 lives was lost. Within a month Freiburg in South West Germany was subjected to reprisal air attacks on the centre of the town.

If one considers the torpedoing of the *Asturias* in the context of

America's feeling of outrage at Germany's decision at the end of January to target neutral shipping, sentiments that were reinforced by their loss of five merchant ships in March, then the attack possibly had much wider consequences; America declared war on Germany on 6 April. Perhaps Pustkuchen's attack on a clearly marked hospital ship had unwittingly helped to strengthen President Wilson's resolve when he asked Congress for approval for America to go to war, and thus contributed to Germany's eventual defeat.

UC-66 was Pustkuchen's third command; he had previously commanded UC-5 and UB-29. In total he was responsible for the loss of over 100,000 tons of allied shipping, including four warships. His death was a significant blow to the German Navy; Anderson would never know how many allied lives he had saved.

Until recently there was no confirmation of Anderson's responsibility for UC-66's disappearance and demise. Indeed, in his blog, Leith does not credit Anderson with a kill. In the absence of any other evidence, it was far more likely that the UC-66 had hit a mine rather than being sunk from the air. But in 2009 the wreck of a German submarine was found north of Round Island, one of the uninhabited islands of Scilly, corresponding to where Anderson had made his attack (5015N 0620W), providing strong evidence that Anderson's attack had been successful. In 2013 www.uboat.net changed its assessment of the loss of UC-66 following an investigation by Innes McCartney, a highly regarded authority on wrecks. Previously thought to have been sunk by depth charges, the reassessment concluded beyond reasonable doubt that the 2009 wreck was indeed that of UC-66. And thus, sadly from a light blue perspective, it was the RNAS rather than the RAF who can claim the only German submarine to have been sunk from the air in WW I.

William Louis Anderson led a very full and interesting life. He was born in India on 11 February 1892, attended St Paul's School in London, and followed his father to Cambridge. He graduated with a BA from Gonville and Caius in 1914 and, when war broke out, he joined the Army. He progressed to being a squadron sergeant major in the 1st King Edward's Horse but in 1916 he transferred to the RNAS, being appointed a provisional flight sub-lieutenant on 10 May. He trained as a pilot at Cranwell, gaining Royal Aero Club Certificate 3408 on the 22 August. He was described as a very good pilot, sound

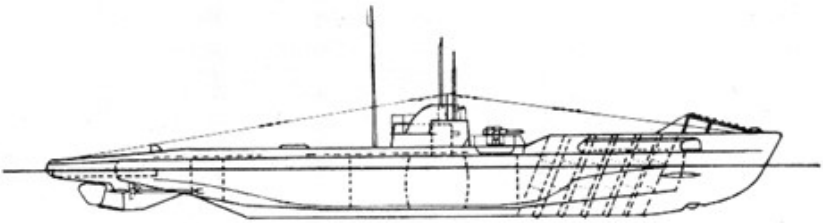
William Anderson as Bishop of Croydon in 1937.

and reliable. After flying boat training, he arrived at Tresco on 26 February 1917, just as the station was opening. Appointed as the Armament Officer, Anderson quickly made his mark, for on 1 April he is reported on as 'A very useful all-round officer, is carrying out duties of Armament Officer in a most satisfactory manner.' He was still a very inexperienced pilot, and probably had less than 100 hours total in his log book at the time of the attack on UC-66; time in the air seemed hard to come by. Anderson's DSC was gazetted on 20 July 1917. In August he was Specially Recommended for promotion by the Flag Officer Plymouth; promotion to flight lieutenant was recorded on 1 October. Later described as an 'extremely conscientious and able officer', Anderson spent most of his operational flying based at Tresco, remaining in post following the formation of the RAF on 1 April 1918. He could thus claim to be one of the relatively few people who served in all three arms of the Services during WW I. He left the RAF in 1919 as a flight lieutenant.

But Anderson's story does not end with his wartime service. Higher achievements were still to come. On demobilisation he took Holy Orders at Ridley Hall, Cambridge, and was ordained a priest in 1921. He rejoined the Royal Navy as a Chaplain where his last posting was as Chaplain at the Britannia Royal Naval College, Dartmouth. Finally discarding his uniform in 1928, he was appointed vicar of Sparkhill, Birmingham. He rose quickly through the ecclesiastical ranks and by 1937 he was Bishop of Croydon. He moved to Portsmouth in 1941, transferring to the more senior see of Salisbury in 1949, a position he held until he retired in 1962. He died in 1972 aged 90. His medals are preserved in the Isles of Scilly Museum.

I am not sure whether the uniqueness of Anderson's action that day

in 1917 has been identified previously, but what is certainly true is that not many senior Bishops in the Church of England have been awarded the DSC and can be credited with sinking a submarine!



The UC-11 class coastal minelaying U-boat.
(www.uboat.net)

Afterthought by the Editor

As Gp Capt Peaker's paper suggests, attributing the causes for the loss of U-boats in WW I can be somewhat problematical. While recent post-war evidence has credited William Anderson with the sinking of the UC-66, it seems that Edward Burling's claim didn't hold water. But in response to the title question, 'How many U-boats were sunk from the air by British forces in WW I?', the answer is probably two – or maybe three if you allow for a balloon making a critical contribution. The two are the aforementioned UC-66 and the UB-32, the latter, according to www.uboat.net being 'Possibly sunk by bombs dropped from RNAS aircraft at 5145N 0205E', ie within the 'Spider's Web', on 22 September 1917. This was an attack carried out by a Curtiss H12, 8695.

So what of the involvement of a balloon? In the immediate post-WW I accounting, HMS *Patriot* was credited with the only significant balloon-assisted engagement when, having been directed into the attack from aloft by Flt Lt C A Butcher, she sank the U-69 to the east of the Shetlands on 12 July 1917 – see, for instance Alan Morris' *The Balloonatics,* (Jarrolds, London, 1970) p97. As late as 1996, this was still being reported as the only such success by R D Layman in his *Naval Aviation in the First World War* (Caxton, London) p124. Curiously, however, at Appx 2 to the same book Layman lists another candidate, the UB-83, as the only submarine lost due to the presence of a balloon, this incident involving HMS *Ophelia* on 10 September 1918.

In his *U-Boats Destroyed*, (Arms & Armour, London, 1997), Paul Kemp also attributes the loss of the UB-83 to an initial sighting by a balloon observer but lists the U-69 as having been lost to unknown causes SW of Ireland on an unspecified date after 23 July 1917 and goes on to state, categorically, that 'no Allied or American claims exist for the loss of U-69.' That said, there is, at Kew, in AIR1/724/78/1, a convincingly comprehensive contemporary account of the 12 July 1917 incident, which certainly avers that the U-69 was sunk by the *Patriot* – and Butcher's contribution to the success of this engagement earned him a DSC.

However, if we accept www.uboat.net as the final arbiter, it records for the UB-83:

> '**10 Sep 1918 –** Sunk by D/C from HMS *Ophelia* off Orkney at 5828N 0150W. 37 dead (all hands lost)'

and for the U-69

> **'11 Jul 1917 –** Last contact on July 11, 1917 while en route to patrol station off Ireland. 40 dead (all hands lost).'

But the 1917 entry goes on to note that, while that last report might possibly be linked to a D/C attack on 12 July off Norway, the German official history records that a U-boat was operating in the Irish Sea until at least 26 July and, at the time, it could only have been the U-69. www.uboat.net makes no reference to the involvement of a balloon in either case. Confused?

One other source is worth citing. In his relatively recent *Anti-Submarine Warfare in World War I* (Routledge, Abingdon, 2006) John Abbatiello opens his scholarly account by stating that the loss of the UB-32 'was the *only confirmed case* of a British aircraft destroying a U-boat without the aid of surface vessels' during WW I (original emphasis). But his book pre-dated the discovery and reassessment of the loss of the UC-66.

Clearly, there remains a degree of uncertainty as to the fates of some of the U-boats lost during WW I but the most recent attribution credits the RNAS with the UC-66 and the UB-32.

HERALDRY AT CRANWELL

by Gp Capt Phil Rodgers

The Royal Air Force Badge

When Canwell's wrought iron gates were repainted and their badges re-gilded in 2004, the Ceremonial Entrance to the Royal Air Force College was restored to the state in which it would have been seen when College Hall was officially opened in 1934. By then, the College had its own coat of arms, but it was the badge of the Royal Air Force which was chosen for the gates, and the Cranwell version is made all the more impressive by the 'oversized' eagle that flies out from the circlet and crown, which together complete the design.

The RAF badge came into use in August 1918, when the circlet took the form of a garter and buckle. But in heraldry, this proved to be incorrect, and it was replaced by a plain circlet when the badge was registered at the College of Arms, on 26 January 1923.[1]

During the reigns of George V, Edward VIII and George VI the Tudor Crown had surmounted the circlet. But it seems that the crown, the circlet and the eagle were subject to a wide range of variations, with regard to style, composition and proportion, and it was not until 1949 that the design was standardised. From that date, the 'oversized' eagles, which dominate the badges on the gates of the College, gave way to a smaller version, like those on the porticos erected on Cranwell Avenue in 1997.

A definitive reference drawing of the 'plain circlet' RAF badge

The College's Ceremonial Gates.

Left, the orignal RAF badge of 1918; centre, the 1949 template of the badge as amended in 1922 and, right, the badge as rendered on the Cranwell Avenue Portico.

was provided by Air Ministry Order A.666 of 15 September 1949 which directed that it was 'to be used for all purposes of reproduction, and that all concerned are to ensure that in no circumstances is any deviation made from this official design.'[2] In heraldic terms, the badge is described thus, 'In front of a circle inscribed with the motto, *Per Ardua Ad Astra*, and ensigned with the Imperial Crown, an eagle volant and affronté, the head lowered and to the sinister'.

By choosing the motto of the Royal Flying Corps and the emblem of the Royal Naval Air Service, it seems that the Air Council's original intention had been to demonstrate a clear lineage for the Royal Air Force; and yet these elements of the badge have long given rise to conjecture and debate.

The most persistent debate is to do with the emblem, which is supposed by some to be an albatross, because of its association with the Royal Naval Air Service (RNAS). But it is precisely because of its association with the RNAS that the emblem is an eagle.

In his book *Airmen or Noahs*, published by Pitman in 1928, RAdm Murray Sueter attributed the choice of the RNAS emblem to an item of jewellery owned by his wife. In a footnote he states, 'Mr Winston Churchill wanted an eagle for a badge to be worn on the sleeve of the coat to distinguish the naval airmen. An artist was sent for and he produced a design like a goose. But Mrs Sueter had a gold eagle brooch of French Imperial design that she had purchased in Paris. I took this eagle brooch to the Admiralty to show Mr Churchill and Admiral Prince Louis of Battenberg. They much preferred it to the

*Left, the brass RNAS eagle that was adopted by the RAF and incorporated into the badges featured on the field service and service dress caps worn by officers; it was also recycled during WW II as the Pathfinder Badge. Right, the image of an eagle embossed on the cover of Sueter's '*Airmen or Noahs'*; although confirmation is lacking, it is reasonable to assume that this is a representation of Lady Sueter's 'brooch of French Imperial design'.*

goose design of the artist and adopted it for the badge of the Royal Naval Air Service.'[3]

The RNAS came into being with effect from 1 July 1914 on the authority of an Order in Council of 13 July which was published in the *London Gazette* on the 24th. The initial dress regulations had already been promulgated in Admiralty Weekly Order No 55 of 26 June which contained the first official reference to the emblem of the navy's new air arm in that officers were to wear 'an eagle on the left sleeve above the distinctive (*sic*) lace.' Later, when it was felt that aircrew should be further differentiated, Admiralty Weekly Order 756, of 21 April 1916, stated that in addition to the eagle on the left sleeve a further eagle should be worn on the left shoulder strap. Then, on 8 June 1917, in Admiralty Weekly Order 2106, graded officers were required to wear the eagle on both sleeves and both shoulder straps.

With so many references to the eagle, there can be no doubt as to its use by the RNAS, or to its subsequent use by the newly-formed RAF, which adopted the rank badges of the Royal Naval Air Service and the rank titles of the Royal Flying Corps. As such, a lieutenant colonel, for example, wore 'three rows of distinguishing lace surmounted by bird (*sic*) and crown'. It was not until 27 August 1919 that the RAF replaced its inherited army ranks with bespoke titles of its own on the authority of Air Ministry Weekly Order 973. In the meantime, however, the 'bird and crown' device on the sleeve of the proposed pale blue RAF uniform, that had first been authorised for optional use as mess dress from as early as March 1918,[4] had been

The albatross-winged badge introduced in 1925 for officers of the RN and RM attached to the RAF for service in the FAA.

'abolished' by Air Ministry Weekly Order 617 of 10 July 1918, although it continued to worn on the sleeves of the interim khaki uniform and the shoulder straps of a greatcoat.[5]

Having cited Admiralty Orders to establish that the RNAS emblem was an eagle, and Air Ministry Orders to confirm that the eagle had been adopted by the RAF, it would seem that these same orders could be used to reveal the genesis of the albatross debate. From 1 April 1918, the RAF undertook *all* Service flying training, and detached some of its pilots and groundcrew for service at sea. In April 1924 naval aviation was reorganised to become the Fleet Air Arm of the Royal Air Force – the FAA – and it was agreed that the RN would provide up to 70% of the (RAF-trained) pilots and all of the observers. On 2 October 1925 Admiralty Fleet Order No 2793 introduced a badge to be worn by officers of the Royal Navy and Royal Marines while attached to the RAF for service with the FAA. It was described as 'a silver anchor and cable of silver embroidery surrounded by a laurel wreath of silver embroidery superimposed on the wings of an Albatross in gold embroidery.'[6]

So, having established that the albatross can be attributed to the Royal Navy of 1925, while the ex-RNAS eagle had been in use by the RAF ever since 1918, our attention now turns to the motto which is inscribed on the circlet.

Having been approved by HM King George V, *Per Ardua Ad Astra* was promulgated as the motto for the Royal Flying Corps in Army Order No 111 of 1 April 1913. The motto had been suggested by Lt J S Yule, of the Royal Engineers, who discovered the words in Sir Henry Rider Haggard's novel *The People of the Mist.* In the first chapter there is a description of, 'two stone pillars on whose summit stood griffins of black marble embracing coats of arms and banners inscribed with the device *Per Ardua Ad Astra*.' According to Gp Capt A H Stradling in his *Customs of the Services*, published by Gale and Polden in 1966, Rider Haggard's source was the Irish family of

Mulvany, whose motto it had been for centuries. But its meaning was in dispute. According to Sqn Ldr P G Hering, in his *Customs and Traditions of the Royal Air Force*, published by Gale and Polden in 1961, the Mulvany family understood the meaning of the motto to be 'Through Difficulties to the Skies', whilst Rider Haggard believed it to be 'Through Struggle to the Stars'. Seeking the definitive meaning of the motto, the Air Ministry approached the College of Arms, who declared that no authoritative translation was possible. So, in the words of a contemporary postscript by the Air Council Member for Personnel, 'Let everyone translate it as they think fit'.

The Royal Air Force College Coat of Arms

From its first edition in September 1920 to the autumn edition of 1922, *The Royal Air Force Cadet College Magazine* carried the 'garter and buckle' version of the RAF badge, which was replaced by the 'plain circlet' badge in January 1923. It is therefore interesting to note that, while the magazine published in the spring of 1923, carried the new badge with the 'plain circlet', the RAF motto had been replaced by the College motto, *Superna Petimus*. The modification of the badge may well have attracted immediate censure, because the next edition carried the RAF badge with its motto restored, and *Superna Petimus* was inscribed separately. The cover of the cadet magazine remained in this form until the autumn of 1930, when the RAF badge was replaced by the College coat of arms with its motto retained as the legend on the scroll. In a contemporary account, the editor of the magazine attributes the motto to a former College Chaplain, the Reverend B W Keymer, and claims the meaning to be, 'We strive for higher things'. But in March 1950, Sqn Ldr E H Lynch-Blosse suggested that, 'one of the best, if not the most accurate, meanings is "We spurn the petty things"'.

In 1929, as the tenth anniversary of the College approached, the Commandant, AVM F C Halahan, felt that Cranwell should follow the example of the Royal Naval and Military Colleges by establishing its own armorial bearings. Research into local history revealed that the village of Cranwell appeared as Cranewell in the Domesday Book, and a 'de Cranewell' family had been local landowners. Then, in a record dating from the mid-seventeenth century, it was discovered that there had been a window in the chancel of Cranwell Church, which

The College Coat of Arms.

depicted ‘three cranes argent’, and it was assumed that this related to the arms of the de Cranewell family. This provided the College with an historical source for its own arms, with the ‘three cranes’ being used to symbolise the three squadrons of cadets that had recently been formed. The cranes on the ‘de Cranewell’ coat of arms had their wings folded, but it seemed more appropriate for the wings to be outstretched if they were to be used as the insignia of a flying college.

So, with *Superna Petimus* chosen as the College motto and the cranes chosen as its insignia, or ‘charges’, work could proceed with the rest of the design, which had to conform with the rules of heraldry. The design could use a combination of up to five ‘colours’, two ‘furs’ and two ‘metals’. The colours were *gules* (red), *azure* (blue), *sable* (black), *vert* (green), and *purpure* (purple). The furs were *ermine* (stoat) and *vair* (squirrel), and the metals were *or* (gold) and *argent* (silver). Of these, two colours and two metals were chosen: *gules*, *azure*, *argent* and *or*.

The most significant element of a coat of arms is the shield, on which the charges are displayed. In the words of an early account, 'It seemed best that the field and ground of the College shield should be *azure*, typifying the sky, our chief field of action'. Having a colour for the 'field', which is the area of the shield, the design had to use fur or metal for the charges; because the rules preclude the layering of colour on colour, fur on fur or metal on metal. So *argent* was selected for the three cranes, and the chevron which lay between them. It was further proposed that the chevron should bear additional charges which would demonstrate allegiance to the monarch, and these took the form of three lion heads in *or*. But with the chevron being metal, and the lion heads also being metal, the rules required that the heads be set on a colour. So the heads were depicted on three red roundels or *torteaux*.

To complete the coat of arms there was a need for a helmet, a mantle, a wreath and a crest. The helmet is positioned over the shield, together with its mantling and wreath. Mantling is an ornate version of the scarf which was originally intended to protect a helmet and its wearer from the elements, and it was held in place by a wreath. It is another heraldic convention for the wreath and mantle to be in the principal colour of the wearer's arms, with the underside in the principal metal or fur. So the College mantle and wreath are *azure* and *argent*. Above the wreath was placed a crest, and it seemed appropriate to use the figure of Daedalus, because he had been a legendary symbol of manned flight, and he had already been associated with Cranwell when it was a Royal Naval Air Station, and its officers and men had been on the books of HMS *Daedalus*.

The design was approved by the College of Arms, on 19 December 1929, when the warrant issued by Garter, Clarenceux, and Norroy Kings of Arms was described as: 'Azure on a Chevron between three Cranes Volant Argent as many Torteaux each charged with a Lion's Face Or and for the Crest on a Wreath of the Colours a Figure representing Daedalus'. However, this does not describe the 'full achievement' of Arms, which was not submitted to the College of Arms until 1971. The

The Astral Crown.

full achievement saw the addition of 'supporters' in the form of an eagle on either side.

The Arms of Lord Trenchard had red eagles as supporters, and this was acknowledged by the red beaks and talons of the supporters in the College's arms, but it was decided that the base colour of the College eagles should be silver to represent the metallic finish of modern aircraft. An astral crown in *or*, was to encircle the neck of each eagle. The final design of the astral crown was approved by CAS in September 1939 and it was first used in the badge of No 1 Service Flying Training School which was sanctioned by HM King George VI in November 1939. It equates to the naval crown, which consists of the sterns and sails of ships, and the mural crown, which is castellated and used by the army. On the breast of the eagles was placed a *fleur-de-lis*, which associated the College with its location in Lincolnshire, where Edward I proclaimed his son Prince of Wales in 1301. Because the eagles and *fleur-de-lis* were both metals (*argent* and *or* respectively) there was a need to border – 'fimbriate' – the *fleur-de-lis* with a colour. For one of the eagles, *vert* was chosen, because green was the principal colour in the Lincolnshire coat of arms. *Gules* was chosen for the other eagle because, before it merged with the Royal Air Force College in 1966, the Royal Air Force Technical College had been at Henlow, in the county of Bedfordshire, and the principal colour in Bedfordshire's coat of arms is red. The letters patent, granting authority for the addition of supporters to the College arms were signed in October 1971, and are on display in the rotunda of College Hall, together with the warrant associated with the original grant of arms.

Unit Badges

The badge of Royal Air Force Cranwell is quite distinct from the coat of arms of the Royal Air Force College. The station badge was approved by HM King George VI in September 1948. It depicts an eagle on a rock, and bears the motto *Alitum Alrix*, which translates as 'Nurture the Winged'. The motto alludes to the unit's original role

RAF Station Cranwell.

Officer and Aircrew Cadet Training Unit

No 1 Elementary Flying Training School.

in support of the College, in the days when flight cadets underwent flying training before they graduated. The eagle is not only symbolic, it is derived from the bronze sculpture which was presented to the College by Sir Philip Sassoon in 1933, and forms the support for the Queen's Colour in the dining room of College Hall.

Unit badges were not formally recognised until the first Inspector of RAF Badges was appointed in March 1935. It was only then that a standard frame for all badges was designed. The imperial crown would surmount a circlet which would accommodate the unit's description, and the unit's choice of an emblem or insignia would be placed in the centre. The circlet would then be mounted on a scroll which contained the unit's motto.

In 2004, four of the units stationed at Cranwell brought new or dormant badges into use. The first appeared when the Department of Initial Officer Training also began to train non-commissioned aircrew. Although still a part of the Royal Air Force College, the department had long been eligible for a unit badge, and it was decided that the design should be based on that of the Officer Cadet Training Unit, which had been disbanded at Henlow in 1980. Its badge had been approved in October 1947, and depicted a knight's spur, with the motto *Majora Tento*, 'I aim at greater things'. An application was therefore made for a 'near copy' of the original, with the unit name approved by the Air Member for Personnel in June 2003.

No 674 Squadron Army Air Corps

No 703 Naval Air Squadron

The second unit was the Department of Elementary Flying Training, which was re-designated No 1 Elementary Flying Training School and assumed the badge which that unit had originally been granted in November 1944. Appropriately, the motto is *Ab Initio*, 'From the Beginning', and the emblem is the chrysalis and moth of the tiger moth, the de Havilland Tiger Moth having been extensively used as a training aircraft during the Second World War.

The army and navy elements of No 1 Elementary Flying Training School then became badged units, as No 674 Squadron Army Air Corps and No 703 Naval Air Squadron.

Notes:

[1] The original RAF badge, which was adopted by the Air Council at its 42nd Meeting on 1 August 1918, had been designed by Messrs Waterlow Bros & Layton Ltd. In October, it was formally registered with the Trade Marks Branch of the Patent Office as a logo 'for general use on note paper, etc', but it was not submitted to the College of Heralds, nor does the College appear to have been consulted at the time. The badge next attracted the attention of the Air Council in late 1922, prompted by the King's having approved, in 1921, a busby-style headdress in leather and fur to be worn with full dress RAF uniform; in so doing, he was also considered to have incidentally approved the design of the RAF badge that it featured. Since this differed in one significant respect from the August 1918 design, on 14 December 1922 the Air Council resolved, at its 115th Meeting, that the original RAF badge should be modified to comprise 'the Crown and Eagle with circlet, and that the crest (*sic*) consisting of the Crown and Eagle with garter-and-buckle shall no longer be used.' It

was also decided, however, that publication of a notice of this change was 'not necessary or desirable'. **Ed**

[2] Interestingly, and perhaps because the Air Council had decided not to publicise the fact that the garter-and-buckle was no longer to be used (see Note 1), The RAF Club continued to employ the former as its logo and, notwithstanding the further exhortations contained in AMO A.666 in 1949, it still does. Furthermore, the badges installed on Cranwell Avenue in 1957 haven't quite captured the wings of the eagle when compared to the 1949 template. **Ed**

[3] It should be acknowledged that there is an alternative version of this story. While Sueter says that the badge was bought in Paris, in his *Diary of a North Sea Air Station* (Oxford University Press, London, 1928) C F Snowden Gamble says, on page 76, that, 'some months after its official adoption and issue, Mrs Sueter is said to have asked her husband what he had done with the eagle brooch that she had "bought in Berlin"', Gamble's point, of course, being the irony involved if the RNAS badge was based on a German artefact. One account is first-hand; the other is hearsay, but both suffer from having been written about twenty years after the brooch had been acquired so neither can be regarded as 100% reliable, leaving some lingering uncertainty as to whether it had been purchased in France or Germany, but the balance of probability must surely lie with Sueter. **Ed**

[4] The range of uniforms to be worn by all ranks of the RAF were first laid down in Air Force Memorandum No 2. This document was undated, but it was printed in March 1918 and one of the copies on file at TNA (AIR1/2424/305/27) was date-stamped on the 23rd. It should be noted, however, that while the memorandum had authorised the wearing of the prospective blue uniform as evening wear, as did AMWO 162 of 1 May, that presupposed that it would be approved by the King. In the event it was not until 21 June that the Master General of Personnel, Maj-Gen Godfrey Paine, was able to inform the 35th Meeting of the Air Council, that 'the blue uniform for the Royal Air Force […] had received Royal approval that morning' (AIR6/12).

[5] AMWO 617 of 10 July 1918 extended the use of the light blue uniform for general wear, but only after it had been altered to conform to a revised pattern. The changes included different buttons, a two-pronged, in place of a single-pronged, belt buckle, deletion of the 'bird and crown', and rank to be denoted by gold lace in place of the original worsted braid. The light blue uniform was superseded by the familiar blue-grey with effect from 1 October 1919, on the authority of AMWO 1049 of 19 September. The wartime khaki and the short-lived pale blue uniforms could still be worn until they needed replacing, but no more of these were to be purchased. **Ed**

[6] AMWO 567 of 10 September 1925 introduced a corresponding badge (a small silver anchor and cable of silver embroidery, surrounded by a laurel wreath of gold embroidery) to be worn above the distinction lace on the left sleeve by RAF officers while serving with the FAA. **Ed**

In the preceding paper Gp Capt Rodgers reviews the 'eagle v albatross' debate and successfully concludes it, but he mentions two other issues which are potentially open to alternative interpretations and are thus perhaps also worthy of closer examination. The first concerns the origins of the RFC/RAF motto and the second, the date on which the RNAS came into being. Some years ago, I corresponded with the late Jack Dixon (a long-term member of this Society) over the motto question and the first of the two short papers that follow represents the essence of my contribution. ***Ed***

THE ADOPTION OF A MOTTO FOR THE RFC

It is generally understood that Hering's *Customs and Traditions of the Royal Air Force*[1] of 1961 is the earliest published explanation of how the RFC's motto came to be adopted, with much of it being recycled five years later in Stradling's *Customs of the Services*.[2] That is not actually the case. In pre-Google days, denied the instant (if sometimes unreliable) satisfaction of Wikipedia, folk of a certain social standing who wished to trace an obscure fact would sometimes seek enlightenment by 'writing to *The Times*'. That is what the Rev John Watson of Golders Green Methodist Church did some twenty years before Hering's book appeared. Watson's letter asked if anyone knew 'the origin of the phrase "Per ardua ad astra," the motto of the Royal Air Force.'

Published on 25 September 1941, Watson's letter produced a very prompt response from no less an authority than Sir Frederick Sykes (then an MP) whose letter was published only two days later. Having spent a paragraph discussing the introduction of the RFC's 'maternity jacket' and a badge for pilots, Sykes went on:

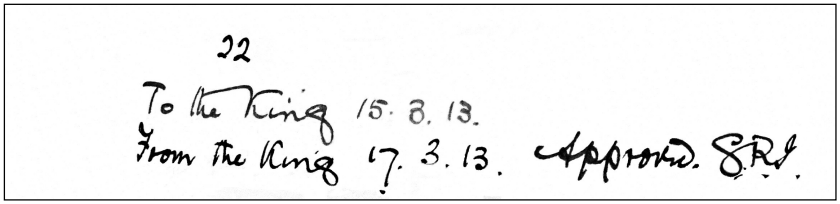
> 'I then asked my officers [*this was in 1912* - ***Ed***] to put forward ideas for a motto, and "Per ardua ad astra" was suggested to me by a young officer of the name of J N Fletcher, who had joined the Royal Flying Corps from the Royal Engineers. The motto had been suggested to him by another officer of the Royal Engineers, J S Yule, who is now a member of the Historical Section of the War Cabinet Secretariat. It seemed to me the best possible motto, and I referred it to the War Office, where I remember incidentally

that one of the pundits, I think it was Harold Baker, then Finance Member, expressed the view that it was bad Latin.'

A file at Kew (AIR2/8486) confirms that Harold Baker did comment on Syke's motto, although he was actually content to endorse it. He was not alone in expressing an opinion, however. As the file passed across the desks of sundry major-generals and other representatives of the great and good, several of them took the opportunity to indulge their expertise as Latin scholars by pontificating on the nuances embedded within *ardua* – the, still unresolved, debate about the precise meaning of the RFC's motto clearly predates its adoption. As an example, a pundit who expressed some reservation was H W Moggridge (PS to CIGS) who considered (in a minute of 29 January 1913) that *ardua* was generally associated with 'steep', rather than 'high', places. As a result, he concluded that '*per ardua ad astra* would have struck the Roman mind as a very suitable motto for the Alpine Club, but less suitable for the Flying Corps' – but he did acknowledge that 'far better scholars than myself' might take issue with his interpretation. He then went on to suggest no fewer than eight possible Latin alternatives, the last of these being *Gloria in excelsis*!

As an aside, it may be of some interest to note that, as a stakeholder in the RFC, the Admiralty was consulted over the motto question. The Navy's commitment toward the notionally 'Joint Service' enterprise was already less than wholehearted, however, and this indifference was reflected in a memorandum of 7 March 1913 which expressed the view that their Lordships did 'not consider a motto for the Royal Flying Corps is necessary, but if the Army Council are desirous of adopting one, no objection is seen to that proposed.'

The upshot was that Syke's wish was granted. The formal submission was signed by John Seely (SofS for War) on 14 March 1913 and forwarded to the Palace for the attention of HM King George V on the 15th. With the King's scribbled 'Approved. G.R.I.' on the minute sheet, the file (AIR2/15) was returned to the War Office two days later and the juxtaposition of the writing and date suggests that the initialling was probably done on the 17th, rather than Hering's 15th, although this can only be conjecture. The adoption of the motto



Above HM KG V's approval of the motto and, below, AO 111 of 1 April 1913 publcaly announcing his approval.

20
Royal Flying Corps
20

Honorary Distinction.—His Majesty the King has been graciously pleased to approve of the Royal Flying Corps being permitted to adopt the motto "Per Ardua ad Astra".

A.O. 111.
1913.

was promulgated by AO 111 of 1 April 1913, ie Army Order Number one hundred and eleven – not 'three', as Hering has it.

Jumping forward again to 1941, it is evident that Watson's question in *The Times* had provoked several letters, not all of which were published, but one that was (on 30 September 1941) was a brief note from a J R Mulvany of Chorley Wood who wrote, 'that "Per Ardua Ad Astra" is the motto of the Mulvanys, an old Irish family, and my recollection is that my cousin, the late Sir Archibald Boyd-Carpenter, made some helpful suggestions to the authorities at the time of its adoption.'

The correspondence was brought to a close by a *Times* leader, also on 30 September 1941, which summarised the position. This noted that there was some evidence to indicate that, in the process of their deliberations, the War Office may have sought the opinions of external Latin scholars, probably including those at Eton and Harrow. There is no mention of Boyd-Carpenter but, if he had any standing in the field of this dead language, he may well have been included in the trawl.

All of this is drawn from *The Times* of 1941 and the two previously mentioned files at TNA, AIR2/15 and AIR2/8486. The latter includes a note of 13 December 1941 from Col Yule at the Cabinet Office, to C D Robertson, DDPR at the Air Ministry. In this he confirms that he and Fletcher had pondered the question in May 1912, when *per ardua ad astra* 'came to my (*Yule's*) mind' and that Fletcher had then

suggested this to Sykes. He goes on to say that:

> 'Major-General F S Piggott has recently suggested to me that I may have met it in Rider Haggard's story 'The People of the Mist'. This is, I think, quite probable; I may have picked up the book either at Chatham or at Aldershot and read it through for light reading.'

It is clear from the above that, in 1961, Hering's source will have been the 1941 Air Ministry correspondence file, to which he will probably have been given access courtesy of AHB, as it would not have been eligible for release to the PRO under the Public Records Act, 1958 – ie the 30-Year Rule – until 1971.[3] Since Hering's account reflects Syke's recollection as published in *The Times* (and the file does include sundry cuttings from that august organ), his explanation may well have been the most readily accessible, but it is clearly not the earliest that we have – much of it had been discussed in the newspaper twenty years earlier. He also seems to have gilded his lily a bit in that he has overstated a couple of issues. Yule's attribution, for instance – Yule is uncertain as to where he was when he read the Haggard book, or even whether he actually did read it, whereas Hering has nailed this down quite firmly. Similarly, J R Mulvany stated only that he believed the motto to have been that of 'an old Irish family' – which is not quite the same as Hering's 'hundreds of years'. And then there's Hering's bogus 'Army Order No 3'.

The moral of this story is that, unless one has absolute confidence in an author, there is a finite risk involved in accepting a secondary source as gospel. The fact that something has been published does not make it a fact, but it does acquire a patina of truth that deepens every time it is recycled. Wherever possible, one needs to confirm validity by accessing primary sources. Easily said, of course; the trick is to find them . . .

Notes:

[1] Hering, Sqn Ldr P G; *Customs and Traditions of the Royal Air Force* (Aldershot;1961).

[2] Stradling, Gp Capt A H; *Customs of the Services* (Aldershot; 1966).

[3] Interestingly, the first (1946) edition of Stradling's book had made no reference to the motto and its origins, suggesting that he had neither noticed the correspondence in *The Times*, nor, at the time, had access to the Air Ministry file.

THE CREATION OF THE RNAS AND ITS CONSTITUTIONAL STATUS COMPARED TO THAT OF THE RFC

On 18 November 1911 the Standing Sub-Committee of the Committee of Imperial Defence (CID) was directed to consider: developments in 'Aerial Navigation' in a military context; the implications of establishing an 'Aerial Service'; and whether or not to set up a corps of military and naval aviators. A month later, having agreed that it would be necessary to create what would become the Royal Flying Corps (RFC), responsibility for further investigation was delegated to a Technical Sub-Committee which was given precise terms of reference and charged with determining the practical steps that would need to be taken. Its report, CID Memorandum 139, was presented on 28 February 1912.[1] On 12 April its recommendations were published in a 'Memorandum on Naval and Military Aviation.'[2] On the authority of a Royal Warrant of 13 April, the detailed arrangements were promulgated on the 15th in a Special Army Order which specified, *inter alia*, that the Air Battalion, RE, which had itself been formed as recently as 1 April 1911, would cease to exist on 13 May which became, in effect, the date on which the RFC (certainly, its first three squadrons) actually came into being.[3]

The initial RFC flying units were Nos 1, 2 and 3 Sqns of the Military Wing, the RN's pre-existing flying school at Eastchurch, and the joint Central Flying School. Since the Army was the majority shareholder in this enterprise, however, the Royal Navy was never very deeply committed to it. The Admiralty soon sought a greater degree of separation and this was achieved via an Order in Council sanctioned by the King on 16 July 1914 which introduced the term 'Royal Naval Air Service' (RNAS) and promulgated, with effect from 1 July, the rates of pay applicable to a new range of distinctive rank titles.[4] Oddly enough, since it had clearly jumped the constitutional starting gun, the Admiralty had published this information in its Weekly Order 55 of 26 June, almost three weeks earlier.[5] Even more surprisingly, the text of the Order had been released to the Editors of *Flight* and *The Aeroplane* two days before that, permitting them to publish it, almost verbatim, on the 26th. Within the RN, details of the new arrangements were also promulgated by Admiralty Circular Letter CW 13964 of 1 July 1914.[6]

The actual words used in the opening clause of the 16 July Order in Council were that '. . . the Naval Wing of the Royal Flying Corps (which will be designated the Royal Naval Air Service) . . .' and in the CW 13964 letter, 'The Royal Naval Air Service, forming the Naval Wing of the Royal Flying Corps, will comprise . . .' In July 1914, therefore, it would seem that the divorce had the status of only a *decree nisi*; it was being presented as little more than a change in terminology, an internal rebranding exercise, rather than the creation of a new semi-autonomous institution. That made sense, as it had been considered necessary in 1912 to invoke a Royal Warrant in order to create the RFC (a corps within the Army) so, if the RNAS was to have a similar status within the Royal Navy, one would have expected it to have been underpinned by another Royal Warrant.

There was no such warrant, however, so there was some doubt as to the appropriate terminology and this became apparent as early as August 1914 when the Army List contained a reference to the 'Royal Flying Corps Naval Wing (Royal Naval Air Service)'. Sir David Henderson, then filling the posts of both DGMA and GOC the RFC in the Field, wrote to the War Office to suggest that this might usefully be pruned down to just 'Royal Naval Air Service'.[7] The Admiralty was duly approached over this, but their Lordships preferred to defer any changes until after the war, perhaps still thinking that it might 'all be over by Christmas'.

By the autumn, the Army was beginning to consider reorganising its squadrons into a 'wing' structure, which would bring into use the associated *employment grade* of 'Wing Commander', ranked as lieutenant colonels. The Navy had already begun to muddy these waters by promoting officers to its home-grown *rank* of 'wing commander',[8] and, like the Army, it too would soon begin to reorganise its flying units into wings. The upshot was that the Army Wing and Naval Wing would soon both have wings embedded within them – which was becoming a trifle nonsensical. At the end of October, the Army tried again, this time using a personal approach to the First Lord of the Admiralty, Winston Churchill, arguing that retaining the now redundant Army Wing and Naval Wing labels was 'cumbersome' and advocating the deletion of all references to them.[9]

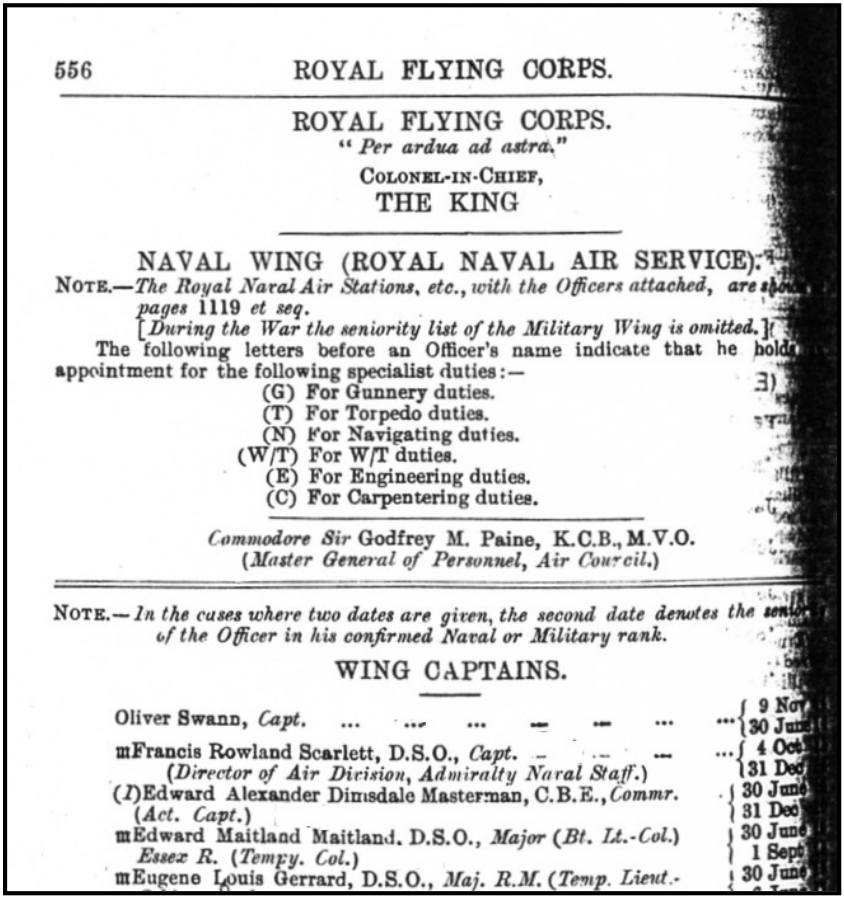
This still failed to produce a favourable response but, despite its intransigence, the Navy appears never to have actually used the term

'Naval Wing' after July 1914. At the end of that year, therefore, the situation was that, while the Navy had flatly refused to sanction the mutual deletion of references to 'Wings', it had actually ceased to employ the term itself. Nevertheless, the Army evidently felt it appropriate to continue to use the, still technically correct, '(Military Wing)' tag, at least in formal documents, like Army Orders (AO). For instance, AO 62 of 16 January 1915 announced the reorganisation of 'the Royal Flying Corps (Military Wing)' by grouping its squadrons into wings and AO 131 of 1 April 1915 introduced new rates of pay for certain ranks of 'the Royal Flying Corps (Military Wing)'. [10]

Despite its refusal to recognise the redundancy of the term 'Naval Wing' and its refusal to sanction its cancellation, the Navy still declined to use it when it promulgated Admiralty Weekly Order 1204 on 29 July 1915, which began by stating that 'The Royal Naval Air Service is to be regarded in all respects as an integral part of the Royal Navy . . .'[11] It has been reasonably argued, by Roskill, that this Order represented the 'actual act of separation', ie the *decree absolute*.[12] This writer would not demur, although the lack of a Royal Warrant still leaves a lingering doubt over the constitutional issue.

In January 1916 the War Office returned to the fray to suggest, once again, that the titles of, what were now quite clearly two separate organisations, be simplified to just Royal Flying Corps and Royal Naval Air Service.[13] The contrary admirals were having none of it, however, and still preferred to wait 'until after the war.'[14] Furthermore, they suggested that if any changes were going to be made then the Army ought to rename its air service as the Royal Military Flying Corps or Royal Army Flying Corps to mirror the RNAS.

Unable to persuade the Admiralty to endorse any revision of the official nomenclature, the War Office continued to toe the party line and as late as September 1916 AO 328 announced changes in rates of pay for Equipment Officers 'of our Royal Flying Corps (Military Wing)'. [15] But even the Army appears to have more or less stopped referring to the Military Wing by the end of 1916, although it never died out completely. For instance, contemporary Army Lists, right up to 1918, continued to acknowledge the, at least notional, existence of both the 'Military Wing' and the 'Naval Wing (Royal Naval Air



556 ROYAL FLYING CORPS.

ROYAL FLYING CORPS.
"*Per ardua ad astra.*"
COLONEL-IN-CHIEF,
THE KING

NAVAL WING (ROYAL NAVAL AIR SERVICE).

NOTE.—*The Royal Naval Air Stations, etc., with the Officers attached, are shown pages* 1119 *et seq.*

[*During the War the seniority list of the Military Wing is omitted.*]

The following letters before an Officer's name indicate that he holds appointment for the following specialist duties:—

(G) For Gunnery duties.
(T) For Torpedo duties.
(N) For Navigating duties.
(W/T) For W/T duties.
(E) For Engineering duties.
(C) For Carpentering duties.

Commodore Sir Godfrey M. Paine, K.C.B., M.V.O.
(*Master General of Personnel, Air Council.*)

NOTE.—*In the cases where two dates are given, the second date denotes the seniority of the Officer in his confirmed Naval or Military rank.*

WING CAPTAINS.

Oliver Swann, *Capt.* ... ... { 9 Nov / 30 June
mFrancis Rowland Scarlett, D.S.O., *Capt.* ... ... { 4 Oct / 31 Dec
(*Director of Air Division, Admiralty Naval Staff.*)
(*I*)Edward Alexander Dimsdale Masterman, C.B.E., *Commr.* (*Act. Capt.*) { 30 June / 31 Dec
mEdward Maitland Maitland, D.S.O., *Major* (*Bt. Lt.-Col.*) *Essex R.* (*Temp. Col.*) { 30 June / 1 Sept
mEugene Louis Gerrard, D.S.O., *Maj. R.M.* (*Temp. Lieut.-* { 30 June

Page 556 of the Navy List for 18 March 1918, the last pre-RAF edition, which, despite its de facto *independence, still acknowledges the RNAS's* de jure *subordination to the RFC.*

Service)'. Similarly, as late as 1918, the Navy Lists still had a section devoted to the officers of the 'Naval Wing (Royal Naval Air Service)', the header on each page being 'Royal Flying Corps'! Then again, until 1918, it was customary for RFC pilots (ie soldiers) who had *not* been trained at the CFS (ie most of them) to have their Graduation Certificates hand-amended so that the printed '. . . completed a course at the Central Flying School . . .' read '. . . completed a course *in the*

Military Wing . . .' This may well have been bureaucratic pedantry, but it suggests that, at least some of, the bureaucrats at both the Admiralty and the War Office may have understood the legal technicalities whereas some of the less fastidious sailors may have chosen to view such niceties with a Nelsonian blind eye.

All of that having been said, regardless of the *de jure* constitutional position, until they were formally (re?)-amalgamated to create the RAF on 1 April 1918 the *de facto* two air services looked to their own affairs.

What was the effective date of birth for the RNAS? There are two possibilities – 1 July 1914 or 29 July 1915. Both have merit and, so long as the writer has a reasonable grasp of the above, either can be defended. For the record, this one prefers the later option.

Notes:

1 TNA CAB4/4/33.
2 Cmd 6067.
3 TNA WO123/54.
4 *London Gazette* (LG) 28852 of 24 July 1914. There is at least one other wild card, as LG 28845 of 30 June had appointed and/or promoted a number of officers of the RNAS, albeit with effect from 1 July, which ties in with the effective date noted in LG 28852.
5 TNA ADM182/5.
6 TNA ADM1/8378/122.
7 TNA AIR 1/118/15/40/53. Letter of 13 September 1914 from Brig-Gen Sir David Henderson to ADMA, Lt Col Sefton Brancker.
8 Examples of early appointments to wing commander rank include C R Samson and F R Scarlett on 1 July 1914 and E L Gerrard and A M Longmore on 1 December 1914.
9 *Ibid*. Letter of 30 October 1914 from Harold Baker, Financial Secretary to the War Office, to Winston Churchill, First Lord of the Admiralty.
10 TNA WO123/57.
11 TNA ADM1/8408/7.
12 Roskill, Capt S W; *The Naval Air Service, Vol 1* (The Navy Record Society, 1969), Note 47.
13 TNA AIR 1/118/15/40/53. Letter of 8 January 1916 from Bertram Cubbit, AUS at the War Office, to the Admiralty.
14 *Ibid*. Letter of 29 January 1916 to the War Office from Oswyn Murray, Assistant Secretary at the Admiralty.
15 TNA WO123/58.

THE ‘HAND AND THUNDERBOLT’ BADGE – REVISITED

Members may recall a short paper, exploring the origins of the ‘sparks’ badge, that we published back in 2011 (*Journal 50*, p112). It recorded that, when it was originally announced, in February 1918, the badge was to be ‘a grasped thunderbolt’ – note singular. However, when it eventually materialised, many months later, it actually featured three thunderbolts but, at the time of writing, no explanation had come light to explain this inconsistency. The paper was subsequently recycled by the Defence Electronics History Society in the July 2017 edition of its *e-Defence Electronics Newsletter* where it was seen by a member of the British Vintage Wireless Society (BVWS) who suggested what simply has to have been the answer.

The most common air-to-ground wireless set used during WW I, notably in the context of artillery co-operation, had been devised at Eastchurch in October 1914 by Lt B Binyon RN. It was designated the No 1 Transmitter by the RFC and the Type 52 by the RNAS (and the RAF) but it was more commonly known as the ‘Sterling set’ because the initial production contract had gone to the Sterling Telephone and Electric Company of Dagenham. The company’s trade mark was a hand grasping several lightning flashes and the striking similarity between this and the RAF’s three-flash handful can hardly be a coincidence. Unfortunately, while it is reasonable to conclude that the RAF’s ‘sparks’ badge must have been an adaptation of the Sterling trademark, contemporary documentary evidence to validate this conclusion is, as yet, still lacking.

The image at top right, of the Sterling trademark engraved on a WW I vintage headphone, was provided by Ken Brooks of the BVWS. **Ed**

THE HENRY PROBERT BURSARY

Members of this Society will be aware that, from time to time, the Committee provides financial support, in the form of cash grants, to students working on a doctorate focusing on an aspect of RAF activity. A recent example was Louise Wilkinson who was awarded her PhD in 2017.

The title and abstract are below. The full thesis may be accessed at:

http://wlv.openrepository.com/wlv/handle/2436/620541

The Territorial Air Force 1925-1957 – Officer Class and Recruitment

Abstract: Little has been written about the Territorial Air Force (TAF) as a voluntary military organisation and no sustained analysis of its recruitment and social composition undertaken. Made up of three different parts, the Auxiliary Air Force (AAF), the Special Reserve (SR) and the Royal Air Force Volunteer Reserve (RAFVR), these three separate and different groups have not featured significantly in existing literature. Current historiography of the AAF and SR is dominated by the experiences of 600 and 601 Squadrons based in London and presents a popular image of a gentleman's flying club, whilst that of the RAFVR presents an image of a much more egalitarian institution, intended to be a citizens' air force. This thesis presents new and detailed research into the recruitment and social backgrounds of men serving in both the pre and post-war TAF. It seeks to provide an overview of the social composition of all AAF and SR squadrons and offers a case study of 608 (North Riding) Squadron based at Thornaby Aerodrome between 1930 and 1957. Using primary documents from the National Archives (TNA) and recently digitised press records, it explores the recruitment processes, social backgrounds and social relations of personnel in the TAF. Whilst focusing primarily on officers, it looks too at the experience of non-officer recruits. Its findings indicate that the structures and cultures of the AAF and SR squadrons were indeed similar to the well-publicised London squadrons, whilst those for the RAFVR were much more elite than was expected. Military voluntarism continued to play a key role in the defence of twentieth-century Britain, but the underlying tensions and weaknesses associated with a class-based voluntary

culture meant that the TAF had to change in response to new pressures. The thesis charts how these changes began to manifest themselves in the post-war world. Class ceased to be the key determining factor in the recruitment of officers as the organisations faced new challenges. Within both the AAF and the RAFVR the pre-war impression of a gentlemen's flying club finally gave way to a more meritocratic culture in the post-war world.

Above, pilots, all officers, of No 601 Sqn AAF in 1937; below, pilots, now both officers and aircrew, of No 615 Sqn RAuxAF in 1950.

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.

Sustaining Air Power: Royal Air Force Logistics Since 1918 by Trevor Stone. Fonthill Media, 2017. £36.00.

At over 500 pages, more than 130 photographs (30 in colour), numerous maps and tables, and 70 pages of footnotes, this is an impressive publication. Printed on good quality paper (the photographs are all reproduced to a uniformly high standard), it weighs nearly 2 lbs. The book's size reflects the scope of the subject. Trevor Stone covers almost 100 years of RAF logistics in considerable detail (from 1918 to 2014). Based on the author's PhD, the publishers are to be congratulated in bringing this work to a wider audience. The narrative consciously avoids including engineering (including maintenance and repair) within the definition of 'Logistics'. A pragmatic decision, given the already wide scope of the work, but it has unfortunate implications, as discussed below.

The structure is slightly unusual in that the historical section (Part 1) provides less than half of the text with the remainder (Part 2) dedicated to the evolution of specific logistic activities (expeditionary logistics, training, information technology, etc). Part 1 covers both world wars and the critical inter-war period when the logistic lessons that had been painfully learnt on the Western Front might well have been forgotten. No provision was made in Trenchard's initial plans setting out the post-war organisation of the RAF for either a Stores or a Technical Branch. Luckily, common sense prevailed and by the end of 1919 it was agreed to form a Stores Branch. It was not until 1940 that a Technical Branch was created. The challenge of the expansion period is well described and the immense difficulties of managing a rapidly growing inventory. If anything, the Cold War is covered in even more detail, as are the very different challenges that followed the collapse of the Warsaw Pact. Part 2, offers a series of short historical narratives (from the inter-war period to post-Cold War), while Part 3 offers some concluding remarks. As a result, the chronology is fractured in the second part of the book. This would not be such a problem if the index was more comprehensive, unfortunately, it is

both erratic and insufficiently detailed. For example, some locations are indexed but others not (Harrogate but not St-Omer or Swanton Morley). The same treatment is given to aircraft types (the Hastings is indexed but not the VC10 or Tornado). There are also no references to any personnel, which is doubly unfortunate as the author properly stresses the human dimension of the RAF's logistic activities. You would not know, for instance, that Frank Kirby's contribution to setting up RAF supply practices and efficient stores management is discussed on pages 26-27, 37 and 45. This makes it a difficult book to dip into and out of, while its size means that searching the text for specific references is hard work.

None of this detracts from what is a well written and exhaustively researched history but it is likely to restrict its wider appeal, which is unfortunate as Trevor Stone knows his subject and is keen to communicate his enthusiasm. He makes some very good points about the contribution of logistics to RAF operations in peace and war. The difficulty is that the narrative sits uneasily between a history of the Supply Branch and a history of RAF Logistics. It might have been better to have woven Part 2 into Part 1 and to have expanded the Conclusions (Part 3) from just three pages to something more substantial that explored the evolving role of supply in generating and sustaining air power. One area that deserves a higher profile, is the initial provisioning process. How did the RAF determine what stock (spares, piece-parts and consumables) to purchase? Much is made of the huge quantity and range of materiel managed by the RAF but not how this was decided upon and what this meant for wartime production, as well as the post-war efforts to optimise spares holdings through computer-modelling. The subject is touched upon in Chapter 10 (Part 2), but could have benefitted from inclusion in Chapters 2 or 3, building on Robin Higham's *Royal Air Force Spares Forecasting in World War II* and Alec Cairncross' *Planning in Wartime: Aircraft Production in Britain, Germany and the USA*. While provisioning might seem an arcane activity, it has huge financial, industrial and operational implications. As early as 1918, the RAF forced manufacturers to break down completed aircraft to increase the supply of spares. Similar problems bedevilled aircraft availability and serviceability in the Second World War, although it took until the 1980s to formalise this relationship in the form of Support Chain

Management. Provisioning lies at the nexus of maintenance and supply activity which is one reason why the exclusion of engineering from this study means that it can only offer a partial history of RAF Logistics.

There are occasional errors and omissions. For example, the Jaguar Force relocated from Thumrait to Muharraq during the First Gulf War (p211). The caption to the photograph of a Spitfire being refuelled in Normandy (p159) might properly have identified the personnel as Servicing Commandoes., however, these are minor points. Although this is not a cheap book (£40.00), you get a lot for your money, both as a reference work and a history of RAF Logistics. It is strongly recommended to anyone with an interest in aviation logistics and the Stores/Equipment/Supply/Logistics Branch.

AVM Peter Dye

The Royal Navy's Air Service in the Great War by David Hobbs. Seaforth; 2017. £35.00.

The formation of the RAF on 1 April 1918 is currently being widely celebrated but that date also marked the demise of the RFC and RNAS. This book is a timely eulogy to the latter, but the author takes the, not unreasonable, liberty of extending his timescale to the Armistice in order to cover the continuing development of work that had been inaugurated by RNAS folk who had subsequently been press-ganged into the new-fangled RAF. It runs to well over 500 pages and is extensively illustrated – I made it 220 photographs, all inset with the text (which is the way to do it) and about a dozen maps and diagrams. While considering all aspects of the rapidly evolving technology and the innovative and adaptable approach adopted by the navy in its attempts to devise practical means of deploying air power at sea, the author also addresses such issues as training and procurement. The RNAS had a tendency to go off *piste* from time to time and a chapter is devoted to acknowledging its activities on land – armoured cars, trains and even early work with tracked vehicles that eventually led to the tank. Along the way the narrative provides accounts of the RNAS's exploits, from pioneering pre-war flights, via attacks on Zeppelin bases, to the use of aircraft mounted on lighters, towed by destroyers, in order to extend the effective range of flying boats or to deploy Camels as a counter to Zeppelins. The development

and employment of lighter-than-air craft – both airships and balloons – is also covered.

Needless to say, the evolution of seaplanes is a major theme throughout the book. Relatively robust flying boats proved to be satisfactory, and their operations are described. On the other hand, perseverance with floatplanes was a blind alley, because the frailty of such craft limited their utility and the weight and drag of their floats restricted their performance. Nevertheless, the attempts made to employ floatplanes operationally, both at home and abroad, are all chronicled and analysed. The use of conventional aeroplanes as fighters and bombers is well covered but the author really warms to his task when describing the work that went into devising a means of operating wheeled aeroplanes at sea. Early success with flying them off short platforms mounted on gun turrets was subsequently refined to the extent that well over a hundred ships were eventually able to launch capable aeroplanes, 'Ship' Strutters or Camels.

The problem, of course, was recovering wheeled aircraft, because, unless the ship was within range of the shore, any sortie was bound to end in a ditching. Much space is devoted to the lessons learned during the progressive reconfiguration of HMS *Furious* and the associated flight trials. Although a satisfactory means of landing-on was never devised, *Furious* was still able to launch a successful seven-aircraft strike against the Zeppelin base at Tondern.

The experience gained from *Furious* led to the ultimate solution, the flat-topped HMS *Argus*, and her development is dealt with in similar detail. The final chapters are devoted to the way in which it was proposed to mount the first major carrier strike. The concept eventually envisaged an attack on the German High Seas Fleet, in harbour, by 120 purpose-built Sopwith Cuckoo torpedo-bombers launched from eight carriers created by erecting a flight deck above the superstructure of merchant ships. It was an over-ambitious concept for 1918, but by November training was actually underway for a scaled-down attack to be launched from *Argus*. The Armistice precluded its execution, but the concept was vindicated at Taranto and Pearl Harbor.

Problems? I came across a dozen-or-so typos which had escaped the proof-reader and something has gone wrong with the caption to a picture on page 199; said to show a 'Curtiss tractor seaplane, number

3098, one of twenty built in the USA' it is of 3098, but 3098 was a Rochester-built Short 827. But these were surely all slips of the pen, and they are few and far between. While the author sustains the RNAS's contemporary claims to have destroyed the submarines UC-1, UC-6, UC-36, UB-20 and UB-32, at least one readily accessible current accounting – www.uboat.net – positively attributes only the last of these to air attack, although a recent reassessment has credited the RNAS with also having sunk the UC-66.[1]

A section of the book that may be of particular intertest to members of this Society is the chapter that analyses Smuts' reports, and the views expressed by other prominent soldiers, sailors and politicians, that led to the merging of the bespoke air arms operated by the army and navy in favour of a dedicated third service predicated on its, at least notional, ability to exercise air power independently. Unsurprisingly, the author (a one-time naval pilot who survived 800 carrier landings in the course of accumulating 2,300 flying hours, and who subsequently spent some time as Curator of the FAA Museum) has firm views on this development and questions whether this was desirable, necessary – or, at the time, even viable. He presents a persuasive case and this reviewer declines to challenge it here.

Well-written, comprehensive and authoritative, this book will tell you pretty much all you need to know about the RNAS and, since that Service provided a substantial chunk of the foundations that underpinned the early RAF, its contribution is probably less well-known than it deserves to be. Hobbs' book goes a long way towards putting the record straight. Strongly recommended.

CGJ

The RAF in 100 Objects by Peter Jacobs. The History Press; 2017. £20.00,

Peter Jacobs, a member of this society, is probably best known for his well-regarded biography of our late president, Sir Michael Beetham. With this new tome, Jacobs goes 'where angels fear to tread' with the exceptionally risky proposition that the RAF – in its first one hundred years – can be encapsulated by one hundred things.

Whilst allowing that there is a current fad for producing a sort of

[1] See pages 90-99 of this edition of the Journal.

bucket list of 100 things which represent something or another, Peter Jacobs is exposing himself to a veritable army (or more appropriately, air force) of those in the 'I wouldn't have had that' or 'What about this' brigades and I have to confess to some thoughts along those lines myself. That said, it is too late to agonise as Jacobs has chosen his '100 things' and an eclectic group they make. To an extent, it's not what Jacobs has chosen that is important but how he then deals with them.

The book lists the 100 objects in a series of sections covering the years of the Royal Air Force and the selection kicks off with the letter with which Field Marshal Smuts and his colleagues offer the government the first independent air force. The book, compartmentalised by time periods then develops.

The basic layout is logical and well-reasoned, with each item numbered, an indication of the location where the specific artefact may be found and one or more photographs of it. At this stage I wondered about the target audience for such a book and decided that it was probably the interested enthusiast, rather than the more knowledgeable reader. I thought some of the narrative might have been sharper; for example, the description of the TSR2 provides two paragraphs which seem largely the same. The individual items tend to be accompanied by a plethora of data about them and had I chosen to cross check each against other sources, this review would still be WIP!

The book, an extensively illustrated, 349-page softback, is well presented and the production is of a good quality making for an attractive and eye-catching publication, which will stand out in a crowd.

In the centenary year I suspect there will a huge number of books of variable quality which may or may not add to the fund of knowledge we have about the RAF. I venture to suggest that some will be quite ghastly, whilst others will be overly cerebral. An advantage for Peter Jacobs is that he is out of the starting gate early and in overall terms he has made a pretty decent fist of the book he is offering. I believe this is the sort of book which will attract a wide range of age and experience and will be a worthwhile gift to the air-minded and probably from the air-minded, who will have already browsed it before wrapping. It will be dipped into for those needing a

photograph to illustrate something and for those looking for facts and figures for their grandchild's school project.

It is very obvious that much thought and work has gone into producing this book and in congratulating Peter Jacobs on the outcome, I recommend it.

Wg Cdr Colin Cummings

The Royal Air Force: A Centenary Of Operations by Michael Napier. Osprey; 2018. £30.00.

When is a coffee-table book not a coffee-table book? This question has no doubt dominated the waking hours of many a serious-minded member of the Society and it may be that an answer has presented itself in the shape of Michael Napier's most recent book. Although apparently condemned by its format to that often unflattering description, *The Royal Air Force: A Centenary of Operations* is much more than a coffee-table publication. It combines in one excellent 340-page volume brief thumbnail sketches of the whole gamut of operations in which our Service has played a significant part over the last century, ranging from major campaigns to lesser and less well-known skirmishes. Clearly drawing on ORB accounts and other authoritative sources, Napier's elegant and necessarily economical writing style is complemented by an excellent array of almost 300 b/w and colour photographs, many of which will be new to the reader.

Concentrating as it does on operations, the book addresses the political and doctrinal context of the Service's survival and development only in passing, not surprisingly given the space available. For example, the Duncan Sandys White Paper of 1957 is referred to, but only briefly. The completeness of Napier's review of one hundred years is nonetheless impressive and, after a couple of chapters, the reader gets into the rhythm of the book's quick-fire darting from one theatre of operations to another, a style that underlines the range and ubiquity of air operations. A picture quickly emerges of the intensity and scale of operations and of the evolution of air power employment over the decades. To be sure, some significant areas of activity in WW II are dealt with in relatively short order but, by comparison, the less well known, later years of the Cold War and of coalition air operations since 1990 are more fully covered. Inevitably, there are one or two minor inaccuracies in the text, but that

will serve to keep the reader on his toes.

Michael Napier's achievement in missing out none of the key events in a hundred years of independent existence, in covering so vividly the sheer breadth of his subject – and in compiling the pages rightly devoted to a wonderful selection of photographs – is remarkable. As was said to me at the outset by our Editor, this book was very much an exercise in squeezing a quart into a pint pot and very successfully has that been done by an author whose passion for the Service and its operations is evident at every turn. This is no ordinary coffee-table book!

AVM Sandy Hunter

True Colours by Caroline Paige. Biteback Publishing; 2017. £20.00

In the last thirty or so years, the armed forces have coped with many changes. Apart from the size, shape and deployment profiles required by modern conflict, they have also had to address the changing nature of society, as they must, inevitably, mirror the communities from which their members are drawn.

In retrospect, the military has not always coped well, at least initially, in adjusting to changes in social mores, but then neither has society at large. It is probably also true, however, that the nature of the armed forces means that they have been more successful in dealing with these issues than many other groups. Thus they have been instrumental in the further emancipation of women by employing them in what were previously exclusively male occupations, as aircrew and at sea for instance. It has also coped, though at vast expense, with abolishing the long-standing automatic discharge of women who fall pregnant. The ban on homosexual, lesbian and bi-sexual people has also been lifted and transgender people absorbed within the ranks.

Some will find these changes unwelcome, and possibly difficult to accept, but as with all else in life, an understanding of situations is often the key to acceptance, if not unrestricted approval.

As its sub-title, *My Life as the First Openly Transgender Officer in the British Armed Forces,* indicates, this 340-page hardback, with eight pages of photographs, provides Flight Lieutenant Caroline Paige's personal account of her transition from the male gender, with which she was born, through the lengthy trials of coping with the

belief that she was actually female, to the many difficulties faced in her transition – and in her eventually being formally recognised as a woman. In doing so, she has produced a book which is thought provoking and interesting and, perhaps for some, may be unsettling. That said, it is an account which may help the reader to understand a problem – is that even the right word? – with which few of us will have had to deal.

Paige places her situation within the life she leads in the RAF. Having initially flown as a Phantom navigator, she subsequently converted to rotary wing flying, and it was during the latter phase that she changed gender formally. She then faced a struggle to continue to be accepted as a professional aviator, despite her obvious competence. The book revisits the difficulties she encountered and there are references to some of the individuals who did not accept Paige's situation as 'bigots', which in places tends to detract from the objectivity of the account. Rather than bigots, it might have been better to accept that, in the early days, when Paige first declared herself to be female, there was little experience, even in religious and medical circles, of the practical implications that recognition involved. Most people were simply unsure of how to deal with transgender issues; there was certainly little guidance or coherent policy and Paige's account suggests that the establishment was obliged to 'make it up as it went along'.

I found this book difficult to review objectively because, like most others, I have no personal experience of the issues it exposes. Perhaps, therefore, in suggesting that this is an account which should be read in order to educate oneself about, what seems to be an increasingly common issue, I am taking the soft option.

Wg Cdr Colin Cummings

The Royal Air Force Day by Day, 1918-2018 by Air Cdre Graham Pitchfork. The History Press; 2017. £50.00.

The Royal Air Force Day by Day first appeared in 2008, to celebrate the RAF's 90th birthday. With the addition of the suffix *1918-2018*, this edition reproduces about 99% of the original. A few facts recorded in the first edition, notably, the deaths of prominent personalities, have been deleted to make room for the addition of selected significant events from the most recent decade. Similarly, the

photographic coverage remains much the same, although some large images have been reduced in size and vice versa, and there are a few substitutions and a handful of additional images.

Inevitably, what follows must recycle much of the review of the first edition that appeared in Journal 43. As before, the timeframe has been slightly extended to embrace a few facts relating to the RFC and RNAS, but there is no specific 'theme' and the selection of random events, people and places that make up the content have been chosen by the author, and there is no one better qualified to have done that than Graham Pitchfork.

Some may find the presentation a little eccentric at first, because, as the title suggests, the content is arranged chronologically, day by day, irrespective of the year. The rationale underpinning this approach is that the book is about anniversaries, so the entering argument is a 'birthday' – a specific date. Thus the book opens with a selection of significant 'things' that happened on the 1st of January of twenty-three specific years between 1920 and 1969. It then moves on to 2nd January, only five years this time (1918, '19, '35, '63 and 2005) and this exercise is repeated throughout the 365 days. The result is a handsome, hefty, 424-page A4 volume. It does take a little getting used to, because, while one might remember, for instance, that the Phantom entered squadron service in 'about 1969', to look it up in this book '1969' is no help at all; you have to know that it was on 7 May. That is where the index comes in; to make the book work, this needed to be really comprehensive, and it is, running to twenty-seven two-column pages. So, you can nail that Phantom phact by entering with the sort of thing that you might already know and 'Phantom', 'Coningsby' or 'No 6 Sqn' will all take you there.

Are there any errors? On a canvas as broad as this, almost inevitably. Some of the points flagged-up in the first edition have been corrected, but some remain. For instance, we still have No 685 Sqn (for No 684 on p285), the last 'S' badges still being awarded in 1957, whereas air signallers, badged as such, continued to graduate until as late as 1966 (p279) and squadron identification codes being applied as early as September 1937 (p305) – surely this was 1938 (post Munich). I spotted a couple of other carry-overs; Quinton (for Quintin) Brand (and it wasn't hyphenated) on p36 and Traqino for Tragino on p41.

But, as before, it is the pictures that make this book really special. I

made it about 530 of them, more than one per page, and a dozen or so more than the first edition. They have been drawn from several sources, but notably the AHB collection, and they have all been chosen to illustrate or amplify specific incidents, locations, personalities, aeroplanes, equipment or artefacts to which reference is made in the accompanying notes. And the notes, which deal with a wide variety of representative topics, are almost as interesting as the pictures.

While you can use this book as a reference work, it is a bit hit and miss because of the random nature of the content. If, on the other hand, you are looking for an appropriate date on which to mount a forthcoming event (or, conversely, need to find an historically significant event to tie in with a date that has already been decided) or are stuck with having to make a speech on a particular day, this book will be invaluable.

The practical implications, aside, however, this book really rewards the casual browser. Every page contains nuggets of information and well-reproduced pictures – and, once you have started, you just keep turning them. If the author's aim was to evoke and illustrate the particular ethos of the RAF, he succeeded.

The downside is the price. When the first edition appeared in 2008 the RRP was £35.00. Ten years later this one, which differs from the original only in detail and in having just six extra pages, costs £50.00. While I continue to rate this book as 'highly recommended' that would be in the context of a first-time purchaser. If you already have the first edition, you would really need to think hard before investing in an upgrade.

CGJ

Adventures of a Cold War Fast-Jet Navigator – The Buccaneer Years by Wg Cdr David Herriot. Pen & Sword; 2017. £20.00.

Covering two thirds (in flying hours terms) of his career as a Cold War Fast-Jet navigator, David Herriot's 306-page hardback does exactly 'what it says on the tin'. The body of the book, chapters seven to eleven, covers in equal measure the intertwined social and professional aspects of his life on three Buccaneer squadrons (the first and last being in RAF Germany) and the Buccaneer OCU. The author admits to being 'too much of a comedian and not taking life seriously

at all' and that comes through loud and clear in those chapters. The descriptions of squadron life and of the Buccaneer, and how it was operated in its different roles, are wholly authentic although his criticisms are reserved, particularly in the later chapters, for the 'system', and for himself. But his anecdotes of social episodes, usually related to alcohol and detachments, are written in a humorous, and often self-deprecating, style and some, which I hadn't heard before, had me almost weeping with laughter. The book is well produced, running to 300 pages, and the extensive photographs, many previously unpublished, add considerably to it.

In the 1960s and '70s the vast majority of navigators were, like the author (and this reviewer), straight from Grammar School and could be combat-ready in Germany whilst still only 21 years old. When added to an existential threat, a very demanding and exciting role, and duty-free booze the attitudes and antics referred to by the author come into context (and the Buccaneer Force was not unique in this). In that sense this book is also a social history.

Gp Capt Christopher Finn

Undarkened Skies by Paul Hare. Fonthill, 2017. £20:00

Paul Hare is an accomplished and well-respected author who has written several highly-regarded books on British aircraft of the First World War. This relatively short work (just 140 pages) is a departure in that it describes the tortuous and controversial American aircraft production programme that by 1918, (according to contemporary propaganda) would 'darken the skies over Europe'. In the event, only a few hundred American-built aircraft were in use at the front by the time of the Armistice, rather than the thousands originally promised. The irony, is that the German High Command took the threat seriously and embarked on its own 'Amerika' programme that saw a substantial increase in German armament production, notably fighter and bomber aircraft, to achieve victory before American industrial production gave the Allies an overwhelming superiority.

Indecision, failure to understand the distinct needs of aircraft production, mismanagement, corruption, an exaggerated emphasis on employing the Liberty engine and an unwillingness to learn from the mistakes of their Allies, meant that it was the British, French and Italians that provided most of the front line machines used by the

American Air Services. There were some successes, particularly in the production of training aircraft where established designs were employed but, overall, the programme was a failure. This depressing story is presented succinctly, with copious illustrations, and several annexes. The narrative does not offer a detailed history, but rather a broad overview of the entire programme and the problems encountered. It describes the military, economic and political background and provides an analysis of the individual types selected for production and their post-war fate. As such, it is highly recommended for anyone wanting to understand why America's immense industrial potential made less impact on the outcome of the First World War than had been anticipated. It is possible that the problems encountered could have been resolved by 1919 but it was always going to be a challenge to create an entire industry from a standing start while grappling with rapidly advancing technology and changing operational requirements. What is unclear, however, is how the lessons from this painful episode were addressed in planning the vastly greater production programme of the Second World War that successfully delivered immense numbers of American-built aircraft to support the Allied war effort. It was perhaps another case, to paraphrase Sir Winston Churchill, of doing the right thing after exhausting all the alternatives.

AVM Peter Dye

RAF in Camera – 1970s by Keith Wilson. Pen & Sword; 2018. £40.00.

Previous editions of this series, covering the 1950s and 1960s, were reviewed in Journal 63. Significantly larger than the earlier volumes, this one runs to 390 A4-pages and presents about 450 photographs drawn from the Air Historical Branch's collection, 75% of them in colour. I fancy that some of the latter are a little oversaturated but, if they are, this will be a reflection of the still-evolving state of the art of colour photography, rather than the standard of reproduction which is first class throughout and on high-quality paper.

As before, the book opens with a short essay highlighting some of the defining characteristics of the decade – terrorism, decimalisation, the 'Winter of Discontent' and so on – before focusing specifically on

the RAF and its trials and tribulations. These included the Cold War, withdrawal from east of Suez and the receipt of a variety of new aeroplanes, including the Puma, Jaguar, Hawk and the evolving MRCA. Thereafter each annual chapter is introduced with a further essay covering the events that occurred in that year, amplified by descriptions of selected significant operations, exercises, incidents and anniversaries supported by well-captioned pictures.

There are, however, are a few oddities embedded within the text and in some of the captions. For example: the Jetstream was never a navigation trainer (p169), it was only ever intended to train pilots – another caption gets it right (p260); Song Song Range is/was NW of Butterworth, not NE (p109); a reference to No 72 Sqn arriving at Tengah in 1939 should read No 27 Sqn (p78); and a statement on p223, to the effect that Jezebel and SOSUS were one and the same, is clearly incorrect. The caption to a 1976 picture of two Vulcans on p259 is particularly odd; it says that XM598 has no unit markings, whereas it has No 50 Sqn's 'running dogs' on its fin, and both aircraft are said to be fitted with 'an ECM pod, the earliest recorded image of this addition'. This can only refer to the Vulcan's fat tail, which had already been a feature of the aeroplane for 15 years, and/or the TFR pod on the nose which had first appeared, as Mod 2057, in 1967 – and is illustrated in several other Vulcan photographs in this book, and indeed in the companion 1960s volume. But the handful of anomalies that I found are trifles and those that I have cited are only to prove that I did read the whole book.

As with the earlier volumes, there are a few appendices amplifying specific activities; in this case there are three. The first deals with the 6th International Helicopter Meet and SAR Competition which was held at Lee-on-Solent in July 1972 – all of the aircraft that attended are identified. The second records the Royal Review at Finningley in 1977 and, again, identifies all of the aeroplanes in the static park and those which took part in the flying display. Appendix 3 provides, with a number of photographs, an interesting account (albeit constrained by the extent to which documentation has been released) of the air sampling operations conducted by Victors and Vulcans in the wake of French and Chinese nuclear tests.

This volume maintains, perhaps even exceeds, the standard set by its predecessors. In view of the extra 70 pages, compared to the 1960s

volume, a £5 increase in the RRP over three years is not unreasonable, and you do get a lot for your money – a comprehensive summary of the RAF's activities in the 1970s and a collection of really excellent photographs – at only 9p each. What's not to like?
CGJ

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. 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 officer or airman. The British winners have been:

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

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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