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Contents

	Foreword	57	Cultivating Joint Commanders
	<i>Group Captain Peter W Gray</i>		<i>Squadron Leader N J Newman MPhil</i>
			<i>RAF, Headquarters Strike Command</i>
1	Air Power in the Modern World	73	
	<i>Group Captain Peter W Gray,</i>		
	<i>Director of Defence Studies (RAF)</i>		
17	The Battle of Britain	97	
	<i>Group Captain Peter W Gray,</i>		
	<i>Director of Defence Studies (RAF)</i>		
35	A Comparative Analysis of RAF and	113	
	Luftwaffe Intelligence in the Battle of		
	Britain, 1940		
	<i>Mr J S Cox, Head of Air Historical</i>		
	<i>Branch (RAF)</i>		
		130	
		139	
			Notices
			Book Reviews
			The Argentine Gazette
			<i>Flight Lieutenant C P Brooks RAF</i>

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Foreword by

GROUP CAPTAIN PETER W GRAY D DEF S (RAF)

This issue of the Royal Air Force Air Power Review coincides with the 60th anniversary of the Battle of Britain and it is therefore only right and proper that part of the content should be devoted to its commemoration. This extends beyond the two main articles into the book reviews where a sample of topical new issues has been examined.

This edition nevertheless starts with an analysis of air power as it is popularly perceived in this new century. As a form of military power, the use of the third dimension has arguably attracted more than its fair share of myths and challenges along the way. This was certainly true in the inter-war years where more was expected of our aircraft and crews than technology and training could deliver. We must not allow ourselves to be deluded that such a state of affairs could never again arise. My article on Air Power in the Modern World highlights ten key areas where exponents of the art of air warfare should cast a wary eye lest we take too much for granted – or worse, too much is expected of us. Air power offers by far the greatest potential to the war fighting joint commander, especially when contributing to manoeuvre warfare. But it is incumbent on us all to ensure that the use we make of air power is properly thought through.

In the first Battle of Britain article I have sought to regenerate detailed interest in what was one of our nation's greatest battles for survival. As with many similar epics, there is always a risk that Hollywood, the Epping Studios or revisionist historians will distort our view of what actually happened, or which debates really matter. Some of the best accounts of the Battle are to be read in older books, now only found in libraries. But these do not always fully explore the controversies or take account of recently released sources. The second article on the Battle was written by Sebastian Cox, Head of the Air Historical Branch, and first appeared in 'Intelligence and Military Operations' edited by Michael Handel and published by Frank Cass in 1990. No military campaign is feasible without decent intelligence; but bad intelligence is worse than none at all. Mr Cox's article fully analyses what material was available to commanders on each side and more importantly what use they made of it.

The next article, by Squadron Leader Nick Newman, was written as a background briefing paper for C in C STC's presentation to the Royal Australian Air Force Conference on 'Air Power and Joint Commanders'. It represents a consolidation of a broad range of contemporary military and academic papers on the general theme of 'Jointery'. It is intended to provide a focus on the British approach to 'Cultivating Joint Commanders'.

The next two articles continue the operational theme that has been evident in recent editions of this journal. Squadron Leader Andy Walters of 617 Squadron at Lossiemouth has written a particularly thought-provoking article on Manoeuvre Warfare and



Air Power. Manoeuvre warfare is at the heart of British defence doctrine in which the modern commander seeks to shatter enemy cohesion and will to fight rather than engaging in a debilitating war of attrition. Air power lends itself naturally to such a concept as is clear from the article. The second article is by Squadron Leader 'Deano' Andrew of 31 Squadron at Bruggen. He addresses the often misunderstood subject of Suppression of Enemy Air Defences (SEAD).

The final article is the first part (of two) of the Argentine Gazette translated from the original Argentine document by Flight Lieutenant Christopher Brooks. The document represents a unique primary source of material on the Falklands campaign from the enemy perspective. It has been ably complemented by the editorial addition of material situating the events that were unfolding at the time; this has been prepared by Squadron Leader Alan Riches.



Air Power in the Modern World

Myths and Challenges

The legacy of the Gulf War, following hard on the heels of the bloodless victory of the Cold War, has left western society with a stylized vision of modern warfare. Technology is now seen as being master of all situations. Stunning victories can be achieved with minimal loss to one's own side and with greatly reduced collateral damage to those innocents who are collocated with the foe. Warfare can now be delegated to the modern day knights who have exchanged their gleaming helmets and plumes for polycomposite versions with Star Wars-style black visors. That their steeds are now multi-million pound (or more often dollar) aircraft is at the heart of the public perceptions of the use of air power in modern warfare. But these perceptions are almost totally western orientated. It is unlikely that the Serbs would see modern air power in such a rosy, soft-focus light. Nor would the residents of Grozny accept the concept of damage-free warfare. The marsh Arabs and Kurds in Iraq would hardly sympathise with the viewpoint that air power is protecting them from the harsh realities of life under Saddam Hussein – nearly ten years after the restoration of sovereignty in Kuwait.



The advent of a new century has not seen the world become a safer place. Nationalism and ethnic strife is as much a threat to stability as it ever has been. Territorial acquisitiveness remains a spectre in the background of international relations, with the desire to unite peoples within common borders as high on the agenda as it has been since the formation of the nation state.¹ Racism, and fear of intolerance, are ever-present below the thin veneer of our apparently civilised lifestyles.² The natural desires, especially in impoverished nations, to match western prosperity has done little to help the occupants to cope with natural disasters. If anything, expenditure on western military goods or the trappings of so-called civilisation has left indigenous people more vulnerable.

Against such a backdrop of doom and desolation, what are the challenges facing air power in the modern world and in modern warfare? This paper seeks to highlight ten key areas where a myth needs to be exploded or a major challenge faced up to. Every myth that requires dismantling prior to tackling the challenge inevitably doubles the scale of the task facing the air power theorist. Such a task is, however, vital if we are to prevent our strategic level doctrine from solidifying into dogma.³

For some reason, ten seems to have a magic resonance only possibly exceeded by the number seven. Beyond the inevitable biblical references to commandments, warfare and air power have enjoyed their fair share of rules of ten. There are ten Principles of War that have been enumerated over the years in high level doctrine documents.⁴ Tedder enumerated ten principles of air power.⁵ Colonel Philip S Meilinger USAF has also enumerated his *10 Propositions Regarding Air Power*⁶ and Dr Grant Hammond has outlined ten ‘lessons not to learn’ from the Gulf War.⁷ The ten areas of challenge for the next decade have been chosen to stimulate debate, rather than merely to expound the virtues of air power. Throughout the ten myths or challenges, it will become evident that a common theme emerges – that whatever the task – air power makes what can often be a significant difference to the way in which we fight a war.

AIR POWER CAN DO IT ALONE – DOUHET, TRENCHARD AND MITCHELL ARE ALIVE AND WELL

The aftermath of the First World War left an indelible mark on all of those who had been touched by the conflict; indeed the scale of the event left few unscathed. Many believed that war as an institution should be banned in *toto*. Others contended that the recent extension to the third dimension would obviate the necessity for trench warfare with its terrible toll in human suffering. The Royal Flying Corps had suffered serious losses,⁸ especially given the difficulties in training sufficient crews to man the aircraft that were being produced in increasing quantities.⁹ But these casualties were on a different scale to trench warfare and the emerging perception was that a fleet of self-defending bombers would be able to take the battle direct to the enemy’s homeland with impunity. The Italian air power theorist Douhet wrote in *The Command of the Air*¹⁰ that warfare was essentially a battle of wills between two peoples; the flexibility offered by air power would allow offensives to ‘be aimed mainly at the morale of civilians’.¹¹ Trenchard, probably without having read Douhet,¹² channelled his predilection for the offensive by arguing that the best way to defend the United Kingdom

...Douhet wrote in The Command of the Air that warfare was essentially a battle of wills between two peoples; the flexibility offered by air power would allow offensives to ‘be aimed mainly at the morale of civilians’



would be to attack the enemy on his bases and in his factories – his vital centres. Trenchard endorsed the importance of targeting ‘morale’ by stating that it outweighed the physical by a factor of 20:1. Stanley Baldwin summed up the widespread belief in the House of Commons in 1932 stating that ‘the bomber would always get through’.¹³

The realities of Second World War technology were such that the bomber did not always get through, and thousands of lives were lost in aerial and ground warfare. Air power had played a vital role in many areas from, ironically, the defence of the UK during the Battle of Britain to the Bomber campaign. But it could not claim to have done it alone. Although the attacks on Hiroshima and Nagasaki again raised the possibility of outright supremacy for air power as the means of ultimate warfare, the vast majority of scenarios for the Cold War included all arms of conventional warfighting.

The bloodless end to the Cold War was followed by the Iraqi invasion of Kuwait, Desert Shield and the Desert Storm. The successful conclusion of the campaign to expel Saddam Hussein’s forces from Kuwait drew appropriate eulogies such as ‘Gulf Lesson One is the value of air power’ from President George Bush and ‘The air campaign was decisive’ from Secretary of Defence Dick Cheney.¹⁴ No theorist would denigrate the outstanding value of air power in this campaign, but nor would they claim that it had, or could have, accomplished the goals alone.¹⁵



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Air operations over the Balkans commenced on 24 March 1999 and continued for the next 78 days. What had started as a short and sharp operation aimed at bending President Milosevic's will became a lengthy battle of nerves

The subsequent use of air power in Operation Deliberate Force in Bosnia in 1995 highlighted the dilemmas facing political leaders and coalition partners in making effective use of modern technology in internecine strife – particularly in full media view.¹⁶ Air power had the ability to demonstrate political will, whilst allowing the statesman 'to engage in hostility by increments'.¹⁷ But it also left the problem of what to do after air strikes had been used, foreshadowing the air operations that were to follow over Kosovo in 1999.

Air operations over the Balkans commenced on 24 March 1999 and continued for the next 78 days. What had started as a short and sharp operation aimed at bending President Milosevic's will became a lengthy battle of nerves. The debate in the press centred around those who thought that air power alone could deliver versus the 'armchair generals'¹⁸ who steadfastly maintained that the insertion of ground forces would be essential to success. Whether or not this debate did more than merely fill column inches, it is probably sufficient to say that the most notable conversion was that of John Keegan, the defence editor of the Daily Telegraph and an eminent military historian.¹⁹ Needless to say, the more outspoken disciples of air power had a field day. More reasoned exponents of the art, however, counselled caution reminding readers, in the words of CAS, that 'Operation Allied Force was a joint operation in which alliance navies and armies as well as air forces made their own contributions'.²⁰ The author of the prestigious American Air Force Association Special Report confirmed that the 'campaign' was decisive and that aero-space power was 'dominant', but added that the air campaign 'works as the centrepiece of joint operations'.²¹

Despite the hopes of the optimists, the use of air power in Operation Allied Force was but part of the whole campaign. Analysis of all of the major conflicts, as well as many of the minor ones, shows that air power has often been decisive and occasionally dominant (at least for parts of the campaign): but it has never been the sole means of successfully prosecuting war. That said, air power has almost invariably made a significant difference to the conduct of warfighting when it has been employed in a thoughtful manner. Air power may or may not take the place to the Right of the Line, but its use will feature heavily in the political-military decision-making process.

AIR POWER IS THE WEAPON OF FIRST POLITICAL CHOICE

The dust had barely settled after the collapse of the Berlin Wall before the financiers in treasuries across NATO were demanding their peace dividends. Squadrons of aircrew destined for the Gulf were deployed unsure as to whether their unit number plates would still exist on their return. The failure to materialise of the new world order has almost invariably left armed services with considerable overstretch in manpower terms and a massively expanded horizon with which to cope.²² The inherent flexibility and reach of air power gives the political or military policy maker unprecedented scope to project influence in a timescale that is close to the decision making cycle of the world media circus. But as James Cable has pointed out, there is far more to the limited exercise of coercive force for political ends than is encompassed in the term 'gunboat diplomacy'.²³ The dispatch of military force to the latest trouble spot must therefore be accompanied by a comprehensive assessment of the problems likely to be facing the troops of whatever service is involved – the military estimate process

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6

is designed specifically to ensure that this is in place. Air power may be the weapon of first political choice, but few, if any, political or military eventualities can be solved by it alone. Demonstrations of will or political support can be displayed, but many of the peacekeeping or peacemaking situations that are now so prevalent demand the employment of troops on the ground. Similarly, air power is only of limited utility in situations requiring aid to the civil authorities (such as Northern Ireland).

Eliot A Cohen has written that 'Air Power is an unusually seductive form of military strength, in part because, like modern courtship, it appears to offer gratification without commitment'.²⁴ That such graphical gratification as can be demonstrated by air power may be readily available to political leaders seems almost too good to be true in a resources-scarce era in which national interests or survival are not directly threatened. In virtually every situation likely to face a national government, air power will be of lesser, or more likely greater, utility to the government of the day. The role may be surveillance, refugee assistance or the delivery of precision ordnance and it will almost certainly make a significant difference.

AIR POWER PROVIDES A SURGICAL STRIKE CAPABILITY WITH ZERO CASUALTIES

A surgical strike capability has long been the Holy Grail of air power enthusiasts. It came close to reality, in a very limited form, in the days of colonial control in Iraq. Small flights of aircraft operating in a benign environment (in terms of hostile fire at least) would drop small bombs from about 100ft on an individual house, usually without incurring casualties.²⁵ This means of warfare was fine against a relatively unsophisticated enemy, but did not lend itself to the coming battles of nations. During World War II, technology was insufficiently advanced in terms of both bomb load and accuracy – particularly when the lack of fighter escort forced bombers to operate by night. The USAAF plan by which key nodal points in the German economy would be attacked was predicated on accuracy then unobtainable.²⁶ It was only in the later days of the Vietnam conflict that the step-change in weapons delivery occurred with the introduction of precision guided munitions.²⁷

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Perceptions of events in the Gulf War, accentuated through the lens of the world's media, left planners for the Kosovo air operations with little choice other than to use precision weaponry. The realities, however, are that only 8% of the missiles and bombs used in the Gulf War were precision guided.²⁸ They nevertheless captured the imagination of the press and public, possibly because the weaponry and its outcome appeared more 'politically correct' than images of bombs raining down from B52s reminiscent of Vietnam. During the Kosovo air operation some 35% of the 23,000 bombs and missiles used were precision guided. Increased accuracy may also have stemmed from improved avionics.²⁹ The pressure for absolute accuracy is, however, unmistakable and it may well be that the day is not far removed when the 'dumb bomb' becomes a weapon of last resort. Indeed the pressure on military commanders and servicemen at all levels is considerable; during the Kosovo air operation threats of war crimes investigation were made in respect to the conduct of the bombing.³⁰

There is therefore a presumption of accuracy and precision. Indeed, as Anthony Cordesman has pointed out, wars such as the Kosovo conflict are raising the expectation of political leaders, the military, the press and the public that 'every casualty is a mistake and significant numbers of casualties is a failure'.³¹ But accuracy can never be pinpoint or absolute. Mechanical or electronic malfunctions occur; or equipment may be vulnerable to counter measures. Most weapons have their accuracy measured in terms of the diameter within which 50% of the rounds will land; the author would not care to have a vasectomy or other surgery to this level of accuracy. Nor can precision bombing entirely eradicate collateral damage or casualties. Some 1200 people were killed in Serbia during the Kosovo air operations and the lives of many more severely influenced by the bombing, *inter alia*, of the bridges over the Danube.

The bottom line remains, however, that weaponry has become hugely more effective than that used in the days of imperial policing. Accuracy has increased many fold and effects-based targeting, dreamt of by Bomber Command and the USAAF 8th Air Force, has become something close to a reality.

AIR POWER IS GLAMOROUS AND MEDIA FRIENDLY

The relations between the military and the media may not have always been totally fraught, but when they have been less than cordial they have resulted in a veritable rain forest of literature on the subject.³² At the core of this is the apparent conflict between the indomitable seeker of truth and the distrustful, secretive warrior.³³ This can be exacerbated by lack of training and, conversely, by occasional devious methods of enquiry. Furthermore, some members of the press are deeply suspicious of any briefing that they suspect as being part of the Psyops campaign; the military inevitably see this as being integral to their campaign. Where no information is forthcoming, speculation is rife – often to the detriment of both security and accuracy

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8

of reporting.³⁴ Wherever the fault, there can be no denying that there is considerable press and public interest in any conflict. During the air operations over Serbia in Spring 1999, newspaper circulation increased in the early days of the operation by some 15%, reflecting the level of public interest. War weariness took its toll later.³⁵ In the aftermath of the conflict, the Royal United Services Institute held, as part of their lecture series, briefings by Lord Robertson the Defence Secretary³⁶ and later by Alistair Campbell, the Prime Minister's press secretary. That the audience for the latter was some 50% greater than the former speaks volumes for the press's own interest in media handling.³⁷

With press interest at an all time high, and air power arguably at its most photogenic, the opportunities for commanders to take the initiative are considerable. But the press always appears to be inside the military decision making loop and this should be reversed.

AIR POWER CAN PROVIDE HIGH TECHNOLOGY RESULTS WITH A MINIMAL SUPPORTING TAIL

During Allied Force, the scale of effort required of the United Kingdom's ageing tanker force in support of RAF and allied aircraft was considerable



In his article in the *Royal Air Force Air Power Review*, General John Jumper (Commander USAFE during Operation Allied Force) warned of the dangers of learning generic lessons from such an idiosyncratic campaign as that fought over Kosovo.³⁸ The one lesson that we must learn from Kosovo, however, was that air forces disregard Combat Support Air Operations at their peril.³⁹ The role of air-to-air refuelling in any air operation is vital. The days of being able to operate from home base, carry out a mission and return in best Blackadder style for 'tea and medals' are long gone. The realities are of long range sorties involving several tanker brackets. During Allied Force, the scale of effort required of the United Kingdom's ageing tanker force in support of RAF and allied aircraft was considerable. Similarly, the effort required to move the American Apache aircraft from Germany to Albania was in excess of 500 C17 sorties. Air transport was stretched to the limit in sending supplies to theatre and moving within

local boundaries; this capability includes the often vital ingress of special or air mobile forces. Suppression of Enemy Air Defences (SEAD) and Electronic Warfare (EW) are equally vital functions, but are seldom available in sufficient quantities. Similarly, the rescue of downed aircrew is now expected by politicians and military leaders alike; but the resources required, including SEAD, EW and specialist lift assets, should not be underestimated. It may be that the more widespread introduction of stealth aircraft will reduce dependence on EW and SEAD; but the realities of coalition operations are such that our reliance on these assets will remain a major planning factor. If air power is to make the difference in a conflict that we have now come to expect, the Combat Support area must be resourced to the same scale as the fighting or combat units. Otherwise, expeditionary warfare without the means of power projection can be but a dream.

AIR SUPERIORITY IS NO LONGER A PREREQUISITE – IT WILL BE CEDED

The sentiment that if control of the air is lost, the battle follows very shortly thereafter has been widely expressed. It was implicit in the writings of many of the inter-war air power theorists; World War II generals such as Montgomery and Rommel were adamant in their views as to its necessity. More recent conflict in Korea, Vietnam and in the Middle East merely served to accentuate the vital nature of control of the air. After the Gulf War, and more recently Kosovo, however, a school of thought has arisen that air superiority can be taken for granted, or that it will be ceded without a fight. That these arguments often come from those who begrudge the share of the budget that goes to fighter procurement (whether it is a Eurofighter or an F22) only serves to make the debate more acrimonious. Ironically the rancour engendered makes the whole round of debate less productive than otherwise would be the case.⁴⁰

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IMPORTANCE OF C2/C4I

It is a truism of the simplest nature to stress that command, control and intelligence have always been vital to the conduct of military adventures. The importance of 'knowing just what is around the next hill'; the formulation of a coherent plan; its dissemination down a clear chain of command; and then the wherewithal to cope with unexpected reverses are all traits that we should be able to take for granted after the years of theorising on such topics. But the reality is that these lessons have so often had to be relearned as each successive conflict has revealed that peacetime structures are not necessarily conducive to warfighting.

The greatest challenge, arguably, as we enter a new century is coping with the plethora of command links available to the modern commander

The greatest challenge, arguably, as we enter a new century is coping with the plethora of command links available to the modern commander. As technology enables us to reduce the Boyd OODA loop⁴² to close to real-time delivery of weapons onto a newly detected target, so the surveillance and communications links allow increasingly senior levels of command to be privy to the tactical situation. This may be desirable in some circumstances, but to many participants it represents a down side to the so-called revolution in military affairs.

The reality of both Kosovo and the conflict in the Gulf (which is still continuing) is that control of the air had to be fought for, won and then maintained. In Iraq, the conduct of the ground operations in the 100 hour offensive would have been vastly different had there been a challenge to allied air supremacy. During Allied Force, the US Department of Defense reported that 85% of Serbia's Mig 29s had been destroyed, along with 35% of its Mig 21 fighters.⁴¹ Those that remained had been well dispersed and protected leaving a still potent military capability. Had these aircraft been able to operate, air operations over Serbia would have been considerably more hazardous – an important factor when allied cohesion was its centre of gravity and losses could have led to its unravelling. In short, having control of the air makes a considerable difference to the conduct of a campaign – losing it makes a huge difference.

DOCTRINE IS NO LONGER RELEVANT

Professor Richard Overy has suggested that doctrine will tend “to solidify, like a slowly moving lava flow”⁴³ unless it is subject to constant and critical interrogation. Professor Michael Howard has written that:

‘I am tempted indeed to declare dogmatically that whatever doctrine the Armed Forces are working on now, they have it wrong. I am also tempted to declare that it does not matter that they have got it wrong. What does matter is their capacity to get it right quickly when the moment arrives.’⁴⁴

As the leading edge of technology advances at such a rate that most armed forces in the world are struggling to keep pace with the last stage of obsolescence, keeping abreast of conceptual thinking and then converting this to doctrine is possibly one of the most important tasks facing a commander. Doctrine can be said to exist in three forms: the formal written word (AP3000), conceptual thinking and the emerging doctrine that results. We cannot expect to be able to apply doctrine to every military situation with the precision and utility of a Delia Smith recipe. But it should always be there as a guide to our actions. Equally importantly, live and vibrant doctrine is an excellent means by which to measure our success, or otherwise, after a conflict has occurred. Lessons may then be identified, hopefully learned and post-conflict action taken.

If we adopt the attitude that we do not need doctrine because we are buying 232 Eurofighters, we run the risk of building the doctrinal desert that characterised formal thinking in the inter-war years. We must also beware the pitfalls implicit in basing our emerging doctrine on acquisition of technology or capabilities that are beyond our grasp. To do so would be tantamount to endorsing the concept of the bomber always getting through.

We cannot expect to be able to apply doctrine to every military situation with the precision and utility of a Delia Smith recipe. But it should always be there as a guide to our actions

OWNERSHIP OF PLATFORMS

A whole generation still considers denim to be the devil’s cloth. If so, sterile debate over the ownership and operation of platforms constitutes the devil’s dogma. Such a debate, at whatever level, can only increase the real and Clausewitzian friction between arms of a force. This could take place between services over the operation of certain key assets – such as tactical transport aircraft or attack helicopters. Equally, it could occur between component commanders on a deployed operation. It behoves all who feel tempted to engage in such fruitless debate to remember that assets are detached to the Joint Force Commander – and not to individual components. Bickering over ownership prevents any attempt to engage in real manoeuvre warfare and, at best, only allows individual elements to operate in isolation – synergy is impossible.

AIR POWER WILL CURE ALL ILLS – EVEN WITHOUT A COHERENT STRATEGY

American involvement in Vietnam spawned an entire industry dedicated to analysing the conflict and its origins. Various 'doctrines' were spelled out in the hope that foreign adventurism would only be embarked upon when genuine national interests were at stake. General Colin Powell also put forward the concept that military force should not be committed unless



General Colin Powell put forward the concept that military force should not be committed unless there was a clear political aim which was translatable into a military strategy...

there was a clear political aim which was translatable into a military strategy; the means had then to be allocated along with an achievable end-state and an exit strategy. Although this may remain a highly desirable 'doctrine' for medium scale warfighting situations, it is arguably too idealistic to apply to peacekeeping or peace enforcement operations. The reality is often that the political impetus is such that an immediate humanitarian reaction is essential; if this also alleviates media pressure, so much the better. The speed of reaction, flexibility and reach of air power is such that it will often be in the vanguard of any action that is contemplated. But this does not release us from the obligation to think ahead and plan for the sorts of eventualities that Powell envisaged.

These ten myths and challenges facing the use of air power in the modern world are by no means exhaustive. Nor do they seek to challenge or replace Tedder's principles or Meilinger's propositions. The prime intention is to stimulate debate in the hope that strategic thinking will coalesce into future doctrine, thereby preventing our existing work from descent into dogma. In short, it aspires to be part of Overy's 'constant and critical interrogation'.

NOTES

- 1 See for example the discussions on borders within Yugoslavia with regard to the areas of Serbian and Kosovar minorities in *The Economist*, 25 February 2000.
- 2 The inclusion of a far right party within the Austrian Coalition government sparked serious reactions around the world.
- 3 Professor Richard Overy, 'Doctrine not Dogma: Lessons from the Past', *Royal Air Force Air Power Review*, Spring 2000, Vol. 3, No 1, page 33.
- 4 See Chapter 3, AP1300, *Royal Air Force Manual – Operations*, published in March 1957 followed by Annex A to *Joint Warfare Publication 0-01, British Defence Doctrine*, HMSO, 1996.
- 5 A W Tedder, *Air Power in War*, Hodder and Stoughton, London, 1948.
- 6 Colonel Philip S Meilinger USAF, *10 Propositions Regarding Air Power*, Air Force History and Museums Program, 1995.
- 7 Dr Grant T Hammond, 'Myths of the Gulf War: Some 'lessons' not to learn', *Royal Air Force Air Power Review*, Summer 2000, Vol. 3 No 2, page 55.
- 8 Eric Ash, *Sir Frederick Sykes and the Air Revolution 1912 –1918*, Frank Cass, London, 1999, chapter 5. The losses were due in part to Trenchard's insistence on the use of air power as an offensive weapon – in concert with the views of Haig.
- 9 Sir Maurice Dean, *The Royal Air Force and Two World Wars*, Cassell, London, 1979, page 11.
- 10 Giulio Douhet, *The Command of the Air*, reprinted by the Office of Air Force History, Washington DC 1983, (original published in 1921).
- 11 Ibid, page 204.
- 12 AVM Tony Mason, *Air Power; A Centennial Appraisal*, Brassey's, London, page 45.
- 13 Stanley Baldwin, House of Commons, 10 November 1932.270 Parliamentary Debates (House of Commons), Official report 5th Series, c632. Baldwin went on to add: 'The only defence is offence, which means that you have to kill more women and children more quickly than the enemy,'.
- 14 Cited in Richard P Hallion, *Storm over Iraq: Air Power and the Gulf War*, Smithsonian, Washington, 1992, page 241.
- 15 For a balanced view see Professor Lawrence Freedman, 'The Future of Air Power', in Group Captain N E Taylor (ed.) *The Gulf War and some Lessons Learned*, transcript proceedings of an Air Power Conference' London 1992, page 87.
- 16 See Tim Ripley, *Operation Deliberate Force: The UN and NATO Campaign in Bosnia 1995*, CDISS, Lancaster, 1999.
- 17 Eliot A Cohen, 'The Mystique of US Air Power', *Foreign Affairs*, Vol. 73 No 1, page 109.
- 18 This rather derogatory term was used by the Foreign Secretary, Robin Cook, on the Radio 4 *Today* programme on the morning of 25 March – after the first night's bombing. For better or worse, the term stuck irrespective of the operational pedigree of those concerned.
- 19 John Keegan, 'So the bomber got through to Milosevic after all', *Daily Telegraph*, 4 June 1999, page 28. See also John Keegan, 'Yes, we won this war; let's be proud of it.' *Daily Telegraph*, 24 June 1999, page 26. Contrast this with General Sir Michael Rose, 'Peacekeepers fight a better war than bombers', *Sunday Times*, 20 June 1999, page 26.
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This Harrier GR7 is equipped with a Laser-Guided Bomb (LGB) synonymous for precision strikes with minimum collateral damage



The **Battle** of **Britain**

■ so we already
know the story?



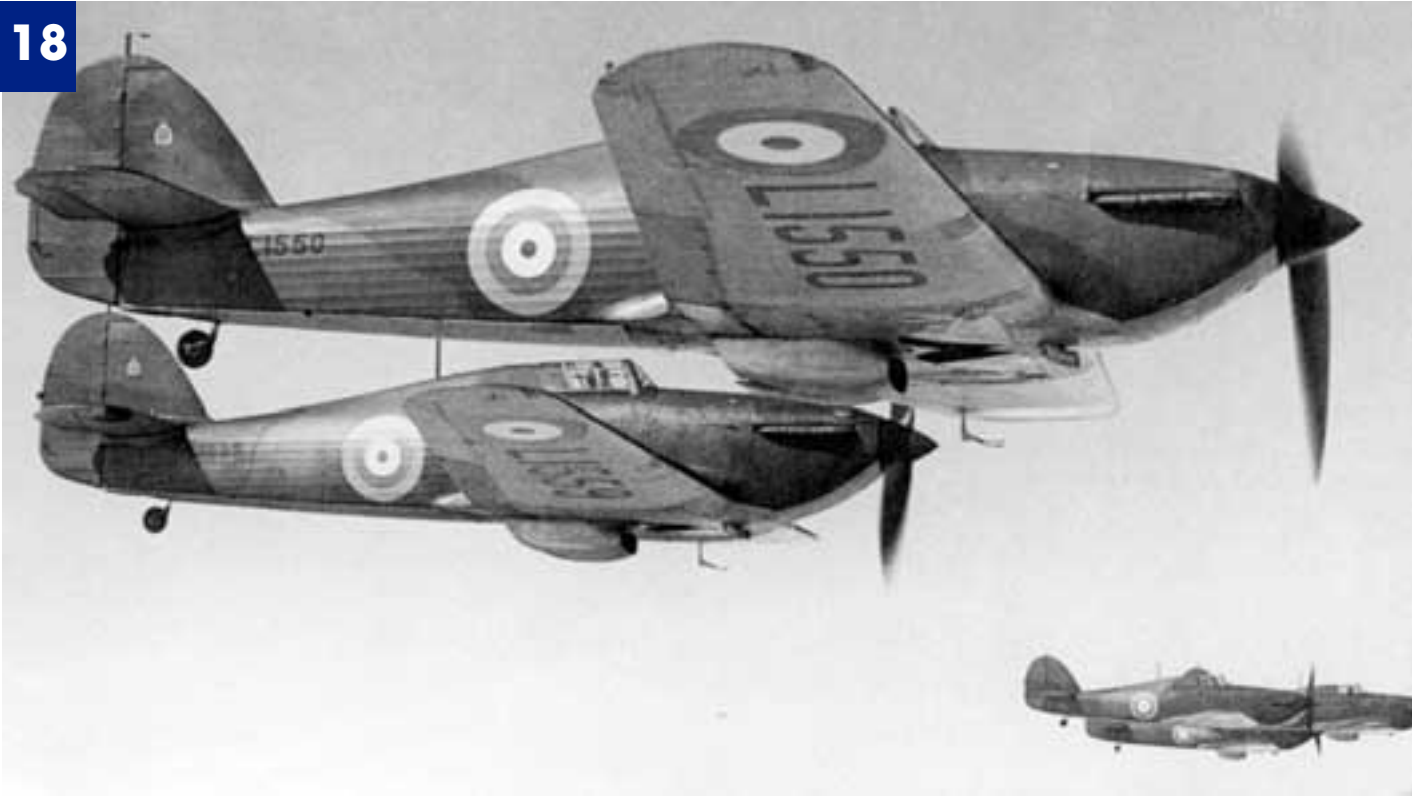
'Never in the field of human conflict was so much owed by so many to so few'

Winston Spencer Churchill, 1940¹

Churchill's 'clarion call to action in the nation's hour of danger'² exemplifies the standard perception of the heroic deeds of Fighter Command in 1940. The broader story is instantly familiar from the film,³ the popular genre of paperback accounts⁴ and 'books of the series' from television programmes, the latter often based on eyewitness accounts.⁵ At first sight, it could therefore be argued that there is nothing new to say about the Battle of Britain. Without in any way suggesting that the conflict has been treated superficially by any of the works cited in this paper, it is undoubtedly true that myths, controversies and inaccuracies remain lurking behind the popular perceptions of the Battle – even in the year of its sixtieth anniversary. New research based on original papers continues to be published⁶ and interest (market and historical) in the topic is still sufficiently high for the Air Historical Branch to be able to publish their Narratives⁷ on the Battle.

This paper will briefly cover the narrative elements of the Battle of Britain – the story as we know it – and then highlight some of the misconceptions, myths and inaccuracies that still exist. The primary aim is to stimulate debate and interest in an area that was absolutely vital at the time and is still highly relevant to the study of modern air power.





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THE STORY AS WE KNOW IT

Stanley Baldwin, in the House of Commons in 1932, summed up the widespread belief stating that 'the bomber would always get through'.⁸ Baldwin, in language that today seems 'politically incorrect' at best, went on to add that 'The only defence is offence, which means that you have to kill more women and children more quickly than the enemy'. This was the thinking of Trenchard, Douhet and Mitchell writ large. Strategic level thinking had solidified into a dogma that allowed no scope for the defence of a nation against the bomber.⁹ It was not until the mid-thirties that such a revolutionary concept as effective fighter defence was considered worthy of serious discussion. Depending on the source, this was widely considered to be either the work of

Thomas Inskip (who was made Minister for the Co-ordination of Defence in 1936);¹⁰ or, more often, the quoted sea-change resulted directly from the appointment of Air Chief Marshal Sir Hugh Dowding as Commander-in-Chief of the newly formed Fighter Command in 1936. Dowding had had high hopes of becoming Chief of the Air Staff in 1937 and his retention as C-in-C Fighter Command was probably seen by many of his colleagues as him being sidelined – especially given the primacy then of the bomber.¹¹

The frantic period of re-equipping the Royal Air Force continued through to the end of the decade and then through the so-called 'phoney war'. Squadrons were still under-manned and relatively short of aircraft when Hitler turned his war machine on the low-countries and France. The expectation that any bomber threat to the United Kingdom would come from the east or north-east, and would therefore be unescorted, was soon proved totally unfounded as the Pas de Calais area provided ample scope for airfields useable by fighters with just enough range to reach London and then have a combat reserve of approximately 10 minutes. That Britain had sufficient fighter aircraft to defend herself was down to Dowding's unique blend of farsightedness and stubbornness. His letter to the Air Ministry warning of the consequences of squandering resources in France is still held to be the epitome of an operational commander standing up to the distant bureaucracies in London.¹²



The fall of France in 1940 was met, virtually inconceivably, with an almost universal wave of relief; Britain was at last alone – without an ever-demanding ally to squander her precious resources. Hitler anticipated that such a predicament would cause Britain to sue for a separate peace. Instead he met with bellicose speeches from Churchill. On 16 July, Hitler issued Directive Number 16 (Operation SEALION) in which the aim was ‘to eliminate the English motherland as a base from which war against Germany can be continued, and, if necessary, to occupy completely’. He set an ambitious target date of four weeks hence. As with all military operations, the establishment and maintenance of air superiority was an essential precursor. Luftwaffe activity increased and what subsequently became famous as the Battle of Britain was underway.



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British sources consider the contest to have begun on 10 July and continued until 31 October. Those involved in the day-to-day fighting were certainly not aware that the Battle had started and finished in such a clear-cut way.¹³ Dowding, as C-in-C Fighter Command, considered his prime mission to be defence of the United Kingdom against the so-called 'knock out blow'. He had configured his defences around 52 Squadrons in three Groups (11, 12 & 13 Groups were operational; 10 Group became so later in that month). Some 19 Sqns were equipped with the Spitfire, 25 with Hurricanes, 2 with Defiants and 6 with Blenheims.

German and British authors are in general agreement as to the rough shape of the ensuing Battle. (Some accounts do, however, vary somewhat.) The first phase ran from 10 July to 7 August and came as a shock to both belligerents. The Luftwaffe found that its Me 110s were virtually useless against the Spitfire and Hurricane opposition. Bomber crews clamoured for ever-closer escort which inevitably restricted the flexibility of the Me109 pilots. The RAF quickly found that its anti-bomber tactics, based on flying in very close vic formation, were ineffective and had to be hastily amended to a looser formation similar to that flown by their more experienced adversaries. The enemy tactics of this phase were based on fighter sweeps aimed at clearing hostile British fighters from the skies. This was attempted



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by mounting raids against allied shipping that was being convoyed through the Channel. Serious command and control decisions had to be taken as to which attacks would be countered and with what strength.

The second phase ran from 8 – 23 August and encompassed further fighter operations as well as attacks on related industrial targets and the ground supporting organisation (radar sites, airfields etc). In the third phase, from 24 August to 6 September, the Luftwaffe extended its attacks to include the London area. Fighter Command's success by day was partially offset by the change to night bombing where the fighters were effectively blind. In the fourth phase, the scope of targets was further increased to encompass a wider variety of economic targets. From the British perspective the Battle of Britain ended on 31 October with the next phase coming under the category of the 'Blitz'.¹⁴

No account of the Battle of Britain is complete without reference to the relationship between Dowding and two of his senior Group Commanders (Park and Leigh-Mallory). Similarly, the involvement of Air Vice-Marshal Sholto Douglas and the almost legendary presence of Squadron Leader Douglas Bader provides a backdrop of soap-opera proportions. The subsequent 'dismissal' of Dowding, following an unholy conspiracy, was crowned by the long-term ingratitude of a nation to a hero who had won a victory on the scale of Trafalgar. Dowding was not made a Marshal of the Royal Air Force nor was a statue erected in his honour until 1988.¹⁵

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STRATEGY

As has already been suggested, the prime strategy of the inter-war years was based on the strategic use of the bomber. The outline thought process was born in the First World War following German Zeppelin and Gotha bombing raids. The subsequent need to find (or eliminate depending on the colour of one's cloth) a definitive role for the newly formed Royal Air Force added a degree of momentum to all sides of the debate. The strategic bombing theory was then developed in the early twenties as Anglo-French relations became increasingly strained. In 1921, Britain was considered 'incapable of resisting an aerial invasion by the French'.¹⁶ The formation of the strategic bomber force would utilise the inherent offensive nature of air power by taking



the war to the enemy population on such a scale that their will to continue a conflict would be rapidly reduced. This gave the RAF a distinctive role to play in national defence, and Trenchard's expectation, that in the coming duel of bomber fleets the stoicism of the British people would outmatch the French, struck a sympathetic chord. It was, however, politically unacceptable to leave the country with no fighter defence whatsoever – even though, doctrinally, such a force was considered to be doomed to ineffectiveness.

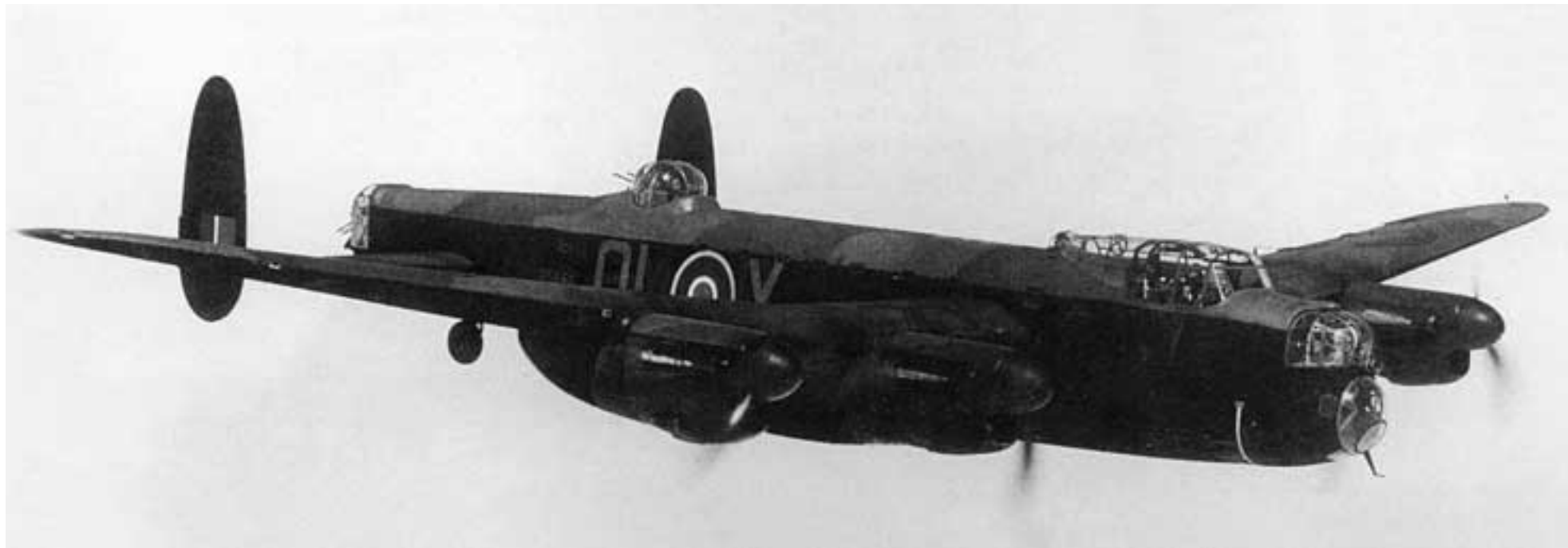
The result of the deliberations of the Steel Bartholomew Committee¹⁷ in 1923 gave a third axis (after strategic bombing and imperial policing) to RAF strategy with the setting up of the Home Air Defence Force. Although the number of squadrons never reached the level that had been envisaged, the ratio of 17 fighter squadrons out of 52 strongly suggests that it was more than a mere sop to political or public sentiment. The balance between the requirements of numbers of fighters versus bombers remained controversial virtually up to the Battle of Britain itself. On 1 January 1925, Sir John Salmond took command of the newly-formed Air Defence of Great Britain Command. Considerable ground work then followed in a race to introduce a fighter that was not already obsolete before it reached squadron service. Other valuable work built on the basic framework for the defence of the London area that had been provided by Major General E B Ashmore.¹⁸

Much of the credit for the preparations on which the RAF was able to fight the Battle of Britain go back to the period in which Sir Edward Ellington was Chief of the Air Staff – i.e. 1933-1937

Much of the credit for the preparations on which the RAF was able to fight the Battle of Britain go back to the period in which Sir Edward Ellington was Chief of the Air Staff – i.e. 1933-1937. The extent to which Ellington was personally responsible for the impetus is still open to debate. Some consider that it occurred despite his presence, others commend his stewardship.¹⁹ As John Terraine points out, Ellington is considered to be relatively 'unknown' as a Service Chief.²⁰ Terraine goes on to list the major achievements of Ellington's tenure: these include the operational requirement specifications for, *inter alia*, the Spitfire, Hurricane, Halifax and Manchester (from which the Lancaster was developed). Although these advances were not attributable to Ellington alone, the responsibility did lie with him. It is therefore evident that much work was already in hand before the arrival on the scene in 1936 of Inskip and Dowding – although the latter had been in charge of the Directorate of Supply and Research (1939-35) and then Air Member for Research and Development (1935-36).²¹ Indeed, it could be argued that Inskip's motivation for increasing the size of the fighter force was based more on budgetary considerations (fighters were much cheaper to produce) than on inspired strategic insight. Whilst it may be true that some senior Air Marshals²² were aghast at the heretical move away from the overwhelming primacy of the bomber, the scope for the development of fighter aircraft and radar systems did not occur in either a doctrinal or operational vacuum.²³

BOMBER COMMAND

Had the doctrine of the primacy of the bomber remained extant throughout the period it would be useful to ask what Bomber Command was doing during the Battle of Britain. After all, the theory had been that the defence of the United Kingdom was best exercised by taking the war to the enemy – in their factories, in their homes and on their airfields. This use of air power as an overwhelmingly offensive weapon (at least in theory) extended to control of the air, with bombers undertaking offensive counter air missions. The reality of the situation was that Hitler had not had the courtesy to wait for technology to catch up with the aspirations of the Strategic Bomber theorists. Bomber Command aircraft did not have the range, bomb carrying capacity or bomb aiming technology to cope with the demands that it was to face. Nor were there sufficient airframes of any vintage to satisfy the multiplicity of targets that required the Command's attention. The resulting conflict of priorities was one that would tax the Service throughout the war.²⁴ Some bombers were sent to attack the industrial targets in Germany with oil as the priority. Others attacked Luftwaffe airfields and aircraft factories – even though finding the latter was far from easy. But Bomber Command's major contribution to the Battle of Britain was the prolonged series of attacks on German shipping and the barges in particular.



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THE FIGHTERS FOR FRANCE CORRESPONDENCE

Dowding's famous letter to the Under Secretary of State at the Air Ministry was dated 16 May 1940.²⁵ He requests 'as a matter of paramount urgency [that] the Air Ministry will consider and decide what level of strength is to be left to the Fighter Command for the Defence of this country, and will assure me that when this level has been reached, not one fighter will be sent across the Channel however urgent and insistent the appeals for help may be'. Dowding concludes with the warning that 'complete and irremediable defeat of this country' will be the result of draining away the Home Defence Force in vain attempts to bolster

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the situation in France. The letter does not, as is commonly supposed, attempt to block immediately the haemorrhaging of air defence fighters; rather he is formally reminding the Air Ministry that the ultimate responsibility for the redistribution of assets remains with them and their political masters. All commanders are responsible for protecting and husbanding their resources – the lengths to which they go obviously vary. Significantly, Dowding does not recommend the level below which his strength should not be taken.

It is therefore important to look, albeit briefly, at the follow-on staff action to Dowding's letter. Air Chief Marshal Sir Cyril Newall, Chief of the Air Staff, attached the letter to a Note²⁶ that he sent to his fellow Chiefs of Staff requesting their support in his approach to the War Cabinet. Newall addresses himself to the very examination question that Dowding had set. Newall points out that the pre-war estimate of the minimum number of squadrons required to defend the UK against the German bomber threat was 53. This had been based on the assumption that they were being flown from Germany and would therefore be unescorted. The reality was that Holland had already fallen and the assumption was that France would follow: the German

bombers would therefore be escorted and able to attack from bases from 'Norway to the Western Point in France'. Home defence strength had already been reduced to 37 squadrons. Newall goes on to advocate, very positively, that Britain had 'already reached the absolute limit of the assistance that we can afford to France'.

Dowding had therefore received full and unequivocal backing from his Command and Staff chain; the recommendation from Newall was endorsed by the Prime Minister that day in a note²⁷ to General Ismay (War Cabinet Secretary). The Air Council responded formally to Dowding on 23 May 1940. It is interesting also to note that in responding²⁸ to Churchill's request for various actions and information, Newall demonstrated considerable strategic awareness in correcting the Prime Minister's assertion that it would be better to shoot the Luftwaffe aircraft down over France. Newall pointed out that with radar (RDF) guidance, Fighter Command patrols were far more likely to make contact with the enemy than was possible over France where these advantages were available to the enemy. Furthermore, attrition would be less at home bases.



THE ANTI-DOWDING CONSPIRACY THEORY

'The only commander who won one of the few decisive battles in history and got sacked for his pains'.

Sir Arthur Harris.

Although Dowding enjoyed complete support over the fighters to France issue, his relationship with Newall and the Air Ministry was not always simple or straightforward. The debate has simmered over the years as to whether or not there was a deliberate conspiracy against Dowding. Conspiracy theories, particularly when they involve people such as the victor of the Battle of Britain, always make better copy.²⁹ But the random sequence of events theory may actually be more persuasive. Dowding was known as 'Stuffy' or 'Starched Shirt' by all who had worked with him. Nor were the nicknames particularly affectionate in their tone or usage. Dowding was nevertheless an eminently sensible choice to head Fighter Command on its formation in 1936. His work as Air Member for Research and Development had given him an intimate working knowledge of the RDF system and the development of the Spitfire and Hurricane.³⁰ Dowding was undoubtedly disappointed not have been made CAS in 1937,³¹ not least because Newall was significantly junior to him.³²

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In May 1939, Newall elected to replace Dowding with AVM Christopher Courtney. He was injured the next month in an air crash and by the time he was fit enough to take over Fighter Command, the war was underway and it was deemed inappropriate to replace Dowding.³³ The itch to replace him did not, however, disappear entirely and a lengthy interchange of correspondence followed with the issue only being resolved with Churchill's direction to Sir Archibald Sinclair (Secretary of State for Air) that Dowding must stay at the helm.³⁴ As the recognised Battle got underway in July 1940, Dowding had some security of tenure. As recently as March 1939, Trenchard had been expounding to the House of Lords³⁵ how only the fear of retaliation would deter the war-makers. His belief in the strategic bomber doctrine remained as tenacious as ever and Dowding's pursuit of a fighter solution cannot have endeared him to his erstwhile seniors.

A key element in the story, and for the conspiracy theorists in particular, was the differences of opinion over the operational tactics to be used. This increasingly public squabble between AVMs Keith Park (AOC 11 Gp) and Trafford Leigh-Mallory (AOC 12 Gp) was based on the latter's insistence that the 'big-wing' tactics, espoused by Squadron Leader Douglas Bader, should be applied in all situations. Park maintained that it took too long to gather the 'wing' together, by which time the bombers had turned for home. Leigh-Mallory suggested that this was immaterial as long as the Germans were shot down in large numbers. The dispute became increasingly acrimonious as 12 Group aircraft failed to

Much controversy remains over a meeting held in the Air Ministry on 17 October 1940 to discuss 'daylight tactics'

defend 11 Group stations because they were either still forming up, or, even worse, had gone in search of other prey in contravention of the Controllers' orders.³⁶ The nub of the matter is not which tactic was the more correct, but that Dowding should have sorted out his senior leaders. He claimed not to know about the dispute; but as Sir Maurice Dean points out 'Commanders-in-Chief have to know'.³⁷

The impression that Fighter Command was 'drifting' was apparent in the Air Ministry. Air Vice-Marshal Sholto Douglas was Deputy Chief of the Air Staff at the time and was responsible for liaising with the operational commands. His sympathies lay with exponents of the Big Wing. Much controversy remains over a meeting held in the Air Ministry on 17 October 1940 to discuss 'daylight tactics'. In Newall's absence, Douglas chaired the meeting at which Portal (CAS designate), Slessor (then Director of Plans), Joubert, Stevenson (Director of Home Operations), Crowe, Dowding, Leigh-Mallory and Park were present; what was somewhat surprising was that Leigh-Mallory had taken Bader along with him.³⁸ Dowding appears to have been subdued at the meeting and Park's voice was heard in vain. News of the controversy reached Churchill, possibly through the kind offices of Flight Lieutenant Peter Macdonald MP who was Bader's adjutant on 242 Squadron. The demand for change at Fighter Command grew with Douglas eventually replacing Dowding in November 1940. Leigh-Mallory replaced Park the next month. Dowding was sent to America as part of a delegation seeking new aircraft. Park was sidelined into a training appointment.

That Douglas and Leigh-Mallory should benefit personally from Dowding's fall only adds to the conspiracy theory. Impetus is further added to this theory by the machinations of Marshals of the Royal Air Force Trenchard and Salmond who lobbied hard, and in concert, to have Dowding removed.³⁹

What is not normally covered in the conspiratorial accounts is the growing problem that Fighter Command was experiencing in dealing with the German night bombing offensive on the Home Counties. The Luftwaffe had

The Spitfires and Hurricanes were only suitable for day fighter operations; the Defiant was inadequate and the Blenheim too slow. The Beaufighter had yet to come into service because of technical teething troubles



changed to night bombing to reduce the loss rates – Bomber Command had had to do the same. Radar development was sufficiently advanced to provide the Chain Home stations with the cover necessary for the Battle; but the technology had yet to be extended for airborne work. The Spitfires and Hurricanes were only suitable for day fighter operations; the Defiant was inadequate and the Blenheim too slow. The Beaufighter had yet to come into service because of technical teething troubles. Dowding was unable to bring about a significant improvement in night defence and this was probably the most critical factor in his removal, given the high degree of political visibility that the issue had attracted⁴⁰ – Churchill himself had become increasingly frustrated with the lack of a counter to the threat. That Douglas could do little but wait for the AI radar to improve and the development problems of the Beaufighter to be overcome was little solace for either Dowding or Park.

THE BATTLE

After conspiracy theories and high intrigue, the Battle of Britain itself is almost an anti-climax. There are nevertheless a number of aspects that are worthy of further discussion. The first of these goes back to the initial quotation from Churchill in praise of ‘the few’. The actual number of crews and aircraft involved in the Battle is a complex algorithm as strengths varied throughout the conflict with deliveries and losses. Detailed figures are available in the Appendices to Wood and Dempster.⁴¹ A snapshot



taken in mid-August for example shows that the Luftwaffe had some 805 fighters, 998 bombers and 261 dive bombers (the Stuka was a sitting duck against the RAF fighters much to the chagrin of the Germans) serviceable against 749 RAF fighter aircraft available for operations. Fighter numbers had reached broad parity a month later. Notwithstanding Park's immortal words to Churchill that there were no remaining reserves, this was true within his own Group at that time; the lowest point reached of aircraft in reserve was in the week ending 13 September when 80 Hurricanes and 47 Spitfires were available in the

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storage units.⁴² Trained aircrew were in short supply on both sides with experience levels falling markedly as the conflict wore on. It is also worth remembering that both sides started the Battle having suffered a number of losses; the RAF in the Battle of France and the Luftwaffe in the wider campaign. Murray makes the point that the Luftwaffe had been seriously weakened by this stage.⁴³

No discussion on the role of the 'Few' is complete without acknowledgement of the rest of the team who were involved. On the greater scale of things, the very existence of the Royal Navy made the whole of Hitler's plan hazardous in the extreme. Although depleted, the army quickly reorganised themselves for what could have been a life and death struggle; in this they were ably supported by the Home Guard. The efforts of the civil defence forces were exemplary, particularly when the Battle turned on London. The technicians working for the Post Office kept the land line communications working that were vital to the Command network. The ground staffs, including the WAAF, supported the aircrew superbly throughout. Likewise the Civilian Repair Organisation did wonders in turning around wrecked aircraft and cannibalising the write-offs. Due tribute must also be paid to the scientists and engineers who designed and built the weapons of war without which the 'Few' would have stood little chance of success. In many ways, Churchill's speech on 18 June in which he referred to the 'their finest hour' summed up the collective contributions of a nation with its back against the wall.

Most authors follow the four phases of the Battle originally used by Dowding and Park in their Dispatch and Reports respectively.⁴⁴ Wood and Dempster add a fifth phase to include October. The aim of the Luftwaffe was to destroy the Royal Air Force as a prelude to an invasion. Murray makes the valid point that this was to include the whole of the RAF, not just Fighter Command.⁴⁵ Their first phase was designed as a preliminary redeployment after the fall of France, the main assault coming in mid-August. Their one attempt to attack the flank of the UK from bases in Norway and Denmark was a disaster for the Luftwaffe and served to highlight the miscalculation that all of Dowding's assets would be in the South. The Luftwaffe then escalated their attacks, moving progressively inland to encompass production facilities and the Sector airfields. The switch from the Sector airfields to attacks on the capital was a deliberate move based on the assumption that Fighter Command would have to get airborne in strength to defend such a centre of gravity. This stands in contrast to the popularly held view that it was merely in retaliation for the efforts of Bomber Command. In a battle that had been designed to win air superiority, German strategic thinking was clearly flawed and it cost them dearly.

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At the more tactical level, Newall's comments in May 1940 over the desirability of fighting over England rather than France proved decisive against the Luftwaffe fighters who found themselves operating on the extremes of range with a very cold channel crossing awaiting their return. Dowding's system of Groups and Sectors also proved decisive in minimising the effects of a war of attrition.

Many battles end inconclusively. There can, however, be no doubt that not only did the Luftwaffe lose the Battle of Britain, the Royal Air Force, with the full support of the whole nation, emphatically won the contest. It is not therefore surprising that it has been placed on the same scale as Trafalgar and Waterloo. That much of the supporting rhetoric was born in the darkest hours of what was even then evidently going to be a long struggle is barely relevant. Victory in such circumstances is bound to attract historical analysis, revision and, unfortunately, sensationalism. There is always a risk in this process that the blandest, or the most spectacular, account will be the one that is best remembered depending upon the standpoint of the observer. The real story may become obscured and important debates left dormant. This article has sought to re-stimulate debate in the Battle of Britain and to encourage readers to re-examine all of the accounts – not just the most recent or most accessible.



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NOTES

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- 2 Alfred Price, *The Hardest Day: The Battle of Britain, 18 August 1940*, Cassell, London 1998, (originally published by Jane's in 1979, page 31.
- 3 *Battle of Britain*, produced by Harry Salzman, Metro-Goldwyn-Mayer, 1969.
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- 6 See for example, John Ray, *The Battle of Britain New Perspectives: Behind the Scenes of the Great Air War*, Brockhampton Press, London, 1999. This account was based a doctoral thesis and contains much analysis of primary source material.
- 7 AHB Narratives, *The Air Defence of Great Britain: Volume I, The Growth of Fighter Command July 1936 - June 1940 and Volume II The Battle of Britain, July - October 1940*. These are due to be published in September 2000. The author is grateful to Mr Seb Cox, the Head of AHB, for access to the papers as well as comment on this and other work.
- 8 Stanley Baldwin, House of Commons, 10 November 1932. 270 Parliamentary Debates (House of Commons), Official report 5th Series, c632. Baldwin went on to add: 'The only defence is offence, which means that you have to kill more women and children more quickly than the enemy,'.
- 9 A. J. P. Taylor in the Introduction to Deighton, *ibid*, page xv. See also Malcolm Smith, *British Air Strategy Between the Wars*, Clarendon Press, Oxford, page 175.
- 10 Taylor, *ibid*, page xvi.
- 11 Taylor, *ibid*, page xvii
- 12 This letter is framed and displayed in the Joint Services Command and Staff College at Bracknell (formerly the Royal Air Force Staff College). Copies of this, and other correspondence, can be found in the AHB Narratives, *ibid*.
- 13 This led, inevitably, to dissatisfaction when campaign medals were not awarded to those of the few whose efforts had fallen outside of these dates.
- 14 For a detailed description of the 'Blitz' see John Ray, *The Night Blitz 1939-1941*, Arms and Armour Press, London, 1996.
- 15 For a provocative discussion on this area, see the Introduction to Ray, *ibid*, pages 7-10.
- 16 Cited by Neil Young, 'British Home Air Defence Planning in the 1920s', *Journal of Strategic Studies*, December 1998, page 494. The original discussion was taken from the papers of the Committee of Imperial Defence; CAB2/3, 145th Meeting, 14 Oct 1921. See also John Ferris, 'The Theory of a 'French Air Menace', Anglo-French Relations and the British Home Defence Air Programmes of 1921-25', *Journal of Strategic Studies*, 10 (1987), pages 63-83.
- 17 Created in 1923 under Air Commodore J M Steel and Colonel W B Bartholomew. See Derek Wood and Derek Dempster, *The Narrow Margin: The Battle of Britain and the Rise of Air Power 1930-40*, Hutchinson, London, 1961, page 69.
- 18 Derek Wood, 'The Dowding System', in Air Commodore Henry Probert and Sebastian Cox (eds), *The Battle Re-Thought*, RAF Historical Society Symposium papers, 25 June 1990, page 3.
- 19 Air Commodore Henry Probert in *High Commanders of the Royal Air Force*, Air Historical Branch, HMSO, gives Ellington the benefit of the doubt stating that 'if a man is to be judged by his achievements Ellington's place in RAF history is safe'; page 12. Probert goes on to allow that Ellington and some of his staff were sceptical about the practicalities of air defence, but still preside over important changes in the Service inventory, *ibid*, page 14.
- 20 John Terraine, *To the Right of the Line, The Royal Air Force in the European War 1939-1945*, Hodder and Stoughton, London, page 15.

- 21 Probert, *ibid*, page 109.
- 22 See Probert's comments on Newall in Air Commodore Henry Probert, *High Commanders of the Royal Air Force*, HMSO, London, page 16.
- 23 See Colin Synnott, *RAF Operational Requirements 1923-1939*, unpublished PhD thesis, University of London, June 1998.
- 24 Martin Middlebrook and Chris Everitt, *The Bomber Command War Diaries; An operational reference book 1939-1945*, Midland Publishing, Leicester, 1996 (first published by Viking in 1985), page 56. The subsequent pages detail the raids carried out by the Command.
- 25 Republished as Appendix 11 to the AHB Narrative, *ibid*. Note that the opening speech in the film has the addressee wrong and is considerably abbreviated.
- 26 Reproduced as Appendix 12 to AHB Narrative, *ibid*.
- 27 Reproduced as Appendix 13 to AHB Narrative, *ibid*.
- 28 Reproduced as Appendix 14 to AHB Narrative, *ibid*.
- 29 See Deighton, *ibid*, pages 271-273 and V Orange, *Sir Keith Park*, London, 1957, page 121.
- 30 Group Captain E B Haslam, 'How Dowding came to leave Fighter Command', *Journal of Strategic Studies*, 4, 2, 1981, page 176.
- 31 Ray, *ibid*, page 12.
- 32 Newall was three years younger: Probert *ibid*, page 15.
- 33 Haslam, *ibid*, page 178.
- 34 Ray, *ibid*, Chapter 1 covers this in detail.
- 35 Full reference cited in Ray, *ibid*, based on the text on page 21.
- 36 This debate has been covered in detail. See Ray, *ibid*, Chapters 4 & 5; Bill Newton Dunn, *Big Wing: The biography of Air Chief Marshal Sir Trafford Leigh-Mallory*, Airlife, Shrewsbury, Chapter 8; Probert and Cox, *ibid*, pages 59-63; and Sir Maurice Dean, *The Royal Air Force and Two World Wars*, Cassell, London, page 144.
- 37 Dean, *ibid*, page 144.
- 38 Ray, *ibid*, Chapter 7 for the full details.
- 39 Ray, *ibid*, page 139 and Haslam, *ibid* 183.
- 40 Haslam, *ibid* page 182.
- 41 Wood and Dempster, *The Narrow Margin*, *ibid*. pages 419 et seq.
- 42 Wood and Dempster, *ibid*, page 201.
- 43 Williamson Murray, *The Luftwaffe 1933-1945: Strategy for Defeat*, Brassey's London, page 39-40 and table III.
- 44 Dowding's is in AIR 20/5202 and Park's in 2/7281.
- 45 Murray, *ibid*, page 45.

An RAF Hawk T.MK1A. The aircraft can be equipped with wing-tip AIM-9L Sidewinder air-to-air missiles and a cannon pod beneath the fuselage.





A Comparative Analysis of RAF and Luftwaffe Intelligence in the Battle of Britain, 1940

In analysing the performance of RAF and Luftwaffe intelligence in the Battle of Britain it is perhaps best to start by describing the organization of intelligence in the two opposing arms, since this provides the key to understanding some of their shortcomings.

The Air Intelligence Branch of the Air Ministry was organized on a geographical basis whereby all material relating to a particular country was dealt with by a particular sub-section. Thus, AI3b was the sub-section that dealt with all information relating to Germany, including order of battle, aircraft, training and production. This geographically based structure was a relic of peacetime, when the origin of intelligence material, whether from open or clandestine sources, tended to relate to one particular country, and assessments were seldom required for more than one country at a time. For the first eight months of the war the geo-strategic situation remained relatively unchanged, but with the German offensive in the West, and the entry of Italy into the war, the situation was radically altered. The immediate crisis of the Battle of Britain and imminent invasion was obviously an inopportune moment for wholesale reorganization, but it is significant that once the threat had receded Air Intelligence underwent a long period of readjustment and reorganization between November 1940 and August 1941. The *de facto* disappearance of national frontiers



in Europe and the increasing need to deal effectively with operational intelligence of the utmost urgency led directly to the abandonment of geographical divisions in the handling of intelligence in the war against Germany. Thus AI3b eventually became responsible for studying orders of battle and organization for all air forces in northern Europe, while other sub-sections performed similar roles for airfields, production and training. These changes also reflected the shift in relative importance between Sigint and photographic reconnaissance on the one hand, and published and clandestine sources on the other. The latter were of particular value in the pre-war period, but became relatively less so as the need for operational intelligence assumed priority. As will become clear, some of the failures of British intelligence during the Battle of Britain were organizational.¹

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Air Intelligence was, however, a separate Directorate within the Chief of the Air Staff's Department in the Air Ministry, and its Director was an Air Commodore equal in status to the Director of Plans. AI was thus able to produce independent assessments of aspects of the German war machine, which frequently criticised, implicitly or explicitly, the strategy of the Air Staff. Even when these appreciations were wide of the mark and influenced by pre-war doctrine and 'mirroring', there is no doubting the independence of the stance adopted.² Though some of the officers within AI at the start of the war were of moderate quality, good quality personnel were brought into the Directorate and intelligence officers were on the whole well regarded. Indeed, one of the strengths of AI was its ability to recruit from outside the Service in much the same way as Bletchley Park. In fact by the end of the war, of some 700 officers only 10, all in the rank of Group Captain or above, were regular officers.³

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By contrast the intelligence service of the Luftwaffe did not enjoy separate status. The Air Intelligence Department, or 5th *Abteilung*, within the Luftwaffe General Staff was subordinated to the operations department. A similar structure pertained in the Luftflotten so that it was frequently the operations officers who prepared intelligence assessments, 'because the basis for all evaluations of the situation were the Luftwaffe's own operational intentions, objectives or missions'.⁴ The intelligence officer might be consulted before such appreciations were prepared, but as the position was held in low esteem, he frequently was not. Indeed the lowly status of Luftwaffe intelligence officers is well illustrated by the fact that they were regarded as 'maids of all work' and their duties included 'troop welfare, propaganda, and censorship'.⁵ Equally indicative of the Luftwaffe's overall approach is the fact that 'in the Luftwaffe there were no representatives of the intelligence organisation stationed at units below the size of Fliegerkorps until 1944'.⁶

In addition, because of the political structure of the Third Reich, there was little co-ordination of intelligence in the British sense. Competing German intelligence bodies – and there were more than a dozen such agencies outside the armed services – were insular in their attitude to other parts of the intelligence community, because, as always in politics, knowledge was power.

Intelligence from difference sources thus came together only at the very highest level – Hitler – so that no organization such as the British Joint Intelligence Committee could exist because its members would have been surrendering knowledge, and with it political power, to rivals within the system. This attitude of insularity spread right down through the system, with competing departments jealously guarding their information, and resulted in information being disseminated largely vertically, and seldom horizontally. Since intelligence is a jigsaw in which a piece obtained, say, from radio intercepts can then be followed up by a POW interrogator, this was bound to weaken German intelligence. Thus, the Luftwaffe Signals and Cipher Intelligence Service was largely the personal fiefdom of the Chief of Luftwaffe Signals, General Martini,⁷ and the friction and rivalry between this 3rd *Abteilung* of the Signals Service and the 5th *Abteilung* of the Luftwaffe General Staff led directly to erroneous assessments.

Insularity and empire-building, endemic in the Third Reich and encouraged by Hitler for political reasons, meant that, of some eight agencies collecting intelligence on air matters, only two were directly sub-ordinated to the 5th *Abteilung*. On the technical side ‘information on radar was evaluated by ten different agencies’.⁸ With such a plethora of players in the field co-ordination would have been difficult even given goodwill, but the Nazi psychology of rivalry and mistrust inevitably permeated the entire organization of intelligence and prevented vital cross-fertilization between agencies. To take one example, the German POW interrogation organization was not subordinated to the 5th *Abteilung*, whereas RAF interrogation was conducted by a sub-section AI1 (k), within the Intelligence Directorate. An interrogation report from AI1 (k) during the Battle of Britain would receive a wide distribution within the Air Ministry, and copies would be sent to operational commands and Naval and Military Intelligence

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automatically: altogether some forty copies would be produced. An item of particular interest to some organization would be copied to them, so that for example, a report on a new type of German tracer ammunition in July 1940 was copied to the Director of Armament Development in the Ministry of Aircraft Production.

As always in Nazi Germany, Hitler's personal attitude to a subject was of paramount importance in moulding the opinions of others. It comes as no surprise, therefore, that his personal dislike of unfavourable intelligence reports was shared by Goering and Jeschonnek.⁹ The Head of the 5th Abteilung from 1938 was Major, later Colonel, 'Beppo' Schmid, who combined this duty for several years with that of working in Goering's ministerial office. He thus had ample opportunity to observe his master's prejudices at first hand, and as a shrewd and ambitious officer it is hardly surprising that he soon gained a reputation within the Luftwaffe for garnishing his reports to make them more palatable to Goering.¹⁰

After this brief outline of the organization of the rival intelligence directorates in mind we can consider the quality of the intelligence they produced, and the effect it had on the operational decisions made in the campaign. To take the British first there is no documentary evidence that intelligence affected British dispositions before the opening air battles in July. The basic infrastructure of Fighter Command had been laid down before the war and, once France fell, it was obvious that an attack was coming, and that it would be mounted from airfields extending from Brittany to Scandinavia. British air planners had in any case been postulating mass German air attacks since before the war, and Air Intelligence had tended to interpret any threatening German moves against the Low Countries as being part of a plan to seize airfields for an air assault on Britain, rather than an attempt to outflank the Maginot line and invade France. Thus Wing Commander Inglis of AI3 minuted on 2 May 1940:

*The invasion of Holland, which now looks imminent, will represent the first 'plank' in the northern encirclement of the British Isles, and will provide Germany with those air bases from which she may hope to neutralise our Air Force and Fleet as a preliminary to invasion.*¹¹

In an earlier minute of 2 February 1940 the same officer had written, of a report from Sweden, that Sweden and Norway would be invaded to act as a launching pad for air and seaborne assaults:

*If Germany finds herself forced to take the offensive the plan outlined ... fits in with Hitler's ambition – the overthrow of the British Empire, with the avoidance of a direct attack upon France.*¹²

Air Intelligence's predisposition to interpret German strategy always in relation to air power was evident even after the German invasion of the West had begun. On 15 May 1940 Group Captain Elmhirst, head of the German section, wrote:

We are of the opinion that the object of this advance is two-fold: (a) to occupy air bases in the Low Countries from which to attack England; (b) to enable Flak and Fighter Units to be established West of the Ruhr.

*When (a) and (b) are accomplished we consider that the whole weight of the GAF will be thrown against England. This may be followed by invasion.*¹³

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One doubts whether British military intelligence, or even the intelligence sections of British Air Forces in France, saw things in quite the same light. The effect of these erroneous appreciations of German intentions was probably not very great. Although Air Intelligence suggested both the reinforcement of fighters in France and the bombing of targets in Germany, the limited extent to which these measures were undertaken would probably have been adopted in any case. The precariousness of the situation on the Continent does not, however, appear to have impinged on the consciousness of Air Intelligence as early as it might have done. In a minute of 3 June 1940 a suggestion by Wing Commander Inglis that fighter strength in France be further reinforced was endorsed by both the Deputy Director of the German section and the Director of Intelligence. This despite the fact that some two weeks earlier the War Cabinet had made its famous decision not to send further fighter reinforcements to France. An unknown hand, presumably that of a senior member of the Air Staff, annotated: ‘... I strongly deprecate the proposal to move our Fighter Squadrons to France in appreciable numbers’.¹⁴

Once France collapsed, of course, there could be little doubt over Germany’s future intentions, and at least some of the lessons of German operations in France do seem to have been absorbed, since Air Intelligence predicted on 28 June that the opening of the German offensive against Britain would take the form of attacks on aerodromes by fighters and bombers. The first indications of the expected air offensive came from reconnaissance photographs of extensions to French runways, and low grade Sigint indicating the arrival of Luftwaffe bomber units in northern France. From the end of June Enigma intelligence on the improved states of serviceability and readiness in German bomber units, and the arrival of dive-bomber units on airfields across the English Channel, indicated that the period of grace while Luftwaffe units refitted after the French campaign was drawing to a close.¹⁵

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Once the Battle started, which in British eyes means early July, intelligence contributed in two major areas: first in the provision of order of battle and organizational intelligence on the Luftwaffe, and secondly in more direct and immediate intelligence on Luftwaffe operations. Both forms of intelligence were heavily reliant on Sigint. German signals traffic was of four main types: high-grade cyphers encrypted by Enigma, low-grade W/T traffic, usually to and from aircraft, low-grade radio telephone traffic, and other signals traffic such as navigational beacons. Before the outbreak of war the RAF had set up an interception system consisting of one main interception station at Cheadle, and four subsidiary stations, and these had been intercepting and interpreting low-grade German W/T traffic since 1935. Luftwaffe signals security was relatively poor, and German bomber and transport aircraft used their unit markings as W/T call signs before the war, thus enabling the RAF radio intelligence service, or Y as it was known, to build up a reasonably accurate picture of German Air Force numbers and units. On the outbreak of war the codes were changed but, as so often in Sigint, the mass of knowledge already accumulated on units and airfields meant that by the end of 1939 most operational units had been re-identified. The increased amount of traffic intercepted in late June 1940 enabled Air Intelligence to build on its earlier solid base, and with its increased understanding of the organization and equipment of the German Air Force it made a very significant adjustment in early July in its estimate of frontline strength. In June Air Intelligence had estimated that the Luftwaffe disposed of 5,000 frontline aircraft, including 2,500 bombers capable of delivering 4,800 tons of bombs per day, and backed up by 7,000 aircraft in reserve. The actual figures were approximately 2,000 frontline aircraft with 1,000 in reserve.¹⁶



Professor Lindeman, Churchill's personal scientific adviser, was openly sceptical of the Air Ministry's figures and said so at a meeting with Group Captain Elmhirst on 5 July 1940. Lindeman queried in particular the figure of 4,800 tons of bombs per day. The explanation given by Elmhirst was:

... that this figure was based on 80 per cent of the German Bomber Force carrying full load and on a proportion of them making one or two sorties per day.

Further it was explained that the figures was given with the following provisos –

(a) the scale was for the initial day, and would diminish in accordance with unserviceability and casualties.

(b) that this scale could only be achieved if Units were given a period of rest in order to maintain the maximum serviceability in squadrons.

(c) that reserve crews were in readiness.

(d) that a scale of one or more sorties per day might be maintained for the first week, but with diminishing numerical force.¹⁷

These caveats had not of course been given in the JIC paper, an example of Air Intelligence continuing its pre-war tendency to make worst-case assumptions. In the light of the improved intelligence from Enigma Elmhirst revised his estimate of the Luftwaffe's likely capabilities on the basis that the number of bombers available could be reduced to 50 per cent averaging one sortie per day, which would give a bomblift of 1,800 tons. It is obvious from the comments which this minute engendered that the Enigma intelligence was of excellent quality, the Director of Intelligence referring to it as 'apparently sure evidence', and with unconscious accuracy 'heaven-sent'.¹⁸

Equally interesting was the reaction of members of the Air Staff when the revised estimate was circulated. Slessor, then Director of Plans, wrote:

I think the revised estimate is very much nearer the mark than anything we have had before. I have always felt that we were loading the scales unduly against ourselves [and the] JPC [Joint Planning Committee] commented in that sense, on JIC's estimate of 4800.¹⁹

The Deputy Chief of Air Staff, Douglas, also minuted: 'I am quite prepared to accept your revised estimate, which I think is much more reasonable than the old one, I said at the time that I thought you had put the German effort too high.'²⁰

This indicates quite clearly that Air Intelligence's estimates of German strength were not accepted uncritically within the Air Staff, any more than they were outside it. Nevertheless, the tendency was still to over-estimate German strength, both frontline and reserve, and thus to ascribe greater staying power to the Luftwaffe during the Battle than it actually had, even though the

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defences were claiming two or three times the true scale of German loss. It is true to say, however, that continued overestimation of German strength did not adversely affect Dowding's conduct of the Battle, since it would presumably have confirmed him in his conviction that maximum conservation of his exiguous resources was essential to victory. The only document giving direct evidence of a link between a piece of Enigma intelligence and a strategic decision by Dowding tends to confirm this view. This was in early September when Enigma detected the move of some 160 heavy bombers from Scandinavia into Belgium and France, together with considerable reinforcement of dive-bomber units in the same area. Keith Park, commanding the Fighter Group in South-East England, asked Dowding for reinforcements of from two to six fighter squadrons, some at forward bases. Dowding's response was to move one Hurricane night fighter squadron out of Park's 11 Group, and give him two further

day fighter squadrons at Hendon and Debden, airfields which were sufficiently far from Luftwaffe bases to have suffered only sporadic attack. This was typical Dowding parsimony, given the increased scale of threat implied by the intelligence.²¹ Such other changes in strategy as Dowding introduced, as for example in his scheme to keep 11 Group squadrons up to strength in pilots at the expense of squadrons in other Groups, were largely forced on him by his own losses and not through any



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intelligence input. Had Air Intelligence been underestimating, instead of overestimating, German strength it is of course possible that Dowding's strategy would have been adversely affected. Since Enigma intelligence did not give any indications of the scale of German losses, however, it could not be used by Dowding in any calculation of ultimate victory or defeat (Air Intelligence's estimates of German losses are dealt with below). Air Intelligence's continuing overestimation did lead to a fundamental misappreciation of German strategy during August. Air Intelligence believed that the Luftwaffe was holding back a large proportion of its long-range bomber force, which would be unleashed only after air superiority had been won. In fact, of course, the Luftwaffe was more or less fully committed to the Battle from mid-August. Again, this erroneous conclusion probably had little effect on British strategy other than to reinforce the central tenet of maximum conservation.²²



This leads on to the vexed question of the extent to which Enigma intelligence was of operational value to Dowding. The official history of *British Intelligence in the Second World War* states categorically that ‘the Enigma was of no help in forecasting shifts that occurred during the Battle in the GAF’s methods and objectives.’²³ The reason was that the major strategic decisions were seldom transmitted by wireless. Thus, shifts in German strategy had to be deduced by Dowding and his Group Commanders purely from close observation of German operations, a skill at which they became remarkably adept. Occasional clues, such as odd references to Adler Tag, were too vague to indicate anything of value.²⁴

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At a tactical level, however, the official historians’ view that Enigma gave very little assistance is perhaps more contentious:

*In the day-to-day fighting by giving notice of the time, the targets and the forces committed to individual raids, the Enigma provided an increasing amount of intelligence which was sometimes obtained too late to be of operational value. Moreover, the GAF made last minute alterations of plan which were not disclosed in the decrypts, or were not disclosed in good time.*²⁵

This is true so far as it goes, and is perhaps a necessary corrective to the Winterbotham ‘Ultra Won the Battle of Britain’ school of thought. There is, however, at least some evidence to contradict the official historians’ conclusion that Fighter Command received no advance warning of the pincer attacks against the north and south of England on 15 August 1940. The eminent British historian Ronald Lewin has stated, on the basis of decrypts available in the Public Record Office and on information from Group Captain Winterbotham, that Dowding knew, not only of the attacks on northern England by Luftflotte V, but also that the German plan involved a series of seven raids widely dispersed both geographically and chronologically.²⁶

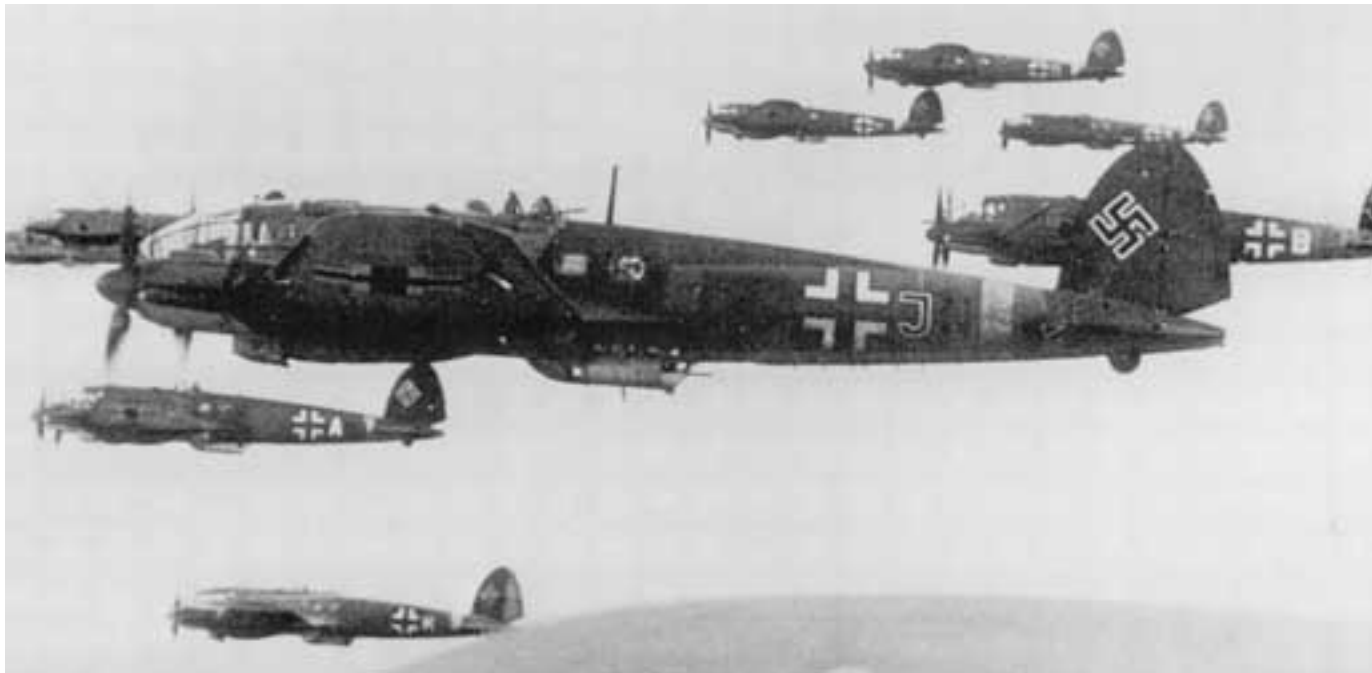
The issue is further complicated by contradictory evidence of exactly when Dowding was fully indoctrinated into the Ultra secret. According to Lewin, who appears to rely heavily on Winterbotham’s memory, this took place in early August, when a Special Liaison Unit was set up in HQ Fighter Command.²⁷ However, Martin Gilbert, in his mammoth biography of Churchill, quotes a minute from the Prime Minister of 16 October asking that the Cs-in-C of Fighter and Bomber Commands be let in on the secret.²⁸ The latter would seem on the face of it a more reliable source than Group Captain Winterbotham’s memory. A further indication is perhaps contained in the official history’s comment that postponements of raids which were not decrypted, when Enigma had already given intelligence of the original date, led to the undermining of confidence in the source. It is difficult to see why the source should be undermined if its true nature were known.²⁹

The official history does, however, make clear that organizational failings within Air Intelligence were a further contributory factor in reducing the value of Enigma’s tactical intelligence. The exploitation of high-grade ciphers had never been expected to

produce intelligence of tactical value, and it was initially passed to the section of Air Intelligence tasked with long-term assessments of German order of battle and organization. This section 'was not organised or staffed for the exploitation of operational intelligence. The result was a separation of the tactical information obtained from the high-grade and low-grade sources, the former occasionally revealing the GAF's orders and intentions, the latter reporting them as they were carried out, which prevented both sources from being used to the full during 1940'.³⁰ One might add that if, as Lewin claims, Dowding and Park were both indoctrinated into the secret of Enigma in early August, then the organizational shortcomings in the Air Intelligence Directorate would have been irrelevant, since strategic and tactical intelligence could have been synthesized by the two commanders themselves.

The exploitation of the low-grade sources was nevertheless efficient because the organization had from the start been designed to extract operationally valuable information. The RAF wireless interception service centred at Cheadle already had much experience of intercepting German W/T traffic, and they were able to put this to good use. The medium-frequency traffic of the German air traffic control service gave early warning of the departure of aircraft, and direction-finding often revealed the bases involved. The high-frequency traffic was generated by German

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bombers on operations, and the wireless discipline of these units was poor, enabling Cheadle to make frequent early and accurate guesses of the units taking part in a raid. At the same time the arrival of German fighter units in north-eastern France and the Low Countries meant that the radio telephone transmissions of the fighters came within interception range for the first time. The equipment to monitor these transmissions was already in place, although it would appear that initially nobody had remembered to provide German linguists to interpret it.³¹ The radio discipline of the Luftwaffe fighter units was no better than that of the bombers, and vitally important operational information was intercepted. The interception units 'could, on occasion, determine where enemy aircraft were forming up for a raid

The medium-frequency traffic of the German air traffic control service gave early warning of the departure of aircraft, and direction-finding often revealed the bases involved

outside radar's detection range, give the altitude of the aircraft', and indicate the type of aircraft in the formation.³² Direct telephone lines were established between the interception units and the local Group and Sector headquarters, as well as with Fighter Command, so that operationally important intelligence could be passed as rapidly as possible. The contribution of low-grade Sigint to the difficult task of assessing the enemy's intentions from the confused and conflicting radar tracks on the operations room table was obviously of great importance.

One area in which only tentative progress was made during the Battle was in the use of Sigint to help to establish the true rate of German losses. This is an area which has always been one of the most difficult for any air intelligence organization, yet at the same time one of the most important. The Falklands war demonstrated yet again that reliance on reconstructing air battles from eye-witness accounts after the event is fraught with difficulties. Air Intelligence, perhaps because of its relative inexperience in the field, was certainly too ready to accept RAF claims at face value. In the period 8 August to 16 August the defences claimed 501

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enemy aircraft confirmed as destroyed, and a further 231 probably destroyed, when the actual scale of loss was only 283.³³ By the end of the Battle there were the first signs of doubt over the veracity of the claims. In a minute of 13 October Air Intelligence drew attention to the fact that anti-aircraft and fighter defences claimed 2,091 aircraft destroyed between 8 August and 2 October, but only 837 could definitely be identified as lost from wreckage or W/T intercepts, leaving a discrepancy of 1,254 aircraft.³⁴ The actual German loss for the period was 1,300 aircraft.³⁵ Instead of questioning the figures, however, Air Intelligence merely sought explanations for the discrepancy. The explanations concentrated on the shortcomings in sources, but at no time sought to question whether the defences were overclaiming, and there is no evidence to suggest that any action was taken over the discrepancy. This was to have serious consequences in 1941 when Fighter Command went over to the offensive, because instead of arriving at a

realistic method of assessing claims based on analysing the real evidence of German losses available from the Battle of Britain, Fighter Command continued to accept exaggerated claims. As the air battles of 1941 took place over the Continent the problem of verifying such claims was far more difficult, and Fighter Command mistakenly believed it was winning a battle of attrition when it was in fact suffering severely.³⁶ Air Intelligence's minute of 13 October makes it clear that the first steps towards gleaning intelligence on losses of German multi-engined aircraft through W/T intercepts were made during the Battle of Britain, but there was apparently no comparable analysis of the R/T intercepts.³⁷ Here again, however, there is no evidence that such exaggerated claims had any adverse influence on Dowding's handling of the Battle. His assessment of the Luftwaffe's staying power probably owed more to his own analysis of German operations on a day-to-day basis than to any arithmetical calculation of losses.



General Felmy produced a report shortly after the outbreak of war which revealed many of the shortcomings in Luftwaffe force structure which were to prove decisive in the Battle of Britain. Predictably Goering and Jeschonnek castigated the report and its author, and on Hitler's orders he was relieved of his post...

If this was the slightly uneven performance of a British intelligence service which was not hamstrung by political in-fighting, it is hardly surprising that the Luftwaffe's intelligence performance was grossly inadequate. In a report of 2 May 1939 Schmid had concluded that the Western powers could not 'catch up with the major advance in the expansion of the air forces achieved by Germany during the next 1-2 years.'³⁸ Within a year British production was exceeding that of Germany by 50 per cent. Schmid went on to conclude that the democracies could only match Germany in the field of technical development of fighters, and that because of the lead time required the Western powers were two to three years behind in fighter aircraft and even further in bombers. Within a year again the Luftwaffe's pilots were to learn that the Spitfire was the equal of the Bf 109. Schmid also believed that the British defensive system was adequate only to defend London and that the rest of the country would be almost totally exposed to attack: this view was presumably based on Schmid's ignorance of British radar and a consequent calculation of defensive forces based on standing fighting patrols. The further conclusion that, because Britain was an island, the defenders' job was more difficult than the attackers' was again presumably based on the assumption that the only early warning available would be visual sighting of aircraft by ground observers. Schmid did, however, sound a warning note that the German lead in air armament might not be maintained indefinitely.³⁹

The optimism in the Luftwaffe over the result of any air war with England was not general, however. General Felmy produced a report shortly after the

outbreak of war which revealed many of the shortcomings in Luftwaffe force structure which were to prove decisive in the Battle of Britain. Predictably Goering and Jeschonnek castigated the report and its author, and on Hitler's orders he was relieved of his post on a pretext.⁴⁰ Several studies done on the comparative air armament position of Germany and the Western Powers during 1939 concluded that Germany was definitely in a superior position, but that this superiority would eventually begin to fade. These views, of course, were in accord with Hitler's general desire to settle matters with the Western Powers in the shortest possible time. In the aftermath of the Battle of France the state of euphoria in the German High Command led predictably to even more optimistic assessments, fed in part by French declarations that Britain and the RAF could not survive for long.⁴¹



The Bf110 was considered superior to the Hurricane but inferior to skilfully handled Spitfires. This was almost certainly an example of Schmid garnishing an unpalatable truth for Goering who took great personal pride in the 110 units

The inadequacy of German intelligence is fully revealed in an appreciation prepared by the 5th *Abteilung* on 16 July 1940 right at the start of the Battle. A peculiarity of the report is that British strengths were identified as weaknesses and weaknesses as strengths. The report concluded that the British possessed approximately 900 fighters, an exaggeration of about 30 per cent, of which approximately 675 were serviceable, which was more accurate since Fighter Command had 622 serviceable aircraft. Schmid also characterized both Hurricanes and Spitfires as inferior to the Bf109. The Bf110 was considered superior to the Hurricane but inferior to skilfully handled Spitfires. This was almost certainly an example of Schmid garnishing an unpalatable truth for Goering who took great personal pride in the 110 units. The poor quality of the Hurricane and Spitfire had similarly been stressed by the Foreign Air Armament Department, probably for the same political reasons. The same Department may also have been responsible for the ridiculous assertion in Schmid's report that the Hampden was the best British bomber, when it was far and away the worst.⁴²



The shortage of trained pilots was Dowding's Achilles' heel, and Fighter Command had already asked for pilots from other operational commands and from the Fleet Air Arm, yet German intelligence believed that 'there were no difficulties regarding the supply of men.'

The 5th *Abteilung* report was as inaccurate over production and personnel as it was over technical matters. The British aircraft industry was believed to be capable of producing between 180 and 300 fighters a month, but it was predicted to decrease rather than increase because of the effects of air attack and problems over raw materials. In fact production had started to accelerate in April, and averaged between 450 and 500 fighters between July and September, which partly explains the perplexity on the part of the Luftwaffe High Command at Fighter Command's continued ability to mount an effective defence when German calculations showed that it should have been destroyed. Schmid was also totally unaware of the massive effort put into repairing damaged aircraft by the Civilian Repair Organization. In its assessment of the RAF's personnel the report was just as inaccurate. The shortage of trained pilots was Dowding's Achilles' heel, and Fighter Command had already asked for pilots from other operational commands and from the Fleet Air Arm, yet German intelligence believed that 'there were no difficulties regarding the supply of men.' Most inaccurate of all, however, was the assessment of the RAF's command structure and organization, and it is worth quoting in full:

The command at high level [i.e. Command/Air Staff] is inflexible in its organization and strategy. As formations are rigidly attached to their home bases, command at medium level [i.e. Group/station] suffers mainly from operations being controlled in most cases by officers no longer accustomed to flying (station commanders). Command at low level is generally energetic but lacks tactical skill.

Only the last statement contained a germ of truth. In fact the criticisms of the higher commanders could more accurately have been applied to the Luftwaffe than the RAF, since most station commanders flew actively and Keith Park regularly visited his units in his own Hurricane, and had himself flown over Dunkirk to view the air battle at first hand.⁴³

Schmid's conclusions concerning the rigidity of the RAF organization were probably based on the interception of Fighter Command's HF radio telephone traffic by General Martini's 3rd *Abteilung*. The assumption, however, that close control of

General Martini's Signals Intelligence organization was certainly aware that the British possessed radar, and had flown radio intelligence gathering missions just before the outbreak of war, using the airship Graf Zeppelin...

formations from the ground made the system inflexible was a costly error. Most incredible of all, perhaps, is the fact that nowhere in the report is any mention made of a radar. General Martini's Signals Intelligence organization was certainly aware that the British possessed radar, and had flown radio intelligence gathering missions just before the outbreak of war, using the airship *Graf Zeppelin* to try to discover the frequencies. Either because internal rivalry had meant that the Signals Service had not told the 5th *Abteilung* of its existence, or because Schmid's department was bereft of technical expertise capable of appreciating its significance, the eyes of the British defence were ignored.

Unlike British intelligence, however, Luftwaffe intelligence did not improve and learn from its mistakes as the Battle progressed, but merely perpetuated them. Thus, having established through the activities of General Martini's monitoring service that radar information was used to control the fighters using radio telephone, Schmid concluded that his earlier appreciation of British inflexibility was fundamentally correct. In a circular to Luftflotten and Fliegerkorps dated 8 August he stated:

As the British fighters are controlled from the ground by R/T their forces are tied to their respective ground stations and are thereby restricted in mobility ...

Consequently the assembly of strong fighter forces at determined points and at short notice is not to be expected.

*A massed German attack on a target area can therefore count on the same conditions of light fighter opposition as in attacks on widely scattered targets.*⁴⁴

He concluded that mass attacks would swamp the system, whereas they were in fact easier to detect as they formed up over the Continent, and easier to track on their way to their targets, which made it easier to concentrate defending squadrons against them.

Martini's Signals Intelligence Service was apparently more efficient than Schmid's organization, but it failed to affect the Battle. It did detect British radar, and attempted some ineffectual jamming, but it was deceived into thinking that the bombing of radar stations which was undertaken early in the campaign was ineffective, by the British policy of continuing to transmit from damaged stations even when return signals could no longer be received. Reports from pilots indicating the apparent invulnerability of the lattice mast to blast damage led the Germans to conclude that the vitals of the radar stations were located in bombproof bunkers. In fact, several stations were put out of



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action, and had the attacks continued the defensive system would have been crippled. Martini's monitors should also have realized that RAF fighter squadrons were switched between Groups and Sectors as the situation demanded, and could be vectored on to raids some distance from their own bases. If this was detected the

intelligence does not appear to have been passed to the 5th *Abteilung*. It may also have been due to the pinpointing of the sectors airfields through D/F fixes of fighter R/T by Martini's monitors that German targeting of airfields improved and became far more selective during the last two weeks of August.⁴⁵

These weaknesses in intelligence both mirrored and contributed to a fatal over-confidence throughout the German High Command. Hitler's own conviction that the British were weak and would capitulate and accept overtures for peace, either before or after a short air offensive, was bound to affect Luftwaffe thinking given the nature of the Third Reich. Goering himself considered that four days would be sufficient to defeat Fighter Command, and a month would complete the destruction of the RAF and the aircraft industry throughout Britain. This outlook led to serious delays in Luftwaffe operations during which time Fighter Command repaired some of the ravages of the French Campaign. Most Luftwaffe units had been rested, re-equipped, and redeployed to bases in northern France and the Low Countries by the third week in July, yet the Luftwaffe did not launch a concerted offensive until 13 August. Until the end of July the prevarication was largely Hitler's, but his patience with the British and his savouring of his victory in France were exhausted by 31 July when he had decreed an all-out assault. Poor weather played some part in further delays, but the Luftwaffe's planners seem to have lacked all sense of urgency, continuing with a series of planning conferences to settle aspects which should have been confirmed during the long interim after the victory in France, particularly as the first outline orders were issued a month before the real offensive opened. This attitude must have stemmed from the over-confidence of the High Command, an unfounded optimism which inaccurate intelligence did nothing to dispel.

These two interrelated factors of over-confidence and poor intelligence led to an ill-directed campaign, which breached a fundamental principle of war – the maintenance of the aim. The Luftwaffe appears never to have decided which aim it was pursuing. Its attacks seem to have been aimed variously at defeating Fighter Command and attaining air superiority to facilitate

the invasion; defeating the whole of the RAF and destroying the aircraft industry simultaneously, with the same object; the strategic bombardment of cities to break morale and force Fighter Command to commit all its resources to defending one vital target – London.

During July its attacks can be seen as a sensible attempt to exert pressure on Fighter Command and the Royal Navy while units were redeployed and the political leadership sought a political settlement. The attacks in mid-August were aimed primarily at coastal airfields and radar stations, but the selection of the former was indiscriminate, partly because of faulty intelligence,⁴⁶ and partly because the Luftwaffe, perhaps through over-confidence, attempted to attack every part of the RAF instead of aiming to achieve air superiority by concentrating on Fighter Command. The assessments of the results of these raids were also generally far too optimistic: thus Luftwaffe intelligence was claiming that eleven airfields had been permanently destroyed and twelve severely damaged by 17 August,⁴⁷ when in fact all RAF airfields were fully operational on that day. The attacks on the radar chain were abandoned as soon as they began to bear fruit. Only in the last week in August and the first week in September did the Luftwaffe concentrate systematically on a target system vital to the defence: the sector airfields of 11 Group. It is no coincidence that Fighter Command came closest to defeat in this period. Six of the seven sector airfields were extensively damaged, the telecommunications links to and from the operations blocks proving especially vulnerable.

At this point in the Battle the complete lack of reliable intelligence began to affect German strategy. The exaggerated claims of success against Fighter Command deceived some German commanders. In an assessment of 20 August German intelligence claimed 644 British aircraft destroyed in the period 12-19 August, when the true figure was only 141.⁴⁸



...Luftwaffe intelligence was claiming that eleven airfields had been permanently destroyed and twelve severely damaged by 17 August, when in fact all RAF airfields were fully operational on that day

The following table gives a brief indication of the scale of Luftwaffe claims against the true scale of British aircraft losses during the crucial period of the Battle:⁴⁹

<i>Date</i>	<i>Luftwaffe Claim</i>	<i>RAF Actual Loss</i>
24 Aug. 1940	57	20
26 Aug. 1940	63	29
28 Aug. 1940	40	14
1 Sept. 1940	52	13
3 Sept. 1940	61	14
7 Sept. 1940	93	25
15 Sept. 1940	78	29

The Luftwaffe was therefore claiming between three and four times the true rate of loss throughout the crucial period. The scale of loss being suffered by the Luftwaffe was itself giving cause for concern, and a conference of all the major Luftwaffe commanders was convened in The Hague in early September. The confusion over intelligence was such that Kesselring claimed that Fighter Command had been destroyed, while Sperrle claimed it had 1,000 aircraft.⁵⁰ Kesselring's view prevailed – presumably he did not consult his pilots! – and the centre of gravity of the Luftwaffe's attack was switched to London. Kesselring presumably regarded this as the *coup de grace*, but it may be that some Luftwaffe commanders saw it as much in terms of reducing the rate of German casualties as of increasing those of Fighter Command.

The assault on London was apparently mounted partly in the belief that Fighter Command would be forced to commit all its strength including squadrons from the north, and that they could then be destroyed in a battle which would ensure air superiority and knock Britain out of the war at one stroke. Instead it effectively ensured that the Luftwaffe lost the daylight battle: first, it relieved the pressure on 11 Group's airfields, and enabled Fighter Command to patch up its sector stations and communications; and second, and just as important, it was a fatal miscalculation to believe that a greater number of fighter squadrons could be drawn into combat over London and destroyed.



...German fighters were now operating at the extremity of their range, and, because of the heavy losses suffered by the bomber formations earlier in the Battle, were ordered by Goering to stay closer to the bombers

The sector airfields were so vital to the defence that 11 Group had already committed all its resources to defending them, and had also drawn on reinforcements from neighbouring groups. In attacking London the Luftwaffe did not draw in more fighter squadrons, but instead allowed the RAF to concentrate its defending forces more fully, while simultaneously increasing the problems of the attacking formations. The German attacks on London by mass formations were easier to see and track both visually and by radar, and their intentions became obvious at a very much earlier stage. The attackers had to penetrate further inland to their target, and as a result provided greater opportunities for attack to the defending squadrons, particularly those from north of the Thames. The German fighters were now operating at the extremity of their range, and, because of the heavy losses suffered by the bomber formations earlier in the Battle, were ordered by Goering to stay closer to the bombers. As a result they became far less effective at shooting down RAF fighters. The Luftwaffe's change in strategy, which stemmed from faulty intelligence, and thus simultaneously allowed Fighter Command to recover its balance, made the defending squadrons more effective, and made its own attacks less effective in achieving its strategic aim by switching to a target system both less vulnerable and less vital.

Many of the conclusions which can be drawn from this analysis are familiar ones. Both intelligence service suffered from faults in organization, but in the British case these were simply relics from the pre-war era, when intelligence had not been geared to operational needs. The lessons were largely learned on the British side, and the intelligence organization was overhauled and placed on a sound basis which was capable of producing reliable intelligence. On the German side the organizational shortcomings were so intimately bound up with the political structure of the Third Reich that only a change in regime could have made any fundamental difference. The predilection for accepting only good news is as old as man, and it should be an accepted axiom of intelligence that you should not shoot the messenger. In a situation where the consequences of telling the truth could be so unpleasant it is hardly surprising that reports were doctored to suit the prejudices of those receiving them. Less understandable was the prejudice against intelligence shown by the military hierarchy, and the inadequate provision of intelligence officers at lower levels in the Luftwaffe. The failings of German intelligence can nearly all be traced to the nature of the intelligence organization that had been created.

British intelligence before the Battle did suffer from a tendency to interpret German strategy to fit into a preconceived mould – that any hostile move was designed to facilitate an air offensive against Britain – but since the RAF was not actively engaged for much of this period this did not affect matters very much. The dangerous suggestion that more fighters should be sent to France had already been resisted by the Chief of the Air Staff before the Cabinet, which had agreed to send no further reinforcements to the Continent, and there was little prospect of this policy being reversed. On the whole the errors made by Air

On the whole the errors made by Air Intelligence were of far less importance than those of German intelligence, partly because they tended to reinforce an existing strategy which was fundamentally correct

Intelligence were of far less importance than those of German intelligence, partly because they tended to reinforce an existing strategy which was fundamentally correct. Had there been a less determined government in power after the fall of France, however, the exaggeration of German strength might have had serious political consequences, although there is some evidence that the Air Staff were themselves inclined to question the estimates of Luftwaffe strength.

Both sides suffered from inaccurate intelligence on enemy losses, and neither RAF nor Luftwaffe intelligence developed a proper scepticism about the claims of pilots. In this case there is less excuse for the British, who had at least some of the tools for a proper analysis at hand, and seemed at one point to be about to make use of them, but chose for whatever reason not to do so. The effect was nevertheless far more serious for the Germans, as their shortcomings in this area were in part responsible for a change in strategy which considerably reduced the effectiveness of their offensive. There is no doubt, however, that there was a widespread feeling in the German High Command that a blow aimed directly at London would win the Battle even before the meeting at The Hague in early September. Dowding, a shrewd judge of the situation, had forecast in June that 'The nearness of London to German airfields will lose them the war'.⁵¹ Had the Luftwaffe possessed a more efficient intelligence service these mistakes might have been avoided, but the low esteem in which all intelligence was held meant that the personal prejudices of the operational commanders would still probably have counted for more than the accuracy of the intelligence.

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The obvious conclusion from this analysis is that the structure of the intelligence organization is perhaps equally as important as the quality of the sources, and that such structures are likely to mirror the bureaucratic forms of the relevant state. In the British case sources eventually came to dictate much of the organization of intelligence. Equally, one might conclude that poor intelligence does not automatically lead to poor strategy, but that it is more likely to do so in offensive air operations, where the need to direct the attack towards the weakest points is crucial, than in defensive ones where identifying the point of attack often devolves upon the operational commander rather than the intelligence organization.

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NOTES

1. Air Ministry, Air Historical Branch Narrative – Air Intelligence.
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3. AHB, Air Intelligence Narrative.
4. Horst Boog, 'German Air Intelligence in World War II', *Aerospace Historian*, June 1986, p.122.
5. Ibid.
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7. Boog, op. cit., p.124.
8. Ibid.
9. Ibid., p.122.
10. Dempster and Wood, op. cit., p. 101, and Boog, op. cit., p.122.

11. AIR 40/2321 Minute 22.
12. Ibid., Minute 25.
13. Ibid., Minute 43.
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15. F.H. Hinsley with E.E. Thomas, C.G.G. Ransom and R.C. Knight, *British Intelligence in the Second World War*, Vol. 1 (London, 1979), pp. 173-4).
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17. AIR 40/2321, Minute 77.
18. Ibid.
19. Ibid.
20. Ibid.
21. PRO AIR 16/330 Reinforcement of Number 11 Group.
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23. Hinsley, op. cit., p.177-8.
24. Ibid., p.175.
25. Ibid., p.179.
26. Ronald Lewin, *Ultra Goes To War* (London, 1978), pp.84-7.
27. Ibid., p.85.
28. Martin Gilbert, *Winston S. Churchill*, Vol. VI (London, 1983), p.849.
29. Hinsley, op. cit., p.179.
30. Ibid.
31. Dempster and Wood, op. cit., pp.121-2.
32. Hinsley, op. cit., p.181.
33. AIR 40.2321, Minute 64.
34. Ibid., Minute 65.
35. Winston G. Ramsey (ed.), *The Battle of Britain Then and Now* (London, 1980), loss tables on p.707. This is the most comprehensive work on the difficult subject of comparative losses and has been used throughout this paper to give the best approximation of actual losses. These are almost certainly accurate for the British, but less so for the Germans because of gaps and inconsistencies in the records.
36. AHB Narrative: The Air Defence of Great Britain, Vol. IV, Pt. V, para. 120 and Appendix V (F).
37. AIR 40/2321 Minute 65. See also Hinsley, op. cit., Vol. II, pp.271-3.
38. Horst Boog, 'German Air Intelligence in the Second World War', see above, pp.355.
39. All references from Schmid's report of 2 May 1939 from Ibid., pp.355-7.
40. Ibid., p.359.
41. Dempster and Wood, op. cit., p.106.
42. Ibid., pp.106-7. The report is reproduced in full on pp.106-10. British serviceability states from Air Ministry War Room Daily Strength Return for 0900 hrs 15 July 1940.
43. Dempster and Wood, op. cit., p.109.
44. Ibid., p.113.
45. Ibid., p.116.
46. AHB Translation VII/59 – German Report (undated c. 1945?) 'A Study of British Air Defences'. In interpreting German strategy I have drawn heavily on Karl Klee, 'The Battle of Britain' in Hans-Adolf Jacobsen and Jurgen Rohwer, *Decisive Battles of World War II: the German View* (English translation London, 1965), pp.73-94.
47. Ibid.
48. Ibid., and Dempster and Wood, op. cit., p.115.
49. Figures for claims taken from AHB Translation R,353 of Luftwaffe Führungstab 1c Lagerberichte [Situation Reports], actual loss figures from Ramsey, op. cit., p.707. Ibid., p.116.
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Cultivating **Joint Commanders**



The following essay was produced by Squadron Leader Nick Newman – a member of the Headquarters Strike Command ‘Briefing and Co-ordination’ Team – as a background briefing paper, prior to CINCSTC’s recent visit to the RAAF Conference on ‘Air Power and Joint Commanders’. It represents a consolidation of a broad range of contemporary military and academic papers on the general theme of ‘Jointery’ and is intended to provide a focus on the British approach to ‘Cultivating Joint Commanders’.

The aim of this paper is to provide a perspective on the issues facing air forces as we consider our engagement in future Joint and Multinational operations, with a focus on the progress that Britain’s Armed Forces are making with Joint integration. The debate concerning the application and command of air power has historically been influenced by a number of recurring themes; not least, those concerning the command and control debate – specifically, the relative merit of *centralised* versus *decentralised* control and execution; and of the *specialisation* versus *integration* of commanders. Also, the importance of timely and accurate *information*; and the problems associated with military *friction*. This paper will examine these issues briefly, in setting the framework within which Britain’s Joint capability has evolved. However, it is also necessary to examine the unique strategic context of this evolution. In the last 18 years, Britain’s Armed Forces have been involved in warfighting operations on five occasions, in three different theatres, from the Falkland Islands in 1982 (CORPORATE); the Gulf in 1991 (DESERT STORM) and 1998 (DESERT FOX); Bosnia in 1995 (DELIBERATE FORCE); and Kosovo in 1999 (ALLIED FORCE). Set against this backdrop of extensive Joint and multinational operational experience, it might be considered surprising that Britain’s Permanent Joint Headquarters (PJHQ) has only existed for four years and many of our Joint formations have stood up only since the 1998 Strategic Defence Review (SDR). However, this offers a clear illustration of the hurdles that have to be overcome in achieving a truly Joint capability, when set against the inevitable financial and resource constraints and the inertia inherent in our historical single-Service ethos and training.

Having set the conceptual framework and strategic context for Britain's emerging Joint Force concept, this paper explores the means by which we endeavour to cultivate the Joint Commanders who will lead these new formations. It explores the two key mechanisms by which we have sought to promote a change in *culture* in Britain's Armed Forces: first, by building an *environment* that supports Joint Commanders; and second, the provision of jointly-focussed *training*. In concluding, the paper examines some of the emerging challenges our Joint commanders will face as we continue to embrace 'Jointery', particularly the pursuit of even greater integration – both in terms of command & control structures and mission support infrastructure; and the challenges associated with information fusion and management, as we attempt to overcome the hazard of 'data deluge' in an era of battlefield digitisation.

CONCEPTUAL FRAMEWORK: DEFINITION/RECURRING THEMES

The British definition of the term 'Jointery', recently proposed by the Joint Services Command and Staff College (JSCSC) Joint Doctrine Team, is that:

'Jointery encapsulates the ways and means by which military forces enhance joint operations, effectively synchronising the activities of sea, land and air, invariably as part of a multinational force, allowing each to play to its particular strengths.'

The definition is drawn from a recent JSCSC paper which examines the qualities and capabilities required of 'Joint' officers.¹ This argues that the officers who function in the Joint arena must harness the capabilities of each Service, whilst adding value from their own single-Service experience, in order to contribute effectively to the joint endeavour; thus, the JSCSC do not consider that the 'Joint Officer' (in the purest sense) exists. Rather, the term 'Joint' is used to define the necessary attitude of mind and attributes required by single-Service officers employed in joint appointments. These officers need to understand the different capabilities, limitations, characteristics and traditions of each Service and that command is exercised in different ways to account for the tactics, techniques and procedures germane to each operating environment. For example when giving direction, the Joint commander needs to recognise that the necessary degree of delegation varies between components. In the land environment, the use of initiative right down to the lowest levels of the chain of command is vital in order to overcome the effects of friction. The air component, on the other hand, functions on the basis of 'centralised command and de-centralised execution' which permits unified air action and ensures that scarce resources are employed in the most effective way. This maxim has been a central theme of the history of air power and suggests that command and control should not be devolved to a lower level than that to which the commander has the ability to communicate his guidance, intent and mission directives to lower formations.

...when giving direction, the Joint commander needs to recognise that the necessary degree of delegation varies between components

The issue of aerospace command and control is simply one aspect of the general problem of controlling powerful assets in war. This problem involves two fundamental and related choices – between centralisation and decentralisation, and between specialisation and integration. The long-standing preference for air theorists, faced with this command and control dilemma, has been for specialisation and centralisation² and Sabin offers the following explanation:

‘Centralisation has the advantage that scarce assets may be focussed at the decisive point rather than frittered away in penny packets, while decentralisation has the advantage that it is easier for the assets to respond quickly to threats and opportunities at the local level. Specialisation encourages commanders to develop the ‘vision’ to employ the assets to best strategic effect, while integration makes it easier to co-ordinate the employment of assets with the use of other arms within the same command and control structure.’

Current British Air Power Doctrine confirms that today’s ‘Joint command’ demands the application of four principles: centralised control; centralised planning; the exercise of control at the highest practical level; and decentralised execution.³

The effective command and control of military forces depends on the processing of information faster than an opponent. The effective application of air power is dominated by the need to obtain and exploit high quality information quickly if the decision/action cycle is to remain within that of the opponent. The greater the degree of centralisation, the more it is necessary to ensure that the commander ‘at the top’ is not only blessed with timely and accurate information, but also with the quality of judgement to use that information effectively. This is no easy matter with implications for the selection and training of senior commanders.



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Without the right training, and an effectively integrated environment, we encounter the problem of military *friction* – an experience that was, perhaps, most apparent during the early United Nations operations in Bosnia. If the advantages offered by jointery (or, in this case, multinationality) are greater than the military friction it brings with it, then all is well. However, as the former Joint Commander of British Forces in Kosovo observes, the single-Service capital invested in terms like ‘operational command’ (OPCOM) take a lot of overturning:

“All too easily, disputes can degenerate into a new command lexicon of ‘Op Can’ (the ‘will do’ approach), ‘Op Can’t’, ‘Op Won’t’ and ‘Op Yours!’.”⁴

It is self-evident that the more joint forces can train and exercise together, the less will be the friction they will encounter. Friction occurs in all types of military operations and it is a key role of commanders to ensure – particularly in coalition operations – that the friction generated does not become a vulnerability or weakness for the enemy to exploit.

STRATEGIC CONTEXT



It is a popular misconception that the ‘Joint’ integration of air power with surface forces is a largely post-Cold War phenomenon; and yet, perhaps the most striking historical example of the success of such co-operation is the German tactic of *Blitzkrieg* – based on well-integrated combined arms operations. However,

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an examination of Britain's more recent experiences indicates that both the UK and Argentina encountered numerous difficulties during the Falklands War as a result of inappropriate command and control structures.⁵ Neither side had adequately defined the nature of the relationship between military and political authorities nor had they determined the extent to which political involvement in the establishment of military priorities is considered appropriate or just meddlesome. Similarly neither the UK nor Argentina had effectively resolved the mechanisms for ensuring

'horizontal' integration of the forces, within the theatre, so that the objectives of the single-service or component commanders reinforced the process of achieving, rather than hindering, the mission. Sea, land and air warfare depends on the blend of theory, technology and practice and, by the Gulf War, the *theory* and *practice* were in balance with the *technology* element. However, whilst technology appeared to be finally catching up with the vision that air power would fundamentally change the nature of warfare, Erskine notes that its advancement was restricted because our joint and combined doctrine had not kept pace with this development.⁶

We should not underestimate the single-Service inertia that has to be overcome in embracing a truly joint philosophy, illustrated clearly by the following distinct perspectives of the role of air power during the 1991 Gulf conflict:

*'Desert Storm consisted of a 43-day air campaign, capped by a 100-hour offensive. Air power destroyed Iraq's C2 system in the first day of the war. The air campaign then closed down the supply routes, kept the Iraqi air force out of action for the duration of the conflict, destroyed a high percentage of the enemy's armour and induced mass desertions. Moreover, these results were achieved with low casualties and with limited collateral damage in civilian areas around the targets that were struck.'*⁷



While most airmen would consider that this offers a fair and balanced assessment of the central contribution of air power, the following analysis (by a former CinC of the US Army Europe) offers a somewhat less 'air-centric' perspective:

*'The recent air campaign against the Iraqi forces gained not a single one of the US or UN objectives in the Persian Gulf War. Four days of land combat, aided immeasurably by the air campaign, achieved every goal and victory.'*⁸

In seeking to overcome this inertia, the solution may lie in a focus on the various different joint campaigns, rather than on the old categories of air, land and sea power – although there is a continuing need to address ourselves to the distinctive role of aerospace vehicles within this new Joint perspective.⁹ The British approach has focussed on the creation of Joint Structures and Training – based on the maxims '*Organise as we intend to operate*' and '*train as we intend to fight*'.¹⁰ Structures must be designed to deliver the optimum capability in the most efficient manner while training objectives, from cradle to grave, must be carefully selected to maximise our capability output, in relation to the identified requirement.

DEVELOPMENT OF JOINT ENVIRONMENT

The rationale behind the drive for greater integration is improved synergy: whatever balance of aerospace and surface assets is appropriate in a particular joint campaign, the objective is to ensure that the combination is a synergistic one. However, 'synergy' can become an overused concept, especially in joint operations, and it is all too easy to assume that *any* combination of forces is necessarily beneficial and synergistic. Sabin defines synergy as the interaction between air and surface force components to produce joint combat power which is greater than the sum of the combat power which can be brought to bear by each individual component – and this only happens if specific mechanisms come into play.¹¹ Without these mechanisms, one has mere complementarity, with the effect of the two forces being additive. It is even possible that the two forces may interfere with one another and have an overall effect which is less than the sum of their individual parts. An obvious example would be the initial operations in Bosnia, when the coercive potential of NATO air power was offset by the reciprocal vulnerability of UN ground forces to hostage-taking. Thus, not all combinations of forces are necessarily beneficial and joint commanders and planners must be trained to optimise the force mix to ensure that air and surface force assets can interact synergistically.

According to Sabin, the key is to co-ordinate air and surface planning, and to think through synergistic mechanisms in each particular case, while also being alive to the contrary possibilities of interference. Sometimes it may be better to let one type of force handle the

... 'synergy' can become an overused concept, especially in joint operations, and it is all too easy to assume that any combination of forces is necessarily beneficial and synergistic

mission on its own – for example by relying on long-range air and missile strikes guided by satellite intelligence, rather than placing surface forces in harm's way. In the more common cases, where joint engagement is appropriate, the benefits must be maximised by proper co-ordination: for example, by having both air and surface forces concentrate first on winning the air battle so that they can then both turn to winning the surface battle (as in the Lebanon in 1982).¹² The need to maximise the co-ordination of assets in order to achieve the greatest synergy raises the vexed question of how the aerospace components of joint forces are best handled in terms of command and control. The different philosophies have produced certain tensions over the ownership and employment of particular air assets – as illustrated by the debates in Britain regarding the support helicopter force and the doctrinal consequences of acquiring Apache attack helicopters – and the problems of each service running its own air war became evident in Vietnam, when control of the US air effort was disastrously fragmented.

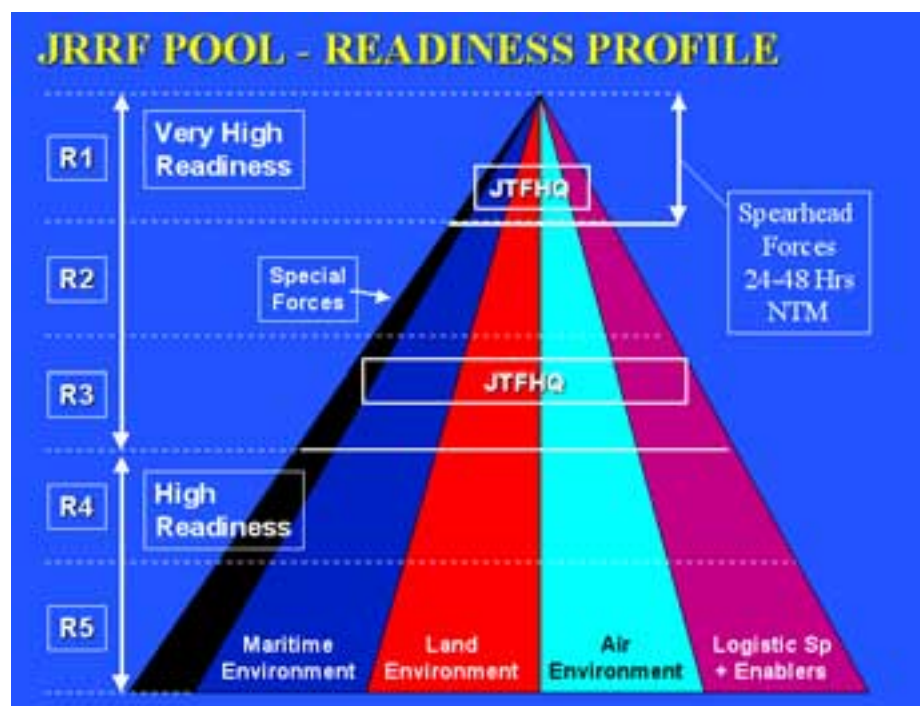
British command structures tackled this range of problems relatively recently with the impetus for the formation of both the PJHQ and the JSCSC derived from the previous Government's 'Defence Costs Study' review in 1994. The 'Joint Commander' model emerged towards the end of the 1980s, and was employed in the Gulf War, but it is apparent that Britain lacked the permanent structures to realise this emerging

The different philosophies have produced certain tensions over the ownership and employment of particular air assets – as illustrated by the debates in Britain regarding the support helicopter force...



doctrine until the formation of the PJHQ in 1996. The PJHQ assists the nominated Jt Cdr in framing his requirements and beginning the campaign planning process, while the Joint Task Force Commander (JTFC) delegates command and control of the land, sea and air environments to component commanders. For the air environment, this is the Joint Force Air Component Commander (JFACC), who may exercise command afloat in an appropriately equipped and staffed C2 vessel; ashore in a rear area; forward 'in-theatre'; or, ultimately, even airborne in a suitably configured aircraft. The location will depend on the scenario and the position of the main effort within the campaign, but there may be practical advantages for the JFACC to co-locate with the JTFC.¹³ The flexibility and multi-role versatility of air power platforms means that a JFACC could be supporting more than one commander and may be a 'supported' commander at the same time. Depending on the context, the JFACC may wish to devolve the detailed tasking of certain missions to lower-levels of organisation, such as that of a deployed wing or squadron. No single model will work for all scales of operation and for all scenarios; therefore, the JFACC model may have to be modified to suit the circumstances.

Initially, Britain's expeditionary capability was based on the 'Joint Rapid Deployment Force' (JRDF), but the recent Defence Review identified a number of weaknesses with this concept; not least: the lack of any Joint *operational*-level doctrine; the fact that both 5 AB Bde and 3 Cdo Bde were considered too 'light' for the task; Joint training was slow to materialise; the formation suffered from poor sustainability (highlighted during Bosnia deployment); there was an inadequate air and maritime strategic lift capability; and we failed to achieve a fully resourced standing Joint Force or JFAC Headquarters (JFHQ/JFAC HQ).¹⁴ Nevertheless, our capability took a great stride forward with the publication of the SDR, at the heart of which was a series of



'Joint' initiatives – many of which have since been tested successfully in Kosovo. These included the transfer of the RAF's Support Helicopters to the Joint Helicopter Command; the co-location of the RAF Harrier GR7 and Royal Navy Sea-Harrier forces to create 'Joint Force Harrier'; the creation of a Joint NBC Defence Regiment and Joint Ground Based Air Defence training; the formation of a Joint Logistics Command; and the provision of the JSCSC and the Joint Doctrine and Concepts Centre (JDCC). However, central to the evolution of Joint forces was the identification of a pool of readily available, rapidly deployable, high capability force elements – from all three Services – to form the Joint Rapid Reaction Forces (JRRF). In drawing on the lessons of the JRDF, the JRRF concept was developed against an analysis of six key planning assumptions – Scale of Effort, Readiness, Concurrency, Endurance, Sustainability and Deployability – and offers significantly enhanced firepower, mobility and protection. The readiness profile for this force is illustrated at Figure 1 and the key additions

Figure 1

include an airmobile brigade (and, in due course, its successor air manoeuvre brigade); an armoured and a mechanised brigade; much larger and more capable maritime and air elements; special forces; a dedicated joint task force headquarters, properly manned, equipped and trained, together with the nucleus of a second such headquarters for concurrent operations; logistic, medical and other support to mount two concurrent operations; heavy lift aircraft and four further roll-on/roll-off container ships.¹⁵

In striving to achieve the effective integration of these assets, within the overall air-land and air-sea environments, the key challenge is to ensure that commanders at all levels, and of all types of forces, understand the overall shape of the aerospace battle; can see what mix of air and surface assets is appropriate; and how they must be co-ordinated to achieve maximum synergy.

DEVELOPMENT OF JOINT TRAINING

Achieving decisive synchronisation of operations in time, space and effect will remain complex – whilst much of the control and communications can be automated, command will remain predominantly a human activity

Turning to Britain's Joint training mechanisms, the factors that influence our philosophy are driven, in large measure, by the current trends affecting the planning, conduct and command of operations. These include the expansion of the battlespace, which will lead to a volumetric increase in the information that is relevant to a commander. In turn, expanding battlespace will increase the demand for timely and accurate information – and lead to compressed decision/action cycles – in order to maintain the tempo of operations across a widely dispersed force. Achieving decisive synchronisation of operations in time, space and effect will remain complex – whilst much of the *control* and *communications* can be automated, *command* will remain predominantly a human activity. Whereas strategy is all about balancing ends, ways and means, the art of high command involves achieving some harmony between these elements and imposing a certain order on the inevitable chaos of war.¹⁶

This places considerable demands on joint commanders. There is a tendency to view this simply as a matter of synchronising components under an appointed JTFHQ; however, the range of factors that the joint commander needs to understand is extensive – and critical to their effectiveness is the degree to which they understand the nature of their fight, and the needs, capabilities and limitations of their temporarily 'task-grouped' forces. They also need to understand their potential regional – and non-military – allies, since Joint operations will almost invariably be combined; indeed, operational experience has shown that commitments will bring us into close contact with 'Other Government Departments' (OGD) and 'Non-Governmental Organisations' (NGOs), which now form a part of the operational landscape and must be within the joint commander's 'comfort zone'.



Figure 2

drives the requirements for training Britain's joint forces and, notwithstanding the title of the appointment, his responsibilities encompass both education and training. It is acknowledged that there is often some confusion over the two terms and his staff look at it this way: while they are happy for their teenaged daughters to get *sex education* at school, they are less happy for them to get *sex training*!¹⁹ The education package is developed in close consultation with the JSCSC and single-Service Warfare Centres, and encompasses Officers' Initial and Specialist Training; the Advanced and Higher Command and Staff Courses (ACSC/HCSC); and the Joint Warfare Courses. The ACSC is a critical first stage in cultivating staff with an appreciation of the strengths and characteristics of the other arms, while HCSC enhances the operational level and widens the joint command challenges. Training is designed to focus on specific operational-level techniques and includes specific packages for potential JTFCs and National Component Commanders (NCCs), JF Component Commanders, and Component/JFHQ staff.

Joint commanders at the operational level require capable joint HQs which provide a training ground for joint staff and help to develop skills for commanding at that level. Modern warfare, and 'operations of choice' require joint task force HQs capable of deploying rapidly, and able to provide the core on which other HQs and commands can be built. The JFHQ provides that capability in UK and has recently been recognised as a necessary enhancement to PJHQ, containing within it all the J1-J9 functions (see Figure 2). Such HQs also need their own strategic communications and 'life support'. Finally, an essential element of the modern joint commander is political awareness. They have to understand the political consequences of their actions, and the nuances of the operational situation.¹⁷ The slide at Figure 3 is shown to prospective JTFCs during the Higher Command and Staff Course and, in the words of the Chief of Joint Force Operational Readiness and Training (CJFORT), '...it is intended to illustrate what is expected of them – in other words, how much they need training!¹⁸

Within the PJHQ, CJFORT

JTFC - Major Functions

- Campaign Planning and Orchestration
- Reporting
- CCIRs
- C2W
- SF
- Media
- Targeting
- ROE and Legal
- Force Protection
- Strategic Movement
- Force Logistics
- Finance
- Host Nation issues
- Coalition Building
- Civil/Military Affairs

Figure 3

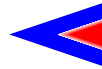


Figure 4

The mechanism whereby the commanders can learn and develop is provided by Joint Exercises. Training of specific Joint Force Commanders is critical to their cultivation and only by exposing them to the operational environment can they become comfortable in it. PJHQ runs JTFC workshops (run by CJFORT) to meet this need. Professional relationships cultivated on courses and exercises assist development of trust and the opportunity to discuss challenges and the Commander Joint Operations (CJO) has identified that lessons learned in a training environment are vital to preparing those who may need their skills under pressure, on operations.²⁰

Education and training objectives are determined by the Joint Essential Task List (JETL)²¹ which breaks out of Britain’s 28 Core ‘Military Tasks’ into a hierarchy of joint tasks at the military strategic, operational and tactical levels. The RAF’s ‘Mission-Essential Tasks List (METL) has been developed to the operational level in parallel with the JETL. The relationship between JETs and METs is illustrated at Figure 4.

CJFORT has identified that the National exercise programme needs to be geared more precisely to specific training requirements (and *vice-versa*) and properly funded. Sound progress is being made, complicated by the time needed to discharge legacy commitments; to deconstruct and then reconstruct our exercise programme; and in all of this, one obstacle is the lack of a dedicated National training facility.²² Looking to the future, there are plans to create a National Joint Command Training Centre (NJCTC) that can be opened up to the wider defence community to provide somewhere where commanders can train for joint – inter-agency – campaign planning, mission rehearsal, wargaming and operational analysis.²³

Finally, this account of Britain’s efforts to promote a Joint culture would be incomplete without a brief mention of the *moral component* to the drive for increased jointery – the ‘sense of company’. Fighting spirit will derive from many things, but Servicemen and women will fight best alongside comrades in, and for, whom they have mutual trust, respect and confidence. Nevertheless, being ‘joint’ is not simply working alongside, or ‘getting along well’ with, the other Services. Nor does it mean the



acceptance of the lowest common denominator of agreement, or the simple espousal of joint doctrine. Indeed, due to the unique characteristics of each environment, it is dangerous to assume that the 'joint' officer is equally expert at sea, on the land and in the air – he is not. Joint expertise takes time to develop. It must first be nurtured at the tactical level, within a predominantly single Service environment, by encouraging younger officers to adopt an open minded approach that instinctively recognises the strengths and weaknesses of their own and the other Services. Officers selected for joint positions must, in addition to having the highest possible single Service professional knowledge, intrinsically understand the enduring nature and characteristics of conflict and the utility of military force at sea, on the land and in the air. He or she needs a flexible enquiring brain with the

The 'joint' officer must have the maturity to deal with uncertainty, the authority to contribute meaningfully to the joint debate and the moral courage to deliver the finest possible operational or policy decision

necessary intellect, breadth of vision and attitude of mind to grasp a wide range of complex issues involving elements of more than one Service. The 'joint' officer must have the maturity to deal with uncertainty, the authority to contribute meaningfully to the joint debate and the moral courage to deliver the finest possible operational or policy decision.²⁴

The need for a joint sense of company must not be underrated; indeed one need only recall the experiences of the US Special Operations Forces in DESERT ONE (the abortive mission to rescue US hostages from Tehran in 1980) and again in Grenada, in 1983, to understand the consequences of its deficiency. The following account of the Grenada incident, from the operations diary of the US 160th Special Operations Group – the 'Night Stalkers' – offers a salutary illustration:

*'...Due to **chaotic planning** and **last minute inter-service bickering at senior levels**, [the assault group] would not leave until 0630, over 5 hours behind schedule. This meant that instead of racing into the objective unseen, under cover of darkness, the airmobile assault would take place in the stark light of the rising sun... Had the pre-assault intelligence of lightly-armed prison guards at the objective been correct, this situation may not have been as disastrous as it would prove to be.'*²⁵

As we continue to embrace 'Jointery', Britain's Joint Commanders face a range of emerging challenges; not least from the pursuit of even greater integration, both in terms of command & control structures and mission support infrastructure. The objective is to move towards joint operations where one component might exploit – readily and knowledgeably – the capabilities of one, or more, others. This could involve one single component providing the principal JTF structure – it would provide the predominant or, potentially decisive, fighting element and the basis of the command and control mechanism, thus

...due to the unique characteristics of each environment, it is dangerous to assume that the 'joint' officer is equally expert at sea, on the land and in the air – he is not

offering the prospect of structural stability and deep operational comprehension. Future integration will also entail the thorough engagement of OGD – even NGOs and supranational agencies – into one coherent campaign plan. Moreover, whilst the training of Joint Commanders is proceeding apace, the opportunities for training our political masters and high-ranking civilian officials – for their role in the direction of, and interaction with, military officers at the Operational and Strategic level – should not be overlooked.

Another area where greater integration is sought is in the ‘Mission Support’ arena. For joint air operations this must be consistent and coherent, so as to ensure compatibility and interoperability across forces...

Another area where greater integration is sought is in the ‘Mission Support’ arena. For joint air operations this must be consistent and coherent, so as to ensure compatibility and interoperability across forces, drawn from all 3 services and other coalition partners, and operating in multiple roles. The only practical way of achieving this is through strict configuration control using a single, centralised authority – in this case, the PJHQ or JTFHQ.²⁶

Since intelligence data emanates from a whole host of sources, it must be collected, collated, fused, interpreted and disseminated, in a timely manner, to provide the vital information element of ‘Integrated Mission Support’ (IMS). For example, outputs from the intelligence, surveillance and reconnaissance assets of the three Component Commanders need to be combined by a single authority – at national and theatre levels – to build the joint operational picture (JOP). A staged process is called for, whereby the information derived from each environment should be fused under the authority of the relevant component commander before submission to the JTFHQ. For the RAF, the solution may lie in the creation of a ‘national aerospace fusion centre’, with deployable elements, to handle and combine the product of our aerospace ISTAR assets.²⁷

This leads to the second challenge of information fusion and management. Radically improved capabilities in the field of information processing and communications systems have led some doctrine writers and military analysts to talk of ‘*perfect information*’ for commanders, and ‘information dominance’. However, whilst technology can enable military operations to be conducted more efficiently – with stand off weapon systems reducing the risk of casualties or collateral damage – risk *cannot* be eliminated. Commanders still have to lead – and act – upon their judgement and intuition, and exercise moral courage. Indeed, the volume of information being collected across a dispersed battlefield may potentially degrade the coherence of battlefield perception. In other words, internal friction and the ‘fog of war’ will continue to affect the quality of decision-making by a commander and the subsequent dissemination of orders arising from his decisions.²⁸ The improved information flows promised by digitisation may not necessarily enhance the quality of decision making; as the

...internal friction and the ‘fog of war’ will continue to affect the quality of decision-making by a commander and the subsequent dissemination of orders arising from his decisions

eminent strategist, Colin Gray, has argued persuasively: ‘...to know many things is not necessarily to know what those things mean.’²⁹

‘Data deluge’ is another potential hazard; the right information must be passed to the right people at the right time. The range over which data must be passed will vary greatly – the ‘reach back’ concept, employed extensively by US forces, and increasingly by UK forces, can lead to communications distances of over 1,000 miles or more. On the other hand, however, real time ‘sensor-to-shooter’ requirements may call for links between airborne platforms in theatre over ranges of a few tens of miles.³⁰

...machines, computers and communications of the information age can empower and assist, but they are unlikely to be a substitute for the study of military history...

The welcome and long overdue shift towards ‘jointery’ in Western military forces needs to be reinforced by a new tri-Service doctrinal framework organised more around different types of joint campaigns, and less around the increasingly problematic traditional categories of air, land and sea power. However, there will remain a need to consider the specific role of aerospace vehicles within and across these various campaigns. The aim must be to produce combinations of forces that produce synergy rather than interference. The machines, computers and communications of the information age can empower and assist, but they are unlikely to be a substitute for the study of military history, campaigns and operational art. The exercise of command remains a human function – military judgement, intuition, insight and moral courage remain as important to today’s ‘Joint Commanders’ as they were to the Greeks and Romans.³¹

The success of jointery is recognising that land, sea and air power are co-equal and interdependent forces; neither is an auxiliary of the other. The Armed Forces will always need people schooled in their own type of warfare but who trust in each others’ capabilities. A true Joint-Service perspective should eliminate any distrust, but careful control of all assets must be centralised, with specific command being exercised through the respective component commanders, if the inherent flexibility and ability to deliver decisive blows are to be fully exploited.

LIST OF FIGURES:

Figure 1: JRRF Pool Readiness Profile.

Figure 2: PJHQ Organisation.

Figure 3: JTFC Major Functions.

Figure 4: Joint Essential Tasks and Mission Essential Tasks.

NOTES:

- 1 JSCSC, *Jointery and the Purple Officer* (20 Mar 00), provided by Gp Capt M Doel, (Director Central Writing Team).
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- 29 *Ibid.*, 132.
- 30 The 'reach-back' concept moves rearwards as much processing activity as is possible, so that the number of forces deployed is minimised, permanent facilities are fully exploited and central control is maintained over the processing of raw intelligence into information. This also promotes configuration control and the issue of a common operational picture, allows sensitive sources to be afforded adequate protection, and limits duplication of effort. Cited in RAF Air Warfare Centre (2) *op cit.*, 9.
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Manoeuvre Warfare

and Air Power -
the seven 'T's



‘Manoeuvre Warfare’ is a term often banded about in modern military circles. This is no surprise as, following the UK Strategic Defence Review, the manoeuvrist approach to operations was adopted as the fundamental approach to warfare by the British Armed Forces.¹ As aircraft manoeuvre every time they get airborne, surely air warfare is manoeuvre warfare? But manoeuvre warfare is distinct from manoeuvrability. British Defence Doctrine defines the manoeuvrist approach as *‘a style of warfare that seeks to destroy an enemy’s cohesion and his will to win through a series of rapid, violent and unexpected actions that create a turbulent and rapidly deteriorating situation with which he cannot cope’*.² British Air Power Doctrine expounds that *‘manoeuvre warfare is the employment of forces on the battlefield through movement combined with firepower to gain advantage over an opponent’*.³ Indeed, even the Concise Oxford Dictionary offers up *‘an often deceptive planned or controlled action designed to gain an objective’*. From these definitions, it would appear at first glance that the manoeuvrist approach is the antithesis of attrition warfare, where victory is sought by the time-honoured technique of the large-scale destruction of the enemy’s personnel or equipment. Fortunately, air power’s inherent characteristics of reach, ubiquity, speed of response, and flexibility lend themselves naturally to manoeuvre warfare. But does air power currently make the most of these characteristics in the manoeuvrist’s cause, or is there room for improvement? An examination of the evolution of manoeuvre warfare helps with its understanding...

From the establishment of the British Empire until the First World War, British military policy was essentially one of maritime expeditionary warfare, in which the Empire was policed by limited campaigns carried out from the sea. However, this mould was broken during the First World War, when the technical developments of the Industrial Revolution resulted in weapons, such as the machine gun, which led to attrition on a massive scale. Shocked by the appalling loss of life, the inter-war years spawned several exponents of alternative strategies. Major General J F C 'Boney' Fuller, who had organized and developed tactics for the first British tank corps during the First World War, was one of the first to identify an alternative to attrition:

'There are two ways of destroying an organization:

- *By wearing it down (dissipating it).*
- *By rendering it inoperative (unhinging it).*

*In war, the first comprises the killing, wounding, capturing and disarming of the enemy's soldiers. The second, the rendering inoperative of his powers of command (brain warfare).'*⁴

Another was Captain Sir Basil Liddell Hart, a strategist who viewed warfare as a psychological battle of wits. In 1920 he revealed his 'Expanding Torrent' theory of attack, which is best described in his own words:

'If we watch a torrent bearing down on each successive bank or earthen dam in its path, we see that it first beats against the obstacle, feeling and testing it at all points. Eventually, it finds a small crack at some point. Through this crack pour the first dribblets of water and rush straight on, the pent up water on each side is drawn towards the breach, it swirls through and around the flanks of the breach, wearing away the earth on each side, so widening the gap. Simultaneously, the water behind pours straight through the breach between the side eddies which are wearing away the flanks. Directly it passes through, it expands to widen once more the onrush of the torrent. Thus, nature's forces carry out the ideal attack.

*Moreover, the torrent achieves economy of force by progressively exploiting the soft spots of the defence'*⁵

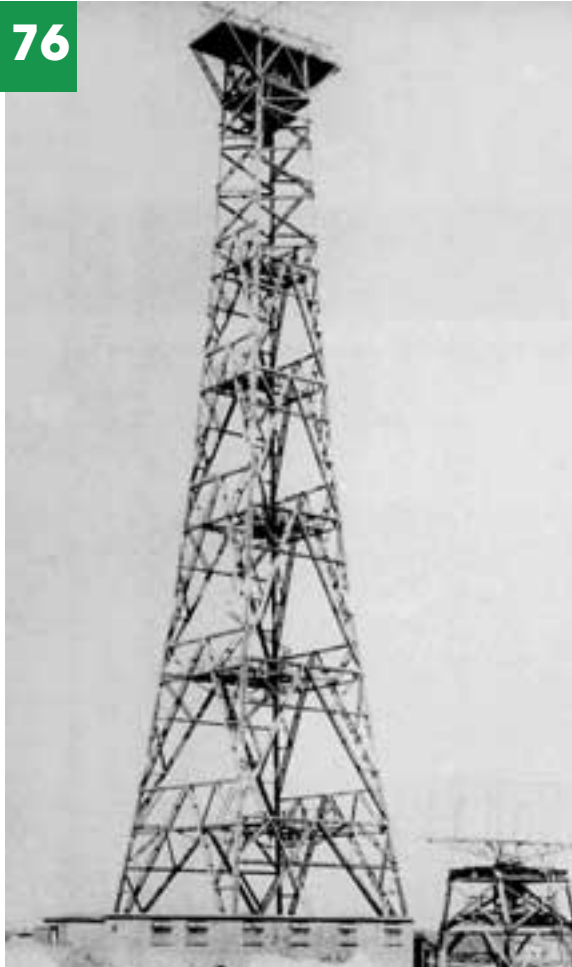
In 1927, Liddell Hart announced another theory, which he termed the 'Indirect Approach'. This strategy called for forces to be maneuvered to attack the enemy's rear, with the intent of threatening the enemy commander and shattering his nerve. In ground force terms, this generally meant avoiding frontal attacks and outflanking the enemy forces instead; *'In strategy'* Liddell Hart extolled, *'the longest way around is often the shortest way home'*.⁶ Indeed, one of the first recorded exponents of what we now call manoeuvre warfare, the Chinese strategist Sun Tzu, had already written in about 490 BC *'Go into emptiness, strike voids, bypass what he defends, hit him where he does not expect you'*.⁷ T E Lawrence (of Arabia) used this exact tactic in 1917 to take the Turkish-occupied coastal city of Aqaba; rather than make a frontal seaborne assault against the town's heavily fortified coast, he led a small Hashemite infiltration force across the 'impenetrable' Nefud Desert and took Aqaba by surprise from its undefended landward side.⁸ Liddell Hart was not slow to realize the potential of air power: *'Air power might attain a*

direct end by indirect means – hopping over opposition instead of overthrowing it.⁹ Importantly, he emphasized that *‘indirectness has usually been physical, and always psychological’*.¹⁰ Interestingly, it was the Germans who adopted these British theorists’ ideas and successfully developed them into their Blitzkrieg tactics. Just like the ‘expanding torrent’, the Blitzkrieg commander would not dictate the point of the offensive thrust. Instead, many reconnaissance units would probe the enemy defences to locate the weakest points, and then funnel the main assault forces through these ‘voids’. This ‘recon-pull’ technique had the added advantage of creating confusion within the enemy; during the 1940 Blitzkrieg against France, the French Forces were unable to identify the main German thrust due to conflicting reports of attacks from all along the front.

Although not commonly associated with manoeuvre warfare, the RAF’s early campaigns of the Second World War demonstrate several of its facets. During the Battle of France, the British Expeditionary Force (BEF) was caught off balance by the German Blitzkrieg, and the RAF’s Advanced Air Striking Force of about 400 Hurricanes and obsolescent light bombers were fighting a losing battle against the Luftwaffe. Fighter Command’s UK-based Home Defence Force of Spitfires and Hurricanes was being steadily depleted to support the BEF. Cognizant of the vital importance of the Home Defence Force to the defence of Britain, and despite pleas from the French Prime Minister to send a further 10 squadrons of fighters to France, Fighter Command’s Commander-in-Chief, Sir Hugh Dowding, urged that *‘not one fighter be sent across the Channel however urgent and insistent the appeals for help may be’*.¹¹ He continued: *‘if the Home Defence Force is drained away in an attempt to remedy the situation in France, defeat in France will involve the final, complete and irremediable defeat of this country’*. Sun Tzu would have agreed with Dowding: *‘He will win who knows when to fight and when not to fight’*.¹² Fortunately, despite losing 435 pilots and 75% of the 261 Hurricanes sent to



...during the 1940 Blitzkrieg against France, the French Forces were unable to identify the main German thrust due to conflicting reports of attacks from all along the front



Britain's recently developed radar network gave warning of approaching Luftwaffe raids and allowed the RAF's limited fighter assets to be concentrated on the enemy formations

France,¹³ the Home Defence Force survived to fight the Battle of Britain. This time, the RAF gave battle where it had the advantage. Britain's recently developed radar network gave warning of approaching Luftwaffe raids and allowed the RAF's limited fighter assets to be concentrated on the enemy formations. Furthermore, downed RAF aircrew generally landed in friendly territory and could be returned to their squadrons to fight again. Conversely, Luftwaffe fighters had limited endurance over the aerial battlefield as they operated towards the extremes of their range, and aircrew who abandoned their aircraft were generally captured. Importantly, Dowding had identified the Home Defence Force as Britain's centre of gravity, and protected it accordingly. Had Britain's land-based air power still been a Flying Corps controlled by the Army's Imperial General Staff, it is possible that many more Spitfires and Hurricanes would have been sent to support the BEF, and that the Battle of Britain would have been another German victory, with obvious ramifications...

During the Korean War, the US F86 fighter maintained a kill ratio of 10:1 over the Communist MiG-15. Colonel John Boyd, an instructor at the USAF Fighter Weapons

School and veteran Korean fighter pilot, was intrigued by this, as the MiG was faster and had a better sustained turn rate than the F86. Upon analysis, Boyd concluded that the F86's advantage lay in its hydraulic flying controls and bubble canopy. The hydraulic flying controls allowed the F86 to transition from one manoeuvre to another more rapidly than its opponent. As a result, every time the F86 changed the plane of its manoeuvre, it gained a time advantage over the MiG. Furthermore the Communist pilot,

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burdened by a canopy with poorer visibility, had less opportunity to observe what his opponent was doing. After several transitions, the MiG's actions lagged behind those of the F86 and would eventually become inappropriate as it reacted to a manoeuvre its UN opponent had already abandoned for yet another, unobserved to the Communist pilot hidden behind the framework of his canopy. Often, when the F86 gained a firing opportunity, the MiG pilot would realize that he was losing and had no options left, and would panic or become passive, making the kill even easier. Boyd developed a theory called the 'OODA Loop' or 'Boyd Cycle' to describe this sequence of events:

- Observe. Gain information on the engagement.
- Orientate. Collate the information; build a mental picture of the situation; assess options and consequences.
- Decide. Choose the most appropriate plan of action.
- Act. Execute the plan.

Thus, the F86 with its better canopy could observe the fight more easily and, due to its hydraulic flying controls, could orientate more rapidly than the MiG-15. Having decided and acted, the F86 pilot could then observe how his Communist opponent reacted to this new manoeuvre, and the whole loop would start again. Almost inevitably, the victor would be the pilot who would cycle through his OODA Loop quickest. Boyd realized that this cycle could be applied in a much broader context than just aerial dogfights; history was littered with examples of victors who had out-cycled their opponents by making unexpected moves that their adversaries had been unable to counter. These examples ranged from the highest to the lowest level of warfare. Of course, a soldier engaged in close quarter combat would cycle through his OODA Loop much faster than a HQ staff running an entire campaign, but they both used the same Boyd Cycle. Importantly, although the OODA Loop almost always employs both physical and mental attributes, the real target is always the adversary's mind. The rate at which a force is able to conduct operations and react to hostile action is now commonly referred to as 'tempo'.

...a soldier engaged in close quarter combat would cycle through his OODA Loop much faster than a HQ staff running an entire campaign, but they both used the same Boyd Cycle



America's Cold War strategy against the numerically superior Warsaw Pact was based on attrition warfare. The first use of the term 'manoeuvre warfare' was by William Lind in his 1977 paper that criticized the US Army's European 'Active Defense' attrition strategy. Lind's Maneuver Warfare Handbook,¹⁴ whilst written for the US Marine Corps, gives an excellent overview of manoeuvre Warfare.

During the Battle of Goose Green during the 1982 Falklands War, the British and Argentine ground forces had fought a lengthy battle of attrition; the British momentum was waning and a stalemate was approaching. A sudden, unexpected attack by 3 RAF Harriers dropping cluster bombs on artillery positions shocked the Argentines and allowed 2 Parachute Battalion to regain the initiative and win the battle. As Air Marshal Sir John Walker points out, *'if air power is to be used to win wars, then it has to be shocking and sudden and overwhelming'*.¹⁵

The 1991 Gulf War displayed several aspects of manoeuvre warfare. During the campaign to neutralize the Iraqi air defences in the opening hours of the air war, USAF aircraft launched many small gliders towards known Iraqi SAM sites. Each of these Tactical Air Launched Decoys (TALDs) were equipped with an electronic emitter to make it appear like a bomber aircraft to Iraqi radars. Faced with the approach of apparently hostile bombers, the Iraqi SAM radars attempted to engage them, only to fall prey to volleys of HARM anti-radiation missiles (ARMs) fired by US aircraft. This illustrates an important element of manoeuvre warfare – the use of subterfuge to coerce the enemy into exposing himself to your weapons. In this case, Iraqi SAM operators were faced with the choice of either shutting down their radars to protect themselves against ARMs, thereby leaving themselves vulnerable to attack by the approaching 'bombers', or trying to engage these TALDs and consequently being exposed to hostile ARMs. Either way, the threat to Coalition aircraft from these SAM sites was drastically reduced. During the build-up to the ground offensive, US Marine amphibious ships based in the Persian Gulf convinced the Iraqis that the Coalition was planning an amphibious landing along the Kuwaiti coast. To strengthen this misconception, just prior to the ground invasion Faylaka Island, off the coast of Kuwait City, was liberated. Additionally, 10 US Navy helicopters fitted with radar emitters to increase their numbers to Iraqi radars made a feint landing against the southern Kuwaiti port of As Shuaybah.¹⁶ Instead, Coalition forces carried out a left flanking manoeuvre through the relatively undefended Iraqi desert, thereby bypassing the main enemy static forces entrenched in Kuwait. The target of the coalition forces was the Republican Guard, which was held in reserve to the north and had been identified as the Iraqi centre of gravity. This was a classic case of the application of the Indirect Approach; a double envelopment, albeit with one arm feinted.

The end of the Cold War has had very significant ramifications for NATO forces. In the absence of a clear threat to national identity, NATO countries can decide which armed conflicts they wish to become involved in. However, this 'opt in' situation has made the public unwilling to accept high casualties, especially in conflicts where there is limited public sympathy.

Understandably, attrition can be a bitter pill to swallow when national security is not at stake. Furthermore, the high cost of manpower in an environment of decreasing defence budgets has resulted in significant reductions in the size of NATO's armed

forces. The advent of microprocessor technology has, however, increased the lethality of modern weapons. Indeed, in some ways we have become the victims of our own success, with the public perceiving that modern ‘smart’ weapons should not miss. As a result, collateral damage has become the subject of considerable media attention. The combination of these factors has resulted in the adoption of manoeuvre warfare, with its emphasis on victory rather than attrition, as the fundamental strategy of the British Armed Forces.¹⁷

THE FACETS OF MANOEUVRE

The history of manoeuvre warfare highlights some of its more important facets: shock through surprise (Harriers at Goose Green); attacking and unhinging the enemy’s decision-making cycle with a rapid series of unpredictable moves (the OODA Loop); the avoidance of frontal assaults by outflanking the enemy (the Indirect Approach); concentration of force at the decisive point; giving battle only when you have the advantage (the Battle of France); the use of novel technology (radar in the Battle of Britain); decentralized execution and simultaneous attacks (the Blitzkrieg); and the use of subterfuge (TALDs). In essence, avoid a slogging match; catch your opponent off balance with an unexpected series of rapid moves then, when he is shocked, bewildered, and unable to offer resistance, deliver a coup de grâce. These facets fall neatly into seven ‘T’s: temperament, technology, tempo, tasking, tactics, training, and targeting.

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TEMPERAMENT

Manoeuvre is in the minds of men. The essence of manoeuvre warfare is the application of novel ideas to outwit the enemy. This approach can be at odds with ‘traditional’ military culture; as Liddell Hart once said, ‘*The only thing harder than getting a new idea into the military mind is getting an old one out*’!¹⁸ It is therefore important that commanders encourage their subordinates to think laterally and explore new techniques, rather than stifle initiative in the name of group cohesion and discipline. The military ‘pack mentality’ can result in an understandable reluctance to step out of the crowd and voice unorthodox ideas. Even apparently controversial ideas should be considered; if they prove flawed, then the proponent has learnt something, but if the doubters are proved wrong, then your force has a new string to its bow. When ‘Bomber’ Harris first read Barnes Wallis’ proposal for destroying the Ruhr dams with a bouncing bomb, he wrote ‘*This is tripe of the wildest description....The war will be over before it works – & it never will*’.¹⁹ However, 3 months later he turned to Wallis in the HQ 5 Group Operations Centre at Grantham having just received the codewords signifying that the Möhne and Eder Dams had been breached and said ‘*Wallis, I didn’t believe a word you said when you came to see me. But now you could sell me a pink elephant*’.²⁰ The importance of latitude of thought in manoeuvre warfare cannot be overstated.

Historically, the exploits of expeditionary campaigns were recorded mainly by official sources, and embarrassing mistakes could be kept out of the public domain. Now, however, the media is pervasive, and heads of state can be criticised within minutes of an event. It was, after all, CNN that first informed NATO leaders that they had mistakenly bombed the Chinese Embassy in Belgrade during the Kosovo Crisis. This, amongst other factors, has resulted in a trend towards 'accountability' in the Armed Forces. Authority is gradually being taken away from individuals and elevated up the command chain.

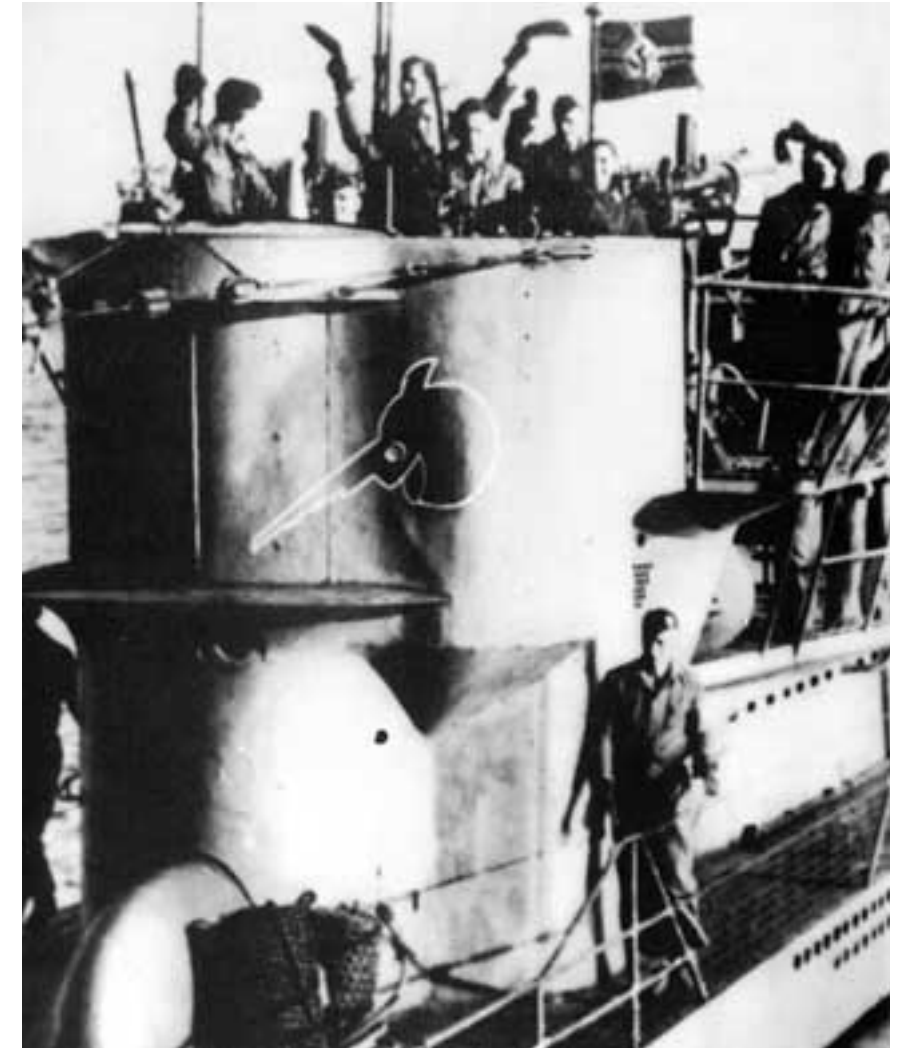
Authority needs to be vested at the lowest level possible, as the OODA Loop can only be shortened by making individuals responsible and decisive.

Responsibility (as opposed to accountability) infers that individuals think for themselves and are not reticent to make decisions

Accountability, with its inference of punishment if results are not achieved, has the tendency to tempt commanders into referring decisions to higher authority rather than shoulder the responsibility themselves. Furthermore, accountability may entice a commander (or politician!) into keeping tight control over his subordinates to ensure that they comply with his wishes. This, of course, does nothing to speed up the OODA Loop! Authority needs to be vested at the lowest level possible, as the OODA Loop can only be shortened by making individuals responsible and decisive. *Responsibility* (as opposed to accountability) infers that individuals think for themselves and are not reticent to make decisions. Of course, they will not always make the correct decisions, but by exercising their initiative they will learn and grow. And they will be able to *command* when the bullets are flying.

TECHNOLOGY

Air power, more than any other armed service, is dependent on technology. Without it, after all, aircraft become gliders – briefly! The hydraulic flight controls of the F86 are an example of how technology can have a profound effect on the outcome of combat. However, technology only gives a significant advantage when matched to an enemy's weakness.²¹ Looking at the



...the Allies' use of novel technology such as Asdic turned the U-boat campaign into a battle of attrition

Second World War, the technologically advanced German U-boats had notable success against Allied shipping, and almost severed the Atlantic supply routes to Britain. However, the Allies' use of novel technology such as Asdic turned the U-boat campaign into a battle of attrition. At the same time, the Allied Strategic Bomber Offensive against Germany catalyzed the development of the world's most technically advanced bombers yet, once again, the introduction of advanced German fighters and air defences merely resulted in high-tech attrition. More recently, in Vietnam, America's technologically advanced forces proved to be inappropriate to the type of warfare practised by the North Vietnamese forces. So technology, per se, is no guarantor of success.

Niche technologies, specifically designed to exploit an enemy's weakness, tend to be far more effective than general-purpose weapons. Wallis' 'Upkeep' bouncing bomb is one example of a small project which caused damage to the enemy out of all proportion to the effort invested; Operation CHASTISE required the modification of only 23 Lancaster bombers²² and the production of just 58 live weapons.²³ During the Gulf War USAF F117s exploited their ability to evade Iraqi air defences and then delivered precision guided weapons (PGMs) on strategic targets. Thus, for a cost of only \$4 to \$5 billion,²⁴ the US fielded a weapon system to which the enemy, at the time, could not respond. Both these weapon systems were successful because they exploited specific weaknesses of the enemy.

There are, of course, several problems in procuring specialized systems. Wallis' Upkeep was only used on one raid, despite plans to use it against ships, canals and viaducts.²⁵ Similarly, the Laser-guided Bombs (LGBs) that were so effective during



During the Gulf War USAF F117s exploited their ability to evade Iraqi air defences and then delivered precision guided weapons (PGMs) on strategic targets



The high bypass engines and small wings of many current front-line fast jets that produce relatively long-range, stable platforms at low level also result in poor manoeuvrability and limited thrust at medium level. In contrast, the US has traditionally designed aircraft for its worldwide commitments...

the Gulf War proved less useful in the Kosovo Crisis because of their reliance on good weather. Additionally, the post-Cold War reduction in defence budgets means that future aircraft are likely to remain in service for 50 years or more, and it is unlikely that any country will have sufficient funds to field enough different platform types to cover the whole spectrum of necessary specializations. Indeed, even the US had to curtail production of the \$1.1 billion B2 Stealth Bomber after only 21 aircraft had been built. So, if cost is driving air forces to field fewer aircraft types for longer periods of time, how can we ensure that they remain matched to the changing vulnerabilities of potential opponents throughout their in-service life? One answer is to procure flexible platforms and to ensure that their systems and weapons are regularly updated.

However, the RAF has a legacy of Cold War aircraft procured for specific rôles

within the defence of Europe. The high bypass engines and small wings of many current front-line fast jets that produce relatively long-range, stable platforms at low level also result in poor manoeuvrability and limited thrust at medium level. In contrast, the US has traditionally designed aircraft for its worldwide commitments, and has fielded more flexible aircraft such as the F15E and F16C.

Unfortunately, the current long procurement cycles required to field new or modified weapons, especially those associated with international projects, makes them vulnerable to changes in potential scenarios. And, as SACEUR has stated, '*we are never very good at predicting what the scenarios for the next conflicts will be*'.²⁶ Indeed, the British Armed Forces continue to field many well intentioned Cold War weapon systems that arrived a decade too late and which, as a result, no longer exploit a

specific weakness of potential opponents. One answer is to avoid large, expensive ‘mid-life’ weapon system updates which take many years to develop and field, and instead make more frequent, but smaller step, updates using proven, lower-risk technology that is matched to current threats and can be procured relatively quickly. Of course, technological advances may be able to counter these niche technologies, and so it is vital that the frequency of these incremental updates mirrors potential counters. Thus, in 1997 a Russian company displayed a prototype jammer capable of disrupting GPS over a 120-mile radius and priced at only £2,500,²⁷ while the US subsequently announced in 2000 that it would develop a new generation of GPS satellites with enhanced anti-jamming capabilities.²⁸

Manoeuvre warfare is much more than just throwing technology at a problem and expecting it to assure victory, and it is important to avoid the temptation to become fixated on stealth and PGMs as the major drivers for manoeuvre air power; it is how the technology is employed that historically wins wars. Indeed, it is important not to become complacent and rely solely on high-tech equipment; it is the enemy that must be convinced of our omnipotence, not us!

TEMPO AND TASKING

It is a well-proven precept that air power should be centrally controlled, and not fritted away in ‘penny packets’ by different commanders each with their own separate agenda. Unity of command allows air power to be directed to best effect according to a coherent overall plan. Additionally, unity of command allows simultaneous, coordinated attacks to be carried out, whose synergistic effect may overwhelm the enemy’s ability to manage a coordinated defence. But herein lies a problem for the manoeuvrist; as Lind points out:

‘Only a decentralized military can have a fast OODA loop. If the observations must be passed up a chain of command, the orientation made and the decision taken at a high level, and the command for action then transmitted back down the chain, the OODA loop is going to be slow.’²⁹

This is certainly applicable to air power. During the enforcement of the initial No Fly Zone over Bosnia, the United Nations (UN) chain of command to gain authority to engage hostile aircraft was sufficiently long to make policing ineffective. The UN’s tempo was snail-paced, and the Serbs frequently cut inside the UN’s OODA Loop. Indeed, even during the Kosovo Crisis NATO relied on massive, coordinated airborne firepower in preference to the manoeuvrist’s approach of ‘turning inside’ the Serbian OODA Loop through high tempo operations.

So how can air power balance the conflicting requirements of unity of command and decentralized control? The manoeuvrist’s answer is twofold: the Commander’s Intent; and Mission-type Orders. The Commander’s Intent is a clear and concise statement

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Modern sensors such as AWACS, J-STARS and ASTOR can penetrate the 'fog of war' and help to build up the commander's situational awareness

of what the commander wants to achieve in the longer term and the constraints he wishes to impose. Mission-type Orders are a small slice of the Commander's Intent that detail the subordinate's mission. Importantly, Mission-type Orders describe what the commander wants to achieve, but allow his subordinates to decide how to achieve it. Thus, a Mission-type Order might read 'Prevent enemy chemical-dispersing aircraft from operating at Airfield X' rather than 'Destroy hangar at Airfield X'. The Commander of KFOR, Lieutenant General Sir Mike Jackson, describes mission command as *'the ability to delegate, to tell a subordinate what he must do within whatever constraints may be operating. What you*

don't tell him is how to do it, that's his business not yours'.³⁰ A detailed knowledge of both the Commander's Intent and Mission-type Orders minimizes the need for subordinates to refer decisions to their commanders, thereby increasing the speed of the OODA Loop. Additionally, they allow subordinate units to continue to fulfill their commander's wishes when communications are disrupted or a rapid decision is required.

Modern Information Technology (IT) is having a dramatic effect on HQs. Modern sensors such as AWACS, J-STARS and ASTOR can penetrate the 'fog of war' and help to build up the commander's situational awareness. This 'transparent battlefield' can shorten the first 'O' of the OODA Loop while maintaining enough centralized control to satisfy the commander's concerns over accountability. However, IT is very much a double-edged sword. Modern technology brings with it a deluge of information which can overload the decision making cycle. In fact, data overload is a modern manifestation of Clausewitz' 'friction'. Data providers must shoulder responsibility for filtering out unnecessary information, and provide an uncluttered picture to the



commander to allow him to rapidly ‘Orientate’ and ‘Decide’. Indeed, fusing the data from a plethora of different sources to produce this picture is one of the many challenges HQs currently face. Bearing in mind the increasing complexity of HQs and the amount of data that must be analyzed, some critics have warned that ‘*HQs can be expected to take longer to make poorer decisions*’.³¹ Useful a tool as IT may be, it is important to avoid a ‘virtual battlefield’, and real-world perspectives must not be ignored. All these modern implements must merely aid the application of sound military judgment.

Having ‘Decided’ how to ‘Act’, there are problems in how the commander communicates his orders to his front-line units. NATO’s current Air Tasking Order (ATO) normally works on a 3-day cycle. In other words, it can take up to 3 days from identifying the need for a mission to the weapon hitting the target. In a rapidly changing campaign, this can hardly be described as high tempo. Indeed, it could more accurately be described as ‘tempo drag’! Even the transmission of the ATO to front line is fraught with problems. Within NATO individual nations have several different systems for transmitting the ATO, some of which are totally incompatible with each other. At best, the various national systems lack connectivity and interoperability. This can result in substantial delays in front-line units receiving their orders even once the ATO has been published. Furthermore, these front-line units are unlikely to be co-located, and the lack of robust, secure communications between participating units can lead to the formations within a package being at best de-conflicted, rather than coordinated. One answer would be a NATO-wide networked system combining the attributes of both ATO dissemination and mission planning. Visualized as a 3-dimensional map on a web page, HQ staff would load this programme with details of target positions and imagery, intelligence points, and airspace coordination information. Once released onto the network, front-line units would simultaneously plan their missions using this same programme, with the nominated package leader having first input into the overall flow. Any problems with the ATO could be rapidly communicated to the Commander using the same system’s e-mail facility. Likewise, intelligence data would be continuously updated. When mission planning has been completed, the entire package flow could be run on the computer either by individuals, or in front of all necessary participants using a conference facility, and any coordination problems could be highlighted and rapidly solved. Importantly, all authorized personnel, whether at a HQ or a front-line unit, would be able to access anyone else’s plan, to build up situational awareness. By making the division between HQ and front-line units seamless, coordination at all levels would be maximized whilst planning time would be minimized. The ability to share data in this timely manner would accelerate the OODA Loop and mimic the decentralized control sought after in manoeuvre warfare. Of course, this system would have to be not only secure, user friendly, and very robust, but also portable for deployed operations.

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Currently, ATO tempo drag can be alleviated to some extent by 'fragging' untasked aircraft on ground, or even airborne, alert. However, air-to-ground aircraft all need some degree of mission planning, whether it be just a target description, position, and time-on-target for a man-in-the-loop system, or digital mission data for an autonomous weapon. Somehow, this information must be transmitted to the aircraft. Obviously, these details need to be encrypted prior to transmission to ensure that the enemy remains unaware of your intent. Close air support, where the target is normally unknown until arriving over the battlefield, is particularly dependent on secure communications. Indeed, given the predominance of reactive, on-call tasking in current operational scenarios, there is at least as good a case for bombers to be equipped with data link such as JTIDS as there is for air-to-air fighters. Furthermore, future aircraft, such as the Joint Strike Fighter, are likely to rely on information from off-board sensors being data-linked to them to reduce the complexity of their on-board equipment, and thereby decrease unit cost. The importance of secure data links has not been lost on the RAF. When asked what was the one piece of equipment he would like to see in his fast jets, the RAF's Air Officer Commanding No 1 Group recently stated *'My wish, which would make a considerable difference, would be to get real time information through data links into the cockpits. That would be top of my list'*.³² Unfortunately, European air forces still have some way to go; SACEUR said of Kosovo *'the US Air Force had secure radios but the aircraft of the rest of the Alliance did not. As a result we were pushed to accepting the lowest common denominator of open radio transmissions. The Serbs happen to be very good at Communications Intelligence and in using the information they got over unsecure nets which frankly endangered NATO airmen's lives'*.³³ Secure data links certainly allow attacks against fleeting, mobile targets, and contribute to high tempo operations by shortening the OODA Loop.

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TACTICS

Tactics are especially vital to manoeuvre warfare. Manoeuvre has been adopted by the British Armed Forces in an era of shrinking defence budgets partially because of its utility in defeating a more numerical foe. Almost by definition, therefore, the manoeuvrist will lack the ability to bludgeon his way through the enemy using poor tactics but superior numbers. As a result, ‘brilliance in execution’ is vital to the success of manoeuvre warfare.

To be successful over the wide range of possible scenarios, the manoeuvrist must have a spectrum of tactics at his disposal. Remembering that conflict often breaks out where it is least expected, it is important to avoid becoming polarized in your tactics. Instead, it is desirable to develop a variety of tactics for all the rôles that your airframe is capable of, no matter how unlikely a particular scenario may seem at the time. After all, who would have thought in early 1990 that RAF Tornado GR1s would be dropping LGBs in the Middle East from medium level less than a year later? Furthermore, once hostilities break out, the prudent manoeuvrist will vary his tactics to avoid becoming predictable. The timely shifting of tactics is the equivalent of the F86’s hydraulic controls rapidly changing the aircraft’s plane of manoeuvre; your opponent may, with time, find a counter to a particular ploy but, by changing tactics before he has had time to cycle through his OODA Loop and employ his counter against you, the advantage will be yours; predictability brings with it the threat of your opponent short cutting your OODA Loop.

...there is always a temptation to use the tactics that you are most practised at and in which, consequently, you have most confidence. For example, the French Air Force launched a ‘Cold War’ low-level daylight attack against a heavily defended Iraqi-occupied airfield as their opening gambit of the Gulf War, and suffered heavily as a result

Finally, there is always a temptation to use the tactics that you are most practised at and in which, consequently, you have most confidence. For example, the French Air Force launched a ‘Cold War’ low-level daylight attack against a heavily defended Iraqi-occupied airfield as their opening gambit of the Gulf War, and suffered heavily as a result. Instead, it is prudent to fight against familiarity and employ the tactics that are most appropriate to the situation.

TRAINING

Educating personnel in the art of manoeuvre warfare is difficult because, contrary to most military stratagems, there is no check-list. As Royal Navy doctrine points out, manoeuvre is ‘*more an attitude of mind than an operational blueprint*’.³⁴ Almost by its very definition, manoeuvre depends on the application of *novel* ideas, and so it is best ‘taught’ by example and practice,

both of which can be simulated in war-gaming. Indeed, any attempt to teach manoeuvre in the normal prescriptive, verbatim manner may lead to disaster, as it might allow the student to become predictable, and thereby allow his adversary to foresee the next move and short cut his opponent's OODA Loop. What is required is adroitness, cunning, imagination, elusiveness, and originality. 'All warfare' said Sun Tzu, 'is based on deception'.³⁵

War-gaming is one area where the RAF has room for improvement. While officers are often trained in staff and command issues to several ranks above their own, the same cannot be said of war fighting skills. Currently, RAF personnel have to participate in specialist courses to gain the educational benefits of war-gaming. However, by introducing war-gaming into the crew rooms of front-line squadrons, aircrew would gain an understanding of the problems that an air commander can face and the constraints under which he works. With this exposure to the wider context of campaign execution, aircrew would be better placed to comply with their commander's wishes at the tactical level when the fog of war descends upon them.

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The growing number of threat scenarios around the world means that front-line aircrew must be proficient in a wide range of tactics. However, given that there are only a finite number of flying hours available for continuity training, it is not always possible to remain sufficiently current in all the rôles that an airframe is capable of. This will only be exacerbated by the introduction of the multi-rôle Eurofighter Typhoon. Additionally, some rôles require specialist equipment that is only available on a limited number of squadrons. However, prolonged campaigns can result in non-specialized squadrons having to relieve these specialized units at short notice. For example, while most RAF ground attack aircrew have carried out operations with the Thermal Imaging Airborne Laser Designation (TIALD) pod, there are insufficient pods available to keep these same aircrew in practice apart from immediately before deploying to operational theatres. So how can we ensure that sufficient squadrons will be 'up to speed' with the necessary tactics at the right time to ensure the brilliance in execution necessary for manoeuvre warfare? The latest answer is METLs – Mission Essential Task Lists. Amongst other things, these lists detail the training and assets required to bring a squadron up to a pre-determined standard in a particular rôle. The standard may be full combat readiness, or a lower level of readiness

that would require further training to reach full proficiency. Thus, METLs will outline to an air commander his current capability and allow him to identify the time and resources necessary to bring a squadron to, for example, combat-ready standard for medium level LGB operations, while allowing it to revert to low-level dumb bombing within a month. While METLs will not increase the combat proficiency of squadrons per se, they will allow a commander to decide what levels of readiness he wants his squadrons to hold in their various rôles, and what resources will be required to maintain his desired state of readiness.



TARGETING³⁶

Manoeuvre warfare is dependent on the ability to locate rapidly and accurately the enemy's pivotal targets. During high tempo operations, precise and timely targeting is vital. Unlike attrition warfare, where the physical destruction of the enemy's target sets is required, the manoeuvrist is more concerned with their functional disruption. This approach brings great economy of effort as, for example, it may only be necessary to destroy a few distribution nodes of a power grid to deny your opponent electricity, rather than the destruction of every power station. More importantly, before engaging in a bombing campaign, it is vital that the commander puts himself in his opponent's shoes and gains a fundamental understanding of his adversary's military, industrial, and political structure. To avoid costly attrition, targets should not be attacked just because they are vulnerable to air power. Indeed, to do so would be contrary to the law of armed conflict and the principle of military necessity, as all targets must contribute to the final objective of the operation. The enemy's OODA Loop will, naturally, be a prime target.

Modern PGMs can be extremely accurate. However, unless the target's exact position is known, these weapons may be of limited use. Fielded forces are notoriously difficult to target even when they are static, and most attempts to do so have ended up in lengthy attrition, such as the B52 raids against the Iraqi forces in Kuwait prior to the Coalition ground offensive. Serbian armour proved to be an equally elusive target during the Kosovo Crisis, but was it necessary to attack it? Does it take a main battle tank to ethnically cleanse a village? Did the anti-armour campaign contribute to the final outcome of Operation ALLIED FORCE, and was it an effective use of air power? Historically, fielded forces become most vulnerable to air power when they are on the move. For example, when 2 Iraqi divisions moved south through Kuwait towards Al Khafji during the Gulf War, they were caught in the open and suffered 2,000 casualties and lost 300 vehicles to Coalition air power before grinding to a halt.³⁷

The problem, once again, is locating the enemy when he moves... Part of the answer to these problems is provided by ISTAR (Information, Surveillance, Target Acquisition, and Reconnaissance) platforms. Aircraft such as J-STARS and, in the future, ASTOR will be able to look deep into enemy territory to locate Sun Tzu's 'voids', and data link real-time information to the commander on troop movement and distribution, thereby speeding up the OODA Loop. The natural progression should be 'sensor-shooter' data links to airborne attack platforms to allow even fleeting targets to be attacked. The importance of accurate and timely intelligence during manoeuvre warfare cannot be understated.

...when 2 Iraqi divisions moved south through Kuwait towards Al Khafji during the Gulf War, they were caught in the open and suffered 2,000 casualties and lost 300 vehicles to Coalition air power before grinding to a halt

SYNERGY THROUGH JOINTERY?

It is important that every military campaign is viewed in its widest context, and that a parochial approach by each environmental Service be avoided. By working together as part of an overall plan, air, land, and sea power can achieve

...with the amalgamation of the RN and RAF's Harrier fleets into the Joint Force 2000, the need for close inter-Service coordination during air operations is more important than ever. The ATO is certainly not a preserve of air forces



combined arms synergy whose effect is far greater than the sum of each individual Service. Indeed, a commander may even have to sacrifice a short-term air force objective at the tactical level to achieve an operational level goal. The Germans perfected the art of combined arms at the tactical level during the Blitzkrieg, where the synergistic effect of coordinated tactical air and land power initially achieved overwhelming results against their opponents. With the introduction into service of the RN's Tomahawk Land Attack Missile and the Army's Phoenix Uninhabited Air Vehicle, along with the amalgamation of the RN and RAF's Harrier fleets into the Joint Force 2000, the need for close inter-Service coordination during air operations is more important than ever. The ATO is certainly not a preserve of air forces.

In the Gulf War, Iraqi forces along the Saudi border were 'fixed' by the threat of a Coalition ground invasion, and had to concentrate along defensive positions which left them susceptible to air attack. Additionally, considerable Coalition effort was expended on a deception plan to persuade the Iraqis that the main Coalition ground thrust would be against Kuwait; false radio transmissions and loud speaker broadcasts along the Kuwaiti border convinced the Iraqis that Coalition forces were massing there, while in fact they were covertly re-deploying to the west prior to the planned assault across the Saudi border into Iraq itself.

...during the Kosovo Crisis the US, no doubt mindful of being dragged into another Vietnam-type ground war, repeatedly stated that they would not sanction a ground invasion

In contrast, during the Kosovo Crisis the US, no doubt mindful of being dragged into another Vietnam-type ground war, repeatedly stated that they would not sanction a ground invasion. The absence of the threat of a ground assault allowed the Serbs to disperse their ground forces widely and adopt techniques based on camouflage and concealment, deception and denial (C²D²). Thus, rather than deploying his forces to repel a ground invasion, Milosovic could hide his military equipment and personnel in civilian areas knowing that, even if NATO located these targets, it would think twice before attacking them due to the fear of collateral damage or being accused of targeting civilians by the all-seeing world media. Referring to the US' repeatedly stated intention to use air power alone, the ex-Chief of UK Defence Intelligence noted that *'Most nations have to invest in a glamorous spy or two and expensive systems to get that sort of information. BBC World Service and CNN starts to look like a bargain'*.³⁸ Others were blunter and described it as *'a strategic blunder of the first magnitude'*.³⁹

Conducting campaigns as international coalitions has great political advantage, without which we conduct operations on the edge of a strategic precipice. Coalitions demonstrate international resolve to an aggressor, and can bestow legitimacy on an operation.⁴⁰ Indeed, during the Gulf War, Iraq launched a campaign of Scud attacks against Israel in an attempt to provoke an Israeli reprisal that may have led to some Arab states withdrawing support from the Coalition. However, the lack of interoperability between coalition partners in operating procedures, communications, and equipment can, once again, produce tempo drag and lead to a slow OODA Loop; *'without interoperability we are a toothless tiger'*.⁴¹ Often, more advanced coalition members may be denied the use of their superior technology, especially in the fields of IT, by the need to work to the lowest common coalition denominator. Furthermore, national leaders may demand to endorse all plans before they are implemented due to the public's growing expectation of minimal casualties resulting from the string of recent military successes. Thus, friction at the higher levels of command may inhibit tactical freedom, and fleeting opportunities are unlikely to be taken advantage of. As the Commander of KFOR points out, *'Multi-nationality confers huge political advantage, but it also brings with it huge military friction and you've got to make certain that the political advantage outweighs the friction'*.⁴² This friction exists not only between forces of different nationalities. In a recent letter to The Times calling for the disbandment of the RAF, Field Marshal Lord Carver wrote that *'the existence of a third armed service has introduced aggravating complications to command and control of operations, and the communications on which that depends'*...

Despite all the pros and cons, we are likely to see many more joint campaigns in the future and must strive for interoperability; coalitions have considerable political power, and coordinated combined arms synergy can overwhelm an enemy by simultaneously attacking him on so many fronts that he is left bewildered and unable to mount an effective defence.

The classic examples of manoeuvre come from full-scale warfare. But is it applicable to the lower levels of conflict, where unlimited fighting has either ended or has not yet occurred? If manoeuvre is considered as the mental search for alternatives to frontal conflict, then surely it must be applicable at all levels of conflict. Indeed, Sun Tzu, the first exponent of manoeuvre warfare, writes in his chapter on 'Attack by Stratagem' that *'the skilful leader subdues the enemy's troops without any fighting'*.⁴³ Moreover, British Defence Doctrine cites that *'The manoeuvrist approach is equally applicable to all types of military operations'*.⁴⁴

At the lower levels of war, such as Peace Support Operations, Rules of Engagement (ROE) may not allow the necessary tactical freedom to employ the whole spectrum of novel techniques available to the manoeuvrist. Of course, your opponent may not be working to the same ROE... Furthermore, if a coalition's objective is to support a relatively small state from the threat of invasion, then holding ground may be the political aim, thereby further restricting tactical freedom. Indeed, British Defence Doctrine specifically denies that the aim of the manoeuvrist approach is to *'seize and hold ground for its own sake'*.⁴⁵ Nevertheless, when options are limited, the manoeuvrist commander who is trained to consider novel alternatives and get inside his opponent's mind is likely to be more successful than his attritional colleague.

WORDS OF WARNING...

Operation MARKET GARDEN ended up disastrously at Arnhem due to insufficient intelligence. Moreover, even brilliantly executed manoeuvre warfare cannot make up for strategic ineptitude

The preceding discussion on manoeuvre may lead to the conclusion that manoeuvre is a magic wand that will surely lead to victory. Even a brief glance at history proves this not be the case. The Blitzkrieg, often cited as the epitome of manoeuvre warfare, was successful in pushing the Allies into the Atlantic. However, when directed eastwards, Hitler's 'Expanding Torrent' ended up merely lapping at the banks of his final objective – the River Volga; the combined arms of tank warfare and air power worked well on Russia's open plains, but proved ineffective in the street fighting of Stalingrad. Operation MARKET GARDEN ended up disastrously at Arnhem due to insufficient intelligence. Moreover, even brilliantly executed manoeuvre warfare cannot make up for strategic ineptitude. Hitler's failure to mobilize Germany's industry in a timely fashion proved his downfall when his Blitzkriegs ground to a halt and the tone of warfare changed to attrition. Manoeuvre can rely heavily on surprise to maintain the unpredictability necessary to defeat the enemy's OODA Loop. While Clausewitz states that *'surprise lies at the root of all operations without exception'*, he adds that it should not be relied upon as the linchpin of an operation because *'by its very nature surprise can rarely be outstandingly successful'*.⁴⁶ In other words, if the surprise or deception on which an operation depends is compromised, it will be doomed to failure, as happened to Hitler's

U-boat campaign once the Enigma codes had been broken. There is no guarantee that the application of novel techniques will lead to success, and so the manoeuvrist approach is inherently more risky than attrition. Indeed, it has been said that manoeuvre can fail '*catastrophically*', while attrition fails '*gracefully*'.⁴⁷ With accountability being so important to Western governments, they may find it more comfortable to rely on attrition rather than manoeuvre tactics.

As mentioned in the introduction, manoeuvre and attrition are often quoted as being antitheses. However, this is a false dichotomy. Even Liddell Hart's 'Expanding Torrent' relies on an element of attrition to locate the weak points in the enemy's defence. Similarly, while Operation DESERT FOX displayed many of the facets of manoeuvre warfare, the majority of air-to-surface missions were attritional in nature, such as the 'shaping of the battlefield' by the destruction of Iraqi armour in Kuwait over a period of several weeks. Furthermore, a geographically small country may have no option but to rely on attrition to prevent it from being physically over-run by an aggressor. Indeed, annihilation brings with it shock, which can be an important psychological element of manoeuvre warfare. This merely illustrates the beauty of parallel operations, where one part of a campaign may rely on attrition, while another may adopt a purely manoeuvrist approach.⁴⁸

Can the manoeuvrist approach be used in coercive campaigns? Coercion and manoeuvre are, after all, similar in that they are both psychological concepts. Traditionally, coercive campaigns have relied on attrition; the opponent's infrastructure is gradually worn away until the leadership is 'persuaded' to concede to the coercer's demands. Unfortunately, this incremental approach often progressively raises the target population's pain threshold, leading to long campaigns and increased destruction. Of course, this does not stop individual missions using novel techniques at the tactical level to achieve their aim, but perhaps the manoeuvrist approach of short but overwhelming shock would be more appropriate. For instance, if the opening gambit of Operation ALLIED FORCE had been the complete long-term functional disruption of the Serbian electrical power grid, both the population and President Milošovic, bathed equally in darkness, may have sued for peace more quickly. Better still, by effectively targeting the vital industries from which a nation generates its wealth, the state's economic structure can be directly threatened, thereby avoiding the dubious causal chain of relying on the civil population to exert pressure on the government. Of course, the politicians would first have to be convinced that a short, sharp shock ultimately results in less suffering than a more gradualistic, attritional approach.



...if the opening gambit of Operation ALLIED FORCE had been the complete long-term functional disruption of the Serbian electrical power grid, both the population and President Milošovic, bathed equally in darkness, may have sued for peace more quickly

An important facet of manoeuvre warfare is to attack the enemy's decision making cycle while simultaneously protecting your own. The West's growing reliance on IT to speed up its OODA Loop could also be an Achilles' heel. Potential opponents are unlikely to play by our rule book, especially when the aggressor does not feel constrained by Western moral and ethical principles. This reliance on IT, combined with the vulnerability of our civilian infrastructure, is likely to increase the probability of an asymmetric response against us. Indeed, asymmetry is just another form of manoeuvre, using novel techniques targeted specifically at the West's inherent weaknesses. Computer 'hackers' are far less expensive than divisions of main battle tanks or surface-to-air missile systems, and could cause havoc to an IT-dependent adversary. Furthermore, their targets may not be confined to military networks; by disrupting Western financial markets, for instance, they may coerce the population, via the media, into abandoning a military campaign in a far flung corner of the globe. The UK has lagged behind the US in recognizing the threat of asymmetry, but is now beginning to catch up. In 1998, a Commons Defence Committee report criticised the UK Government for not addressing itself to asymmetry in the Strategic Defence Review,⁴⁹ and the Armed Forces Minister acknowledged at an Atlantic Council function in December 1999 that '*proliferating technologies could be used against us*'.⁵⁰ Future conflicts may be relatively balanced, with each side using its own form of manoeuvre warfare to target specific weaknesses in the other; an '*indirect balance of offsetting asymmetries*'.⁵¹ Indeed, it is fair to say that both Serbia and Iraq have consistently out-manoeuvred the West in many respects.

In 1998, a Commons Defence Committee report criticized the UK Government for not addressing itself to asymmetry in the Strategic Defence Review...

Should the manoeuvrist approach be applied in every circumstance? The answer is that it should certainly be considered as an alternative to more traditional techniques before resorting to them. Perhaps manoeuvre warfare was not employed during the Kosovo Crisis because NATO realized that it could not adopt high tempo operations due to the internal friction inherent in a multi-national coalition, and instead relied on its combat power advantage as the less risky option.

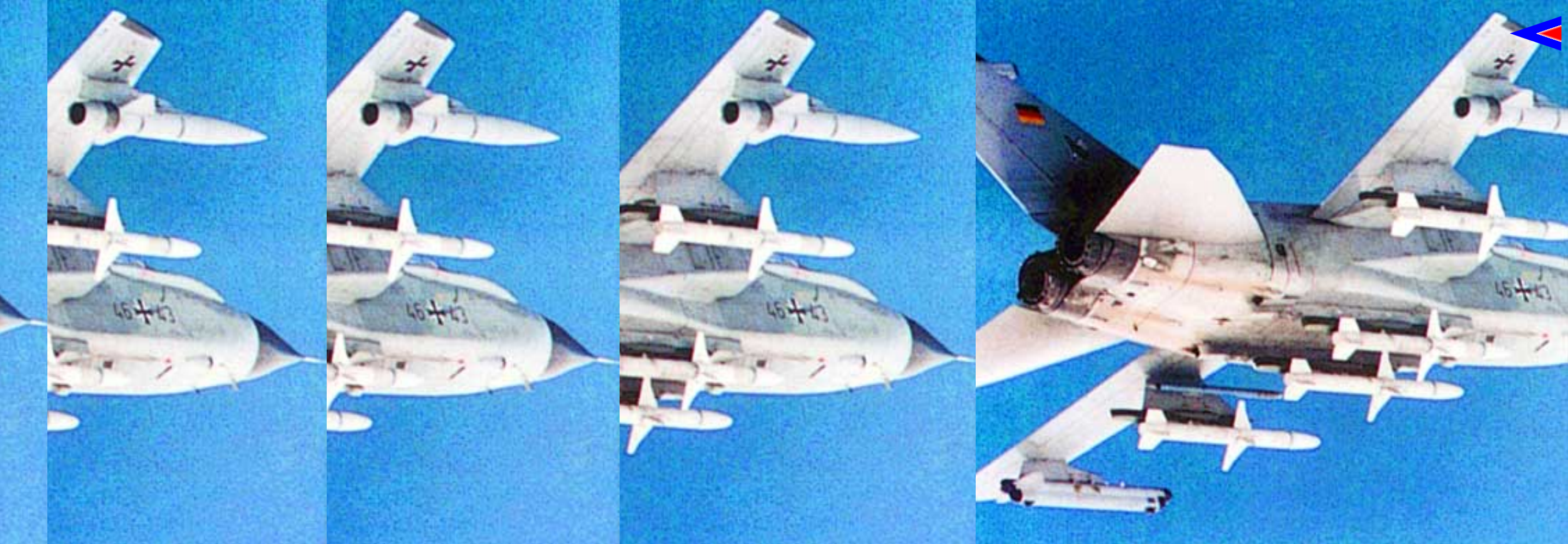
THE CHALLENGES AHEAD

The essence of manoeuvre warfare is the application of novel ideas to outwit the enemy, and much of it is based on common sense. Indeed, manoeuvre as a concept is very broad, and it is easy to become embroiled in the minutiae. The manoeuvrist approach is certainly not a panacea; it can be high risk and requires high tempo, which may not be well suited to cumbersome coalitions. The British Armed Forces have adopted manoeuvre warfare as a fundamental principle of our defence doctrine and significant progress has already been made. However, if we wish to combine manoeuvre warfare with coalition operations successfully, we still have a long way to go.



NOTES

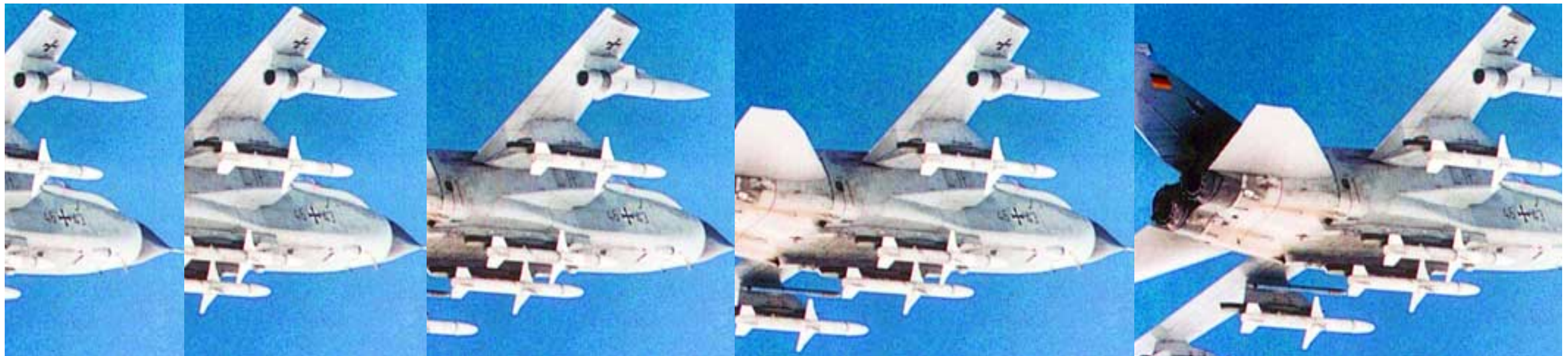
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SUPPRESSION of ENEMY AIR DEFENCES

VORSPRUNG DURCH TECHNIK

There is long-running debate on Europe's need to play a more active role in its collective defence and in policing the trouble spots that fall within the EU's sphere of influence and responsibility. Despite a good deal of rhetoric from senior military and political figures about the development of a European armed force, perhaps based on WEU¹ guidelines, it seems implausible to many that such a force could operate without American support. In the near term it is highly unlikely that European governments will be able to increase their defence spending significantly to cover any shortfalls. Defence spending in Germany, for example, has reduced to 1.5% GDP (from 3% in 1990)² and is likely to reduce further. There are many capability areas that would have to be improved before a solely European Air Force (EAF) could contemplate prosecuting a campaign such as that against Serbia in 1999. Without current levels of US involvement such a force would lack many capabilities, not least an ability to suppress an enemy's air defences. Undoubtedly such a European force would be short of tactical jammers, such as the EA 6B. However, there is a common misconception that without a fleet of F16 C/J aircraft armed with the latest block of AGM 88 High-Speed Anti Radiation Missile (HARM) and equipped with the HARM Targeting System (HTS), any such EAF would have no real SEAD capability at all (or would it?). This paper assumes that European governments will not provide additional funding to rectify any perceived capability gaps and will argue that today's European air forces possess sufficient lethal SEAD capability for future operations, but only if steps are taken to improve co-operation between member forces.



THE ECR / ETS TORNADO

Although a number of European countries have the ability to carry Anti Radiation Missiles (ARMs) only the German and Italian air forces have a tactical location system with which to cue the missiles onto their targets. The Electronic Combat Reconnaissance (ECR) Tornado has been in service with the Luftwaffe since 1992. It was designed to be a reactive SEAD platform able to detect hostile radar emissions and engage the associated system using its American built HARM. At the heart of the ECR Tornado is the Emitter Location System (ELS). Built by Texas Instruments (now Raytheon), the ELS is made up of a series of line replaceable units which are distributed throughout the airframe. The receivers, located in the wing roots, operate generally in the search and acquisition part of the radar spectrum and are not open to scan the whole spectrum all of the time. They selectively search different parts of the radar spectrum under the control of the aircraft Weapons Systems Officer (WSO).

The Luftwaffe has 35 ECR Tornados in service based at Lechfeld in Bavaria and flown by 2 squadrons comprising the 32nd Fighter Bomber Wing. The pre-flight messages for the ELS, containing the parameters of systems in a particular area of interest, are written in Trier by the Luftwaffe equivalent of the Defence EW Centre. In 1998 the Italian Air Force took delivery of the first of its specialist SEAD Tornados. Based on the ECR Tornado, the Electronic Warfare Tactical Suppression (ETS) is also equipped with the HARM. The IAF has procured 12 ETS Tornados, which are flown by 155 Sqn based at Piacenza, and currently use software support from the Luftwaffe.



The Luftwaffe has 35 ECR Tornados in service based at Lechfeld in Bavaria and flown by 2 squadrons comprising the 32nd Fighter Bomber Wing

The HARM was the technological follow-on to the AGM 65 'SHRIKE' missile of the Vietnam era, made famous by the F100 and later the F 4G using it in the 'Wild Weasel' SAM hunting role

AGM 88 HARM

Both the GAF and the IAF are equipped with the AGM 88B HARM. Primarily designed by Texas Instruments, the missile entered service in 1980 and was first used in the 1986 ELDORADO CANYON attacks on Libya. The HARM was the technological follow-on to the AGM 65 'SHRIKE' missile of the Vietnam era, made famous by the F100 and later the F 4G using it in the 'Wild Weasel' SAM hunting role.

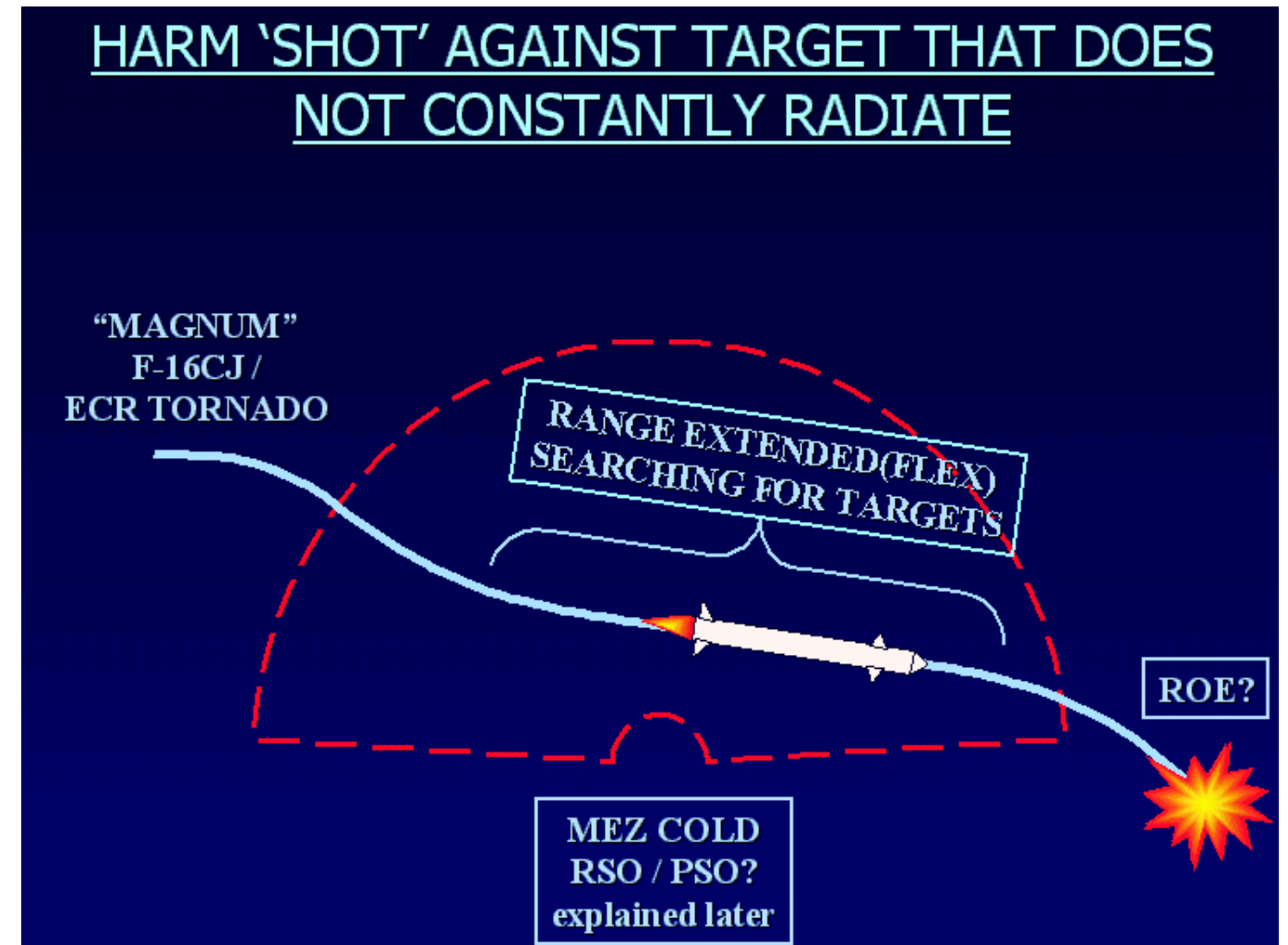
Although details of some HARM variants remain classified, the missile contains a nose mounted seeker, made up of a series of broadband receivers, a comparatively large warhead, a guidance and navigation system and a rocket motor.

The HARM seeker searches for radar energy whilst the missile is still on the aircraft. However, as the seeker has a limited field of view, unless the missile is pointing in the rough direction of the emitter the seeker will not see the energy. This makes the job of targeting unknown, mobile SAMs very difficult unless some other method can be used to cue the missile onto the target. Emitter location systems employed by the Germans and Italians in their Tornados and the USAF in their F 16 CJ HTS pods have a much greater field of view than the HARM and can detect systems even when the aircraft is not pointing directly at the target. By transferring the estimated origin of the radar energy from the ELS to the HARM (generally in range and bearing) and by pointing the missile in the correct direction, the missile will leave the rail and fly a profile that will allow it home down the targeted system's main beam (or close to it). This means that the missile seeker does not have to have acquired the target energy before launch, but a more precise profile will be flown if it has. It is possible to down-load the location of a suspected (intelligence determined) system to the HARM without any form of ELS cueing or acquisition by the HARM seeker. The missile



will subsequently fly a profile that would allow it to home onto the system should it become active during the missile's time of flight. This is obviously the least preferable mode of HARM operation because of the lack of pre-launch confirmation of a radar's existence, however this option has been extensively employed against suspected but non-radiating targets.

A major disadvantage of HARM occurs during the homing phase of its flight profile. The missile will have positioned itself to home down the main beam of the targeted system (the HARM is unlikely to receive sufficient energy on which to home unless it is in, or close to, the main beam). If, however, the missile was fired towards an incorrect position (through, for example, out of date intelligence), or if a system detected by either missile seeker or ELS before launch shuts down for fear of attack, then the missile will 'flex' into a shallower flight path in the search for other suitable emissions on which to home. Eventually if it is unable to home onto anything the missile will glide into the ground. Although later HARM models could incorporate some form of flight limiting system, the point of impact could be some considerable distance away from its intended target and cause collateral damage. Nevertheless in a hostile and active SAM environment correctly cued HARMs have proved very capable against continually radiating targets.



Although later HARM models could incorporate some form of flight limiting system, the point of impact could be some considerable distance away from its intended target and cause collateral damage

RAF SEAD – THE ALARM

The RAF adopted a markedly different approach to SEAD from that of its Tornado-flying NATO colleagues. Despite previous interest in the SHRIKE, the RAF decided against the procurement of specialist SEAD aircraft and opted instead to invest in an intelligent missile – the Air Launched Anti-Radiation Missile (ALARM). In 1977 the RAF issued AST 1228 for a defence suppression weapon. The 2 main contenders were the HARM (still on the drawing board, but based on proven SHRIKE technology) and the British Aerospace / Marconi ALARM. At the time of the procurement, during the Cold War, the perceived main role for RAF SEAD assets was to clear a gap through the robust SAM belt along the Inner German Border to allow the then new Tornado GR 1 bombers passage to their Offensive Counter Air targets. The procurement also presented the need to engage single systems deployed as point defence. The underlying difficulty for the companies competing for the contract was the requirement for the missile to do this from any launch platform and without the aid of an emitter location system to cue the missile onto the target. Despite competition from the proven technology of US ARMs and the success of US SEAD, particularly the ‘Wild-Weasel’ concept introduced during the Vietnam war, the contract was awarded in 1979 to the BAe / Marconi bid. To achieve its design specification the ALARM incorporates some very ingenious features.

Unlike the HARM which requires energy on which to home, preferably before launch, the ALARM uses its own navigation system to route to a position over a suspected threat radar before opening its sensors and looking for associated radiation. Details of the system to be targeted, such as location and expected emission parameters, are loaded into the missile on the ground. It is possible to fire the ALARM from almost any platform if it is launched from a pre-planned position, however this is not the preferred method of employment. The primary launch platform for the missile is now the Tornado GR 4, with IX (B) and 31 Sqns specialising in the SEAD role. Through the displays in the rear cockpit the navigator can change any of the target parameters, and the launch position, aircraft heading, attitude and speed are down-loaded from the launch aircraft to the missile at trigger press.

The primary launch platform for the missile is now the Tornado GR 4...

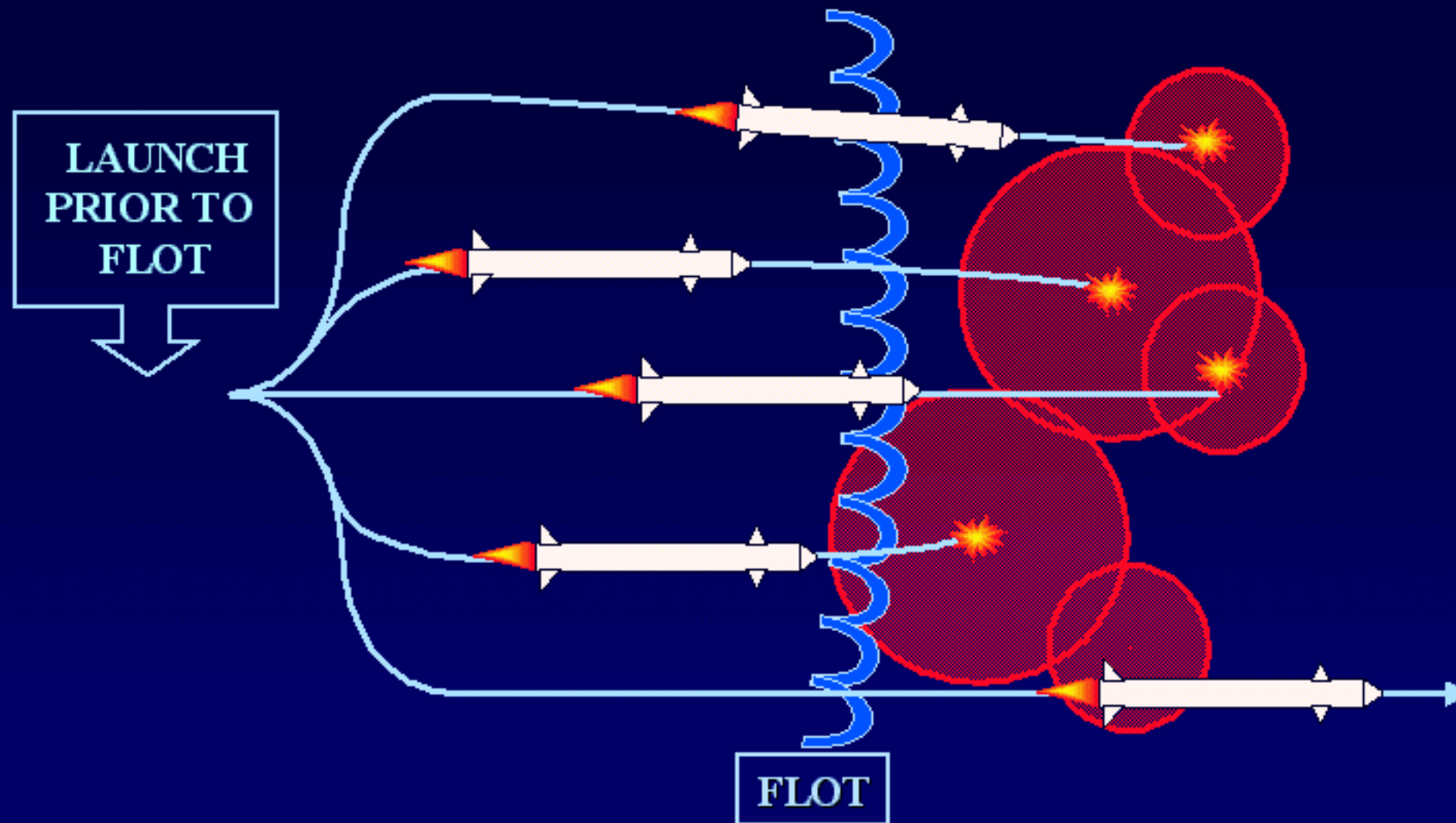
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The ALARM has 2 distinct modes of operation: Corridor Suppression and Target of Known Location (TKL).

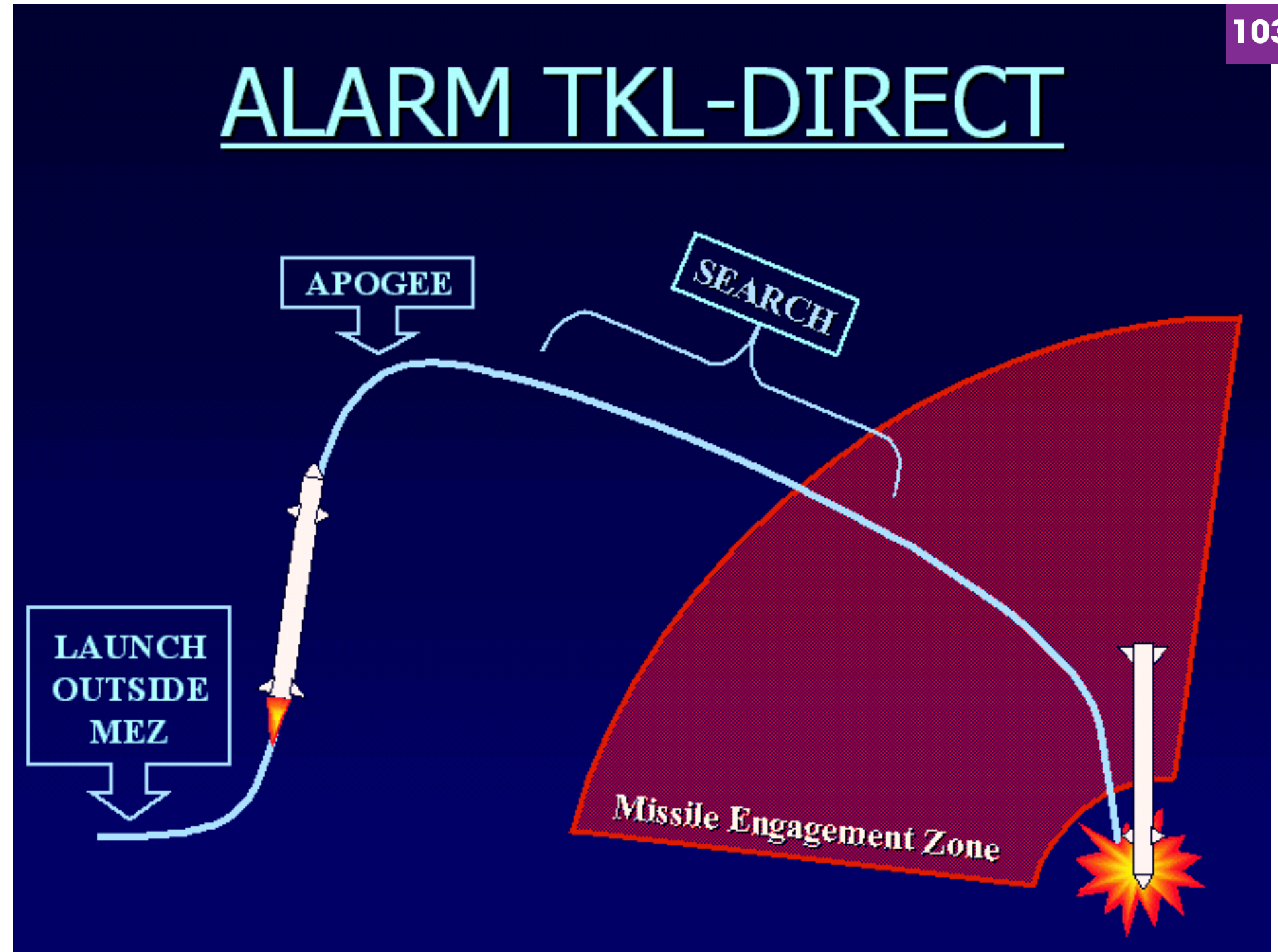
ALARM-CORRIDOR SUPPRESSION



Corridor Suppression In Corridor Suppression mode ALARMS would be used to create a corridor in SAM defences to allow attackers to cross a FLOT. Although the specific location of these SAMs is unknown, the missiles are pre-programmed with co-ordinates to define the centre of the corridor. The centre missile would sweep along this axis searching for threat radars, using its on board IN to navigate. Other missiles fired in the package would then 'fan out' either side of this missile to target systems located outside the search footprint of the centre missile but which still pose a threat; thereby creating a hole in the defences for the bomber package to fly through.

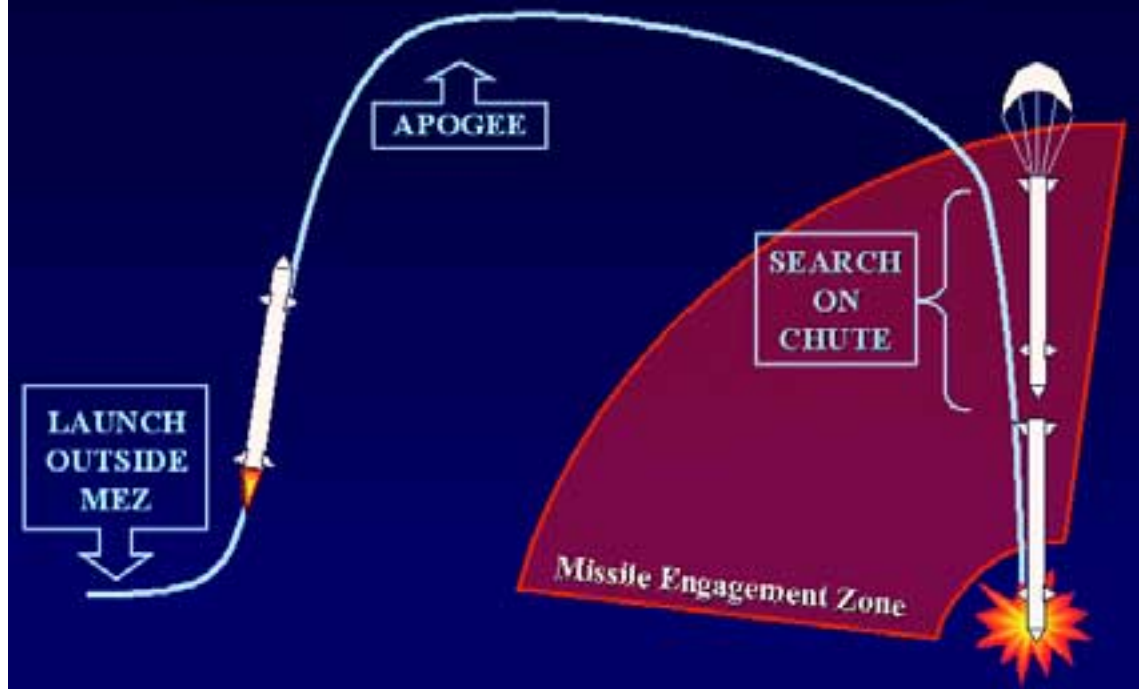


Target of Known Location The second of ALARM's modes of operation utilises the missile against targets of known location. The co-ordinates of emitters to be targeted are loaded into the missile before launch. Once launched the missile then navigates to this pre-programmed position. TKL mode can be further sub-divided to fly one of 3 pre-determined profiles. In DIRECT mode the missile climbs after launch and upon reaching its apogee opens its sensors, searching for the emission characteristics of the targeted system. If, during its descent, emissions from the target are detected, the ALARM homes onto them. The missile's control unit will also renew the location of the target based on the received energy. This provides the ALARM with a 'blind homing' capability should the targeted system switch off. If the ALARM receives no energy at all during its descent, the missile will drop onto its pre-programmed position.



If the ALARM receives no energy at all during its descent, the missile will drop onto its pre-programmed position

ALARM TKL-LOITER



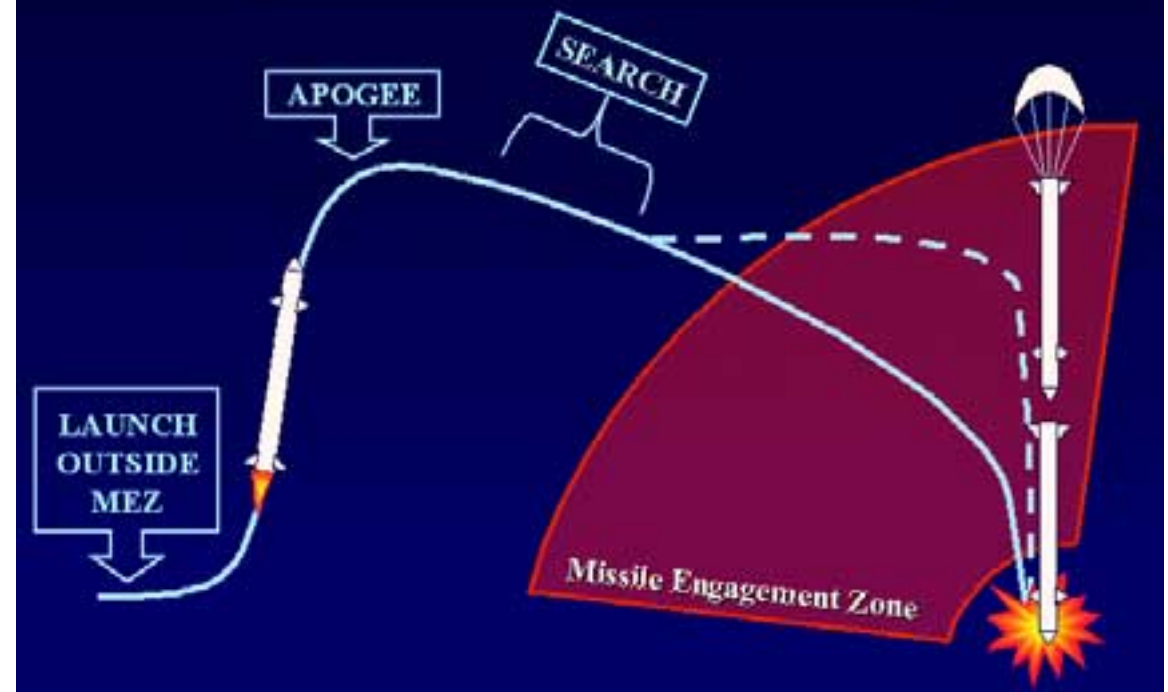
In LOITER mode the missile will navigate to overhead the target and deploy a parachute. The missile then descends under gravity towards its pre-programmed co-ordinates, its sensors searching for target emission characteristics

In LOITER mode the missile will navigate to overhead the target and deploy a parachute. The missile then descends under gravity towards its pre-programmed co-ordinates, its sensors searching for target emission characteristics. If sufficient signal is received the missile will update its target location position, cut the parachute and home onto the system. DUAL mode is a combination of both. If at apogee target radiation is detected the ALARM will continue to home in DIRECT. If nothing is received the missile will deploy a parachute and LOITER.

Just before ALARM's planned in-service date its intended main role, against the East German SAM belt, was made redundant by the fall of the Berlin Wall and of communism as a whole. Nevertheless, the missile entered service in January 1991 during the Gulf war. During the conflict some 120 missiles were fired. Despite the majority being targeted against specific SAM sites, most were launched in the corridor suppression mode because of the lack of timely intelligence of SAM location available to the crews. Post-war analysis of all ARM shots against Iraqi IADS proved particularly difficult. The lack of tangible evidence, coupled with integration problems experienced on

If nothing is received the missile will deploy a parachute and LOITER

ALARM TKL-DUAL



early sorties and the knowledge that the missiles were perhaps not fired in their optimum modes, has possibly generated a view that ALARM did not perform as it should have. If these reservations are compared with the upbeat American assessment of HARM performance from similar results, it can perhaps be understood why there has been reluctance in the RAF throughout the last decade to champion ALARM as a credible alternative (complementary?) system.

ANTI ARM TACTICS

Since its first use against Libyan air defence systems in 1983 some 3,000 HARMs have been fired in combat from US, German, Italian, Spanish and Turkish platforms. About 2,000 were fired during the Gulf War alone and over 800 in the recent conflict with Serbia. As described earlier, the targeted system has to emit so that the HARM can home onto it. If the system stops emitting during the time of flight of the missile the chances of a hit are greatly reduced. During the Gulf War US forces intended its HARMs to kill SAM systems and remove them permanently from Iraq's inventory. To ensure Iraqi systems were emitting during HARM attacks coalition planners used drones that mimicked the radar signature of incoming strike aircraft. In reaction to these drones the Iraqis switched on their radars to defend against the perceived attack and were then targeted by HARM carrying F/A 18s and F4 Gs.³ During one wave on the first night of Desert Storm over 200 HARMs were fired against Baghdad air defence systems. This was a deliberate attempt to "Hard" kill these systems so that they would no longer be a factor in the conflict. But experience gained from combat is not solely the domain of the attacker and, by the end of the conflict those Iraqi air defence units still functioning had learned to shut down to save their systems whenever attack by HARM was suspected.

...by the end of the conflict those Iraqi air defence units still functioning had learned to shut down to save their systems whenever attack by HARM was suspected



Defensive measures taken by defenders against ARM attack are now considered by SEAD specialists to be either pre-emptive or reactive shut-off (PSO or RSO). Defenders will employ PSO tactics to prevent their being targeted by SEAD aircraft. However, if the threat of attack forces a defender to employ PSO to save its systems for another day, then it can be said (and often is by supporters) that the suppression aspect of SEAD, or “Soft Kill” has been achieved by default. Typical use of RSO tactics would see a radar system radiate long enough to entice SEAD assets into an engagement and, after ARM launch was detected, the defender would shut-off to deny homing to the missile. RSO and PSO tactics have been used by Iraq and Serbia during the recent conflicts.

HARM & ALARM – AN IDEAL MIX

Air warfare planners now regard SEAD assets as a critical part of any package operating over enemy territory. Unfortunately these assets are at a premium. Although HARM is in service with many air forces around the world, only the USAF with its HTS equipped F16 CJs and the German and Italian ELS equipped Tornados provide a genuine reactive SEAD capability. With SEAD assets so thinly spread it is difficult to support large packages of aircraft tasked with attacking geographically diverse targets, such as those tasked to support packages during the recent Serbian campaign. The strikers naturally expect to have SEAD protection for the duration of their time over enemy territory, but unfortunately there are simply not enough assets to cover the whole package all of the time. The SEAD package commander must balance the requests from the strikers with the intelligence picture and use his own expertise to devise a plan that satisfies all players. Once the main threats have been identified an optimum route and SEAD CAP will be devised that gives the most coverage to most strikers for the most time. As a compromise to those strikers who must fly through known SAM threats to execute their missions the SEAD



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commander may be forced into firing a missile towards a SAM pre-emptively (PET shot) in the hope that the system may switch on during time of flight of the missile. This is not how the HARM is designed to be employed and more often than not the missile would receive no energy from the intended target and would extend its flight path in the search for suitable emissions, eventually impacting long of targeted system with the associated collateral problems. This technique has had only limited success and has greater utility in providing the bomber crews with a *warm and fuzzy* feeling as they transit through missile engagement zones en-route to their targets than suppressing SAM systems. If RAF SEAD assets had been included in SEAD packages during the Kosovo conflict, ALARM could have been fired pre-emptively against locations of suspected SAMs and would have brought the following advantages to the package:

In any realistic combat fit both F16 and Tornado ECR would fly with 2 HARMs. RAF Tornados could sensibly carry 5 ALARMS; therefore could target more systems whilst allowing reactive SEAD assets to save their HARMs to target pop-up SAMs reactively using their ELS.

In its parachute modes ALARM gives far greater time coverage per missile than HARM. This not only provides a longer window of protection for the attackers but also gives a better chance of kill should the system switch-on whilst the missile is in the 'chute'.

Although ALARM will constantly search for suitable emissions on which to home, unlike the HARM it will not modify its flight path to do so. If no signal is received from the targeted system the missile will drop vertically, within the accuracy of its navigation pack, onto its pre-programmed target position. This obviates the collateral damage aspects of a HARM PET shot.

SEAD experts involved in the campaign (HARM operators included) have agreed that ALARM should have been the PET shot weapon of choice against systems whose location was known or suspected. Unfortunately, a lack of understanding of ALARM and perhaps SEAD in general as well as an understandably over-cautious approach to the collateral damage issues (HARM warhead is considerably larger than that of ALARM) amongst national decision makers limited the number of ALARM missiles fired in the conflict.

'ROCKET' – THE EUROPEAN SEAD FORMATION

Let us build an imaginary, but not unlikely, scenario that illustrates how a mix of HARM and ALARM could be used in the future.

Rocket Formation of 2 ECR plus 2 ALARM carrying Tornados is tasked as the SEAD support element of package B, the second package of the day to cross into enemy airspace. Since the outbreak of the conflict German, Italian and Royal Air Force Tornados



have been co-located and have not only built up a solid working relationship, but have also been able to reduce their logistical burden by sharing support facets of the deployment. The lead crew *Rocket 1* liaises with the strike package commander and decide that the standard load of 2 HARMs for each ECR Tornado and 5 ALARMs for the RAF Tornados should provide sufficient missiles for the package.

The majority of the strike package are tasked with targets just to the south of the heavily defended capital city, whilst one strike element callsign *Nova* is tasked against a motorway bridge some 100 miles further south. The Strike plan involves *Nova* crossing the border with the main package before splitting off to the southerly target. Unfortunately *Nova* has to fly through a strategic SAM engagement zone in order to carry out its attack. Although this SAM has been active recently it is known to move periodically between 3 pre-prepared sites and has not been targeted conventionally. Fortunately for *Nova* all the known mobile SAMs are believed to be protecting the capital or have been placed along the border to attack ingressing targets.

As well as the mobile SAMs the capital is defended by a ring of medium-range strategic systems. The main strike package will have to fly through 2 of these in order to execute its mission.

After an uneventful take-off *Rocket* refuels from an RAF VC 10 before joining the strike package in the hold some 70 miles away from the border. AWACS passes information to package B that the strategic SAM close to the motorway bridge had been reported active by aircraft of package A and confirmed by a Nimrod R, although the SAM had not radiated long enough for its position to be determined accurately enough for conventional targeting purposes. During the third holding pattern *Rocket 3*, an ECR, receives indications that a search radar, associated with mobile SAMs, is active close to the border.

The package leaves the hold with *Rocket* and the fighter sweep at the front. As it does so, *Rocket 4*, an ALARM carrier, receives indications on his radar warning receiver of a mobile SAM tracking radar on the nose. Immediately afterwards this is confirmed by one of the ECRs who fixes the position using its ELS and passes the co-ordinates in code to *Rocket 4*. As search radars in enemy territory detect the package leaving the hold all SAMs on the border are ordered to shut down by sector HQ to deny homing to any ARM attack (PSO). Nevertheless, as the package comes within range of the system 2 ALARMs are fired against it in a parachute mode. Although the mobile SAM radar remains off for the time of flight of the ALARMs, the missiles have been programmed with the system's latest co-ordinates just before launch and although no energy was received by either missile during flight the ALARMs impact close enough to the SAM to inflict damage that requires repair.

At the split point *Nova* and *Rocket 3 + 4* turn towards the motorway bridge. *Rocket 3* can give no update of target position and therefore *Rocket 4* fires 2 more ALARMs which position themselves overhead a point equi-distant from the 3 known prepared sites, deploy their parachutes and loiter. The ALARM launch was detected by a separate radar unit and all SAM systems in the sector were ordered to shut down (RSO) by the sector HQ. HQ staff believed that it had witnessed a HARM attack and, using time of flight graphs based on Iraqi observations of HARM shots, it ordered the strategic SAM to engage the rapidly approaching *Nova* formation once the perceived HARM threat had passed. Unfortunately for them, as the acquisition radar

switches on it is seen by the loitering ALARMs above. The parachutes are cut and the SAM is destroyed. *Rocket 3 and 4* are already on their way to rejoining the rest of the package.

As the main package approaches the target area there is no indication of SAM activity. *Rocket 2* fires 5 ALARMs pre-emptively against the suspected positions of the 2 strategic sites. However, the ALARM kill of the SAM at the motorway bridge has been relayed to the other sector HQs and all the strategic SAM radars are ordered to remain silent. A 'Soft' kill has been achieved.

The mobile SAMs are a different matter. As the main package approaches the target *Rocket 1 and 3* each locate 2 mobile SAM threat radars on their ELS. Employing their pre-arranged target sort plan, 2 HARMs are fired from each ECR against each SAM. Unaware that they have been targeted the mobile radars remain tracking the main package. The HARMs home successfully and the SAMs are 'Hard' killed. The package rejoins post target and egress is made with *Rocket* at the front providing threat updates to the following package. The SEAD mission was a complete success and *Rocket* still has one ALARM remaining for use on the way out.

THE WAY AHEAD FOR EUROPEAN SEAD

Although this paper has concentrated on the possible closer integration of German, Italian and Royal Air Force SEAD assets, mainly because of the author's familiarity with those systems, the same principles of co-operation could (and should) be expanded to encompass all of ARM equipped aircraft. For instance, in the above scenario there is no reason why the ECR Tornado could not have been an F 16 equipped with a HTS pod to provide positional information to the ALARM carriers. Or why ECR Tornados could not give updated positional information to give HARMs carried by Turkish or Spanish aircraft a better chance of acquiring a target. There are many force permutations.

Even though the aim of this paper has been to identify what is available to any EAF now, it is appropriate, from a RAF point of view, to highlight the

...although a limited location capability exists utilising the ESM equipment onboard AWACS and Nimrod R, for the RAF to maintain a national SEAD capability a tactical ELS should be procured to allow reactive targeting of SAMs





requirement for a tactical ELS and a data-link between RAF SEAD aircraft. National exercises have shown that although a limited location capability exists utilising the ESM equipment onboard AWACS and Nimrod R, for the RAF to maintain a national SEAD capability a tactical ELS should be procured to allow reactive targeting of SAMs. Ideally each SEAD platform would be equipped with an ELS and could operate autonomously. However, in reality because of the narrow beam of tracking and missile guidance signals, aircraft are unlikely to receive the same ELS picture even if they are flying close to one another. A requirement exists therefore for each aircraft to be data-linked so that each ALARM carrier, whether ELS equipped or not receives timely targeting data. This data-link must be compatible with those of our allies to allow combined *Rocket* formations of the future maximum flexibility. Further discussion is outside the scope of this paper.

There is a long way to go but general awareness of SEAD is improving. It needs to. A lot of work still has to be done before the fictitious *Rocket* can get airborne in anger. First, a realisation by national commanders that what currently constitutes limited national SEAD potential could contribute to an enhanced NATO capability or a credible SEAD force in a future EAF. Once this has happened then an exchange of ideas and information between SEAD units should be encouraged. Traditionally the security classification associated with SEAD, and EW technology in general, has precluded such a flow. But these problems are not insurmountable. A successful aircrew exchange programme already exists between the GAF SEAD units and the IAF, SpAF, USAF and RAF, and an Italian exchange officer flies on an ALARM equipped RAF sqn. Tactical Leadership Programme at Florennes, recognising the importance of SEAD, hold regular SEAD conferences and the GAF hold an annual SEAD integration exercise in southern Germany. The 3rd edition of AP 3000, RAF Air Power Doctrine⁴ affords almost twice the space to SEAD as the 2nd edition, even though there has been little, if any, change in RAF capability between their publications. The SEAD campaign in the recent conflict with Serbia was a success – but it could have been better. Closer integration between SEAD assets could have enhanced missile utility. RAF Tornados armed with ALARM, LGBs and a designation pod could have employed Destruction of Enemy Air Defence (DEAD) tactics.....but that's the subject of another paper altogether. The message in this story is: if you want to get to the SAMs before the Germans, buy yourself an ECR Tornado (or at least get co-operating with them). Vorsprung durch Technik – as they say in Lechfeld, Piacenza, Bruggen, Merzifon, Spangdahlem, Torrejon...

NOTES

- 1 The Economist – In defence of Europe February 26 2000
- 2 Edward Foster – Eagle with Talons of Clay RUSI International Security Review 2000
- 3 Richard P Hallion – Storm over Iraq Chapter 6 page 173
- 4 RAF Air Power Doctrine 3rd edition – page 2.5.6



**Royal Air Force C-130
Hercules transport**

The Argentine Gazette

Part One

BATTLE
FOR THE
FALKLANDS



1

The ARGENTINE GAZETTE was the news leaflet issued to all members of the occupying forces during the Falklands Conflict. It was the means by which the Commander of the occupying forces, Brigadier General Mario Menendez, sought to inform his forces of events on the Islands. The GAZETTE was also the means of imparting news from home. Whilst the reader may disagree strongly with the depiction of some events, the style and content of that depiction is deemed to be of interest in its own right.

2. This work is not intended to be an accurate depiction of those tragic events of 1982. Rather, I have attempted to follow as closely as possible the tone, style and literal meaning of the source text. At no time have I allowed personal opinion to shape the translation. Where cultural references have been made which might have no significance to the reader, I have attempted to render the closest possible equivalent. For the sake of brevity, those terms for which there is no translation have been denoted in brackets [].

3. In any kind of translation the ultimate goal must be one not of attempting to render a literal translation of the source text, lest the result be gibberish. Rather, an attempt should be made to reduce to an absolute minimum the 'equivalence loss' inherent with the work, ie the degree to which the target text fails to accurately represent the effects and features of the source text. This approach results in the translation of some common phrases appearing to bear no relation to their original form, due to the context in which they had been used.

4. I would like to express my most sincere thanks to Mr John Smith, Curator (Retd) of the Falkland Islands Museum, for the opportunity to undertake this work, and to Elvio and Anya Cofre for the friendship and hospitality they showed me throughout my stay on the Islands. I hope that this work proves to be an interesting addition to the exhibits in the Falkland Islands Museum.

Additional remarks by the Editor, Squadron Leader Alan Riches

Following the surrender of the Argentine forces in June 1982, Mr John Smith, until recently the curator of the Stanley Museum, collected together a full set of the Argentine Gazette; as far as he is aware, this is the only complete set in existence. This translation of the Gazette was undertaken by Christopher Brooks in his spare time during his tour as Engineering Officer of 78 Squadron in the Falkland Islands between April and October 1999. It is a remarkable piece of work and provides both important primary source material for historians of the Falklands Conflict and an interesting insight into the Argentines' perception of events. Other than a little editorial 'tidying up', I have deleted nothing from Christopher Brooks' translation. I have, however, added throughout the text my own commentary on the Argentine version of events which is based on information contained in two books about the

Conflict published in the 1980s: “Falklands – The Air War” published by the British Aviation Research Group; and “Air War South Atlantic” by Jeffrey Ethell and Alfred Price. In order to distinguish them from Christopher Brooks’ original translation, my comments are in italics.

(See Index page 16)

Argentine Army, 8th May 1982

Year 1 Number 1

Introduction. Port Stanley – by order of the Military Commander Falkland Islands, Brigadier General Mario Benjamin Menendez, in this Capital is founded THE ARGENTINE GAZETTE. Appointed as Editor is Military Chaplain Friar Salvador Santore (Order of Preachers) and as Deputy Editor Captain Fernando Orlando Rodriguez Mayo, Press Officer of the Military Government.

Editorial. THE ARGENTINE GAZETTE fulfils the needs for information on the part of members of the Armed Forces. Therefore, our first objective will be imparting the truth, which comes from fact and gives a new social and historical significance to these Islands. False information creates absurd or imaginary hopes. On the other hand, the purpose of concise information is to clarify our goals and to maintain within ourselves a heightened awareness of the just and noble fight that we have begun, and which cannot cease.

Outline of Events between 1st and 7th May 1982

1st May 1982

0440 hrs: An unidentified enemy aircraft attacked Port Stanley Airport, dropping two 1,000lb bombs. *This was the first of the Vulcan sorties from Ascension Island, code-named “Black Buck”. Twenty-one 1000lb bombs were dropped across the runway at an angle of 30 degrees, 2 of which scored hits.*

0734 hrs: A delayed-action bomb, dropped during the first enemy raid, exploded at Port Stanley Airport.

0740 hrs: The enemy carried out a second attack, by Sea Harrier aircraft using rockets and cannon, against Port Stanley Airport and positions of the 5th Marine Infantry Brigade.

0825 hrs: The third enemy air attack against Port Stanley Airport, by Sea Harriers dropping bombs, set fire to Airport installations. One Sea Harrier was shot down by a Roland SAM and another by twin-barrelled 35mm cannon and/or a Tiger Cat SAM.

0815 hrs: Four enemy Sea Harriers attacked Darwin Airport with bombs and cannon. The attack destroyed 2 of our Pucará aircraft on the ground.

These attacks were carried out by 12 Sea Harriers of 800 Sqn from Hermes – 9 against Stanley and 3 against Darwin. All

aircraft returned safely, giving rise to BBC reporter Brian Hanrahan's oft-quoted phrase "I counted them all out and I counted them all back".

1520 hrs: An enemy helicopter attacked a patrol launch of the Argentine Naval Prefecture, without success. *This could be the attack on the "Islas Malvinas" referred to below.*

1600 hrs: Three enemy warships bombarded positions of the 25th Infantry Regiment, without causing major casualties. *The ships were the destroyer Glamorgan and the frigates Arrow and Alacrity.*

1620 hrs: The Argentine Air Force (FAA), using Douglas A4 aircraft, attacked enemy warships in the area of Choiseul Sound. Significant damage was caused to one ship and minor damage (the precise degree of which was impossible determine) to the other 2. The enemy withdrew. In these combat actions the enemy shot down 2 of our aircraft (an A4 and a Canberra), rescuing both members of the Canberra crew.

1700 hrs: During an aerial combat a Mirage III (ours) and a Sea Harrier (enemy) collided; the impact destroyed both aircraft. The Argentine pilot was rescued alive; the whereabouts of the enemy pilot are unknown.

The FAA launched 56 sorties against the Task Force, of which 35 reached their assigned combat areas. Three British warships suffered minor damage. Two Mirages, a Canberra and a Dagger were shot down, the last piloted by Lt Jose Ardiles, cousin of the famous football star. No British aircraft were lost.

1730 hrs: The fishing vessel 'Forrest', crewed by Navy personnel, beat off an attack by an enemy Sea Lynx naval helicopter and kept chase until it fled. The vessel beat off the attack with fire from the rifles and pistols of the crew. *A Lynx from Alacrity attacked the patrol boat "Islas Malvinas" and the impressed Falklands Islands vessel "Forrest". Both the "Islas Malvinas" and the Lynx suffered minor damage.*

2100 to 2145 hrs: The enemy directed naval fire against the area of Sapper Hill, killing one and wounding five.

2300 hrs: The enemy re-directed the naval gunfire against Sapper Hill.

3rd May 1982

0130 hrs: Whilst the airborne warning and control aircraft, the 'ARA Sobral', was controlling the rescue of the 2 pilots of one of our Canberra aircraft which had been shot down, it was attacked by 3 enemy helicopters (one Sea King and 2 Sea Lynx). The enemy was beaten off and in the action the Commander and 7 crewmen of the aircraft died. The aircraft managed to reach an airfield on the Argentine mainland. *In fact the "Alferez Sobral" was a patrol boat. It was detected by a Sea King of 826 Sqn and attacked by Lynx from the destroyers Coventry and Glasgow using Sea Skua missiles for the first time. The boat was badly damaged but managed to reach a mainland harbour.*

1530 hrs: One of our aircraft, an Aermacchi A330 of the Navy, was lost in action and the pilot killed. *This aircraft crashed into the ground returning to Port Stanley in bad weather.*



116 **1600 hrs:** The cruiser ‘ARA Belgrano’ was sunk by 2 torpedoes fired by an enemy submarine. More than 800 men from the crew of 1,000 were saved; rescue efforts are continuing. *The “General Belgrano” was sunk by the submarine Conqueror with the loss of 321 lives.*

4th May 1982

0530 hrs: An unidentified enemy aircraft bombed Port Stanley Airfield. *This was the second “Black Buck” mission. The stick of twenty-one 1000lb bombs narrowly missed the runway.*

1130 hrs: Two Super-Etendard attack aircraft of the Navy attacked the enemy fleet with Exocet air-surface missiles, fired at a distance of 32km from the target. The missile destroyer Sheffield was sunk by a direct hit amidships, killing 97 out of the 300-man crew. In the same attack a second Exocet missile damaged another, unidentified ship. *Sheffield was on forward radar picket duty 70 miles SE of Port Stanley when she was hit. Twenty-one crew were killed. The second Exocet narrowly missed the frigate Yarmouth.*

1310 hrs: Three enemy Sea Harrier aircraft attacked the combined task force CAPTAIN GIACHINO (Darwin). During the first pass, 2 aircraft were shot down by anti-aircraft fire. Flying Officer Nicholas Taylor, the pilot of one of the downed aircraft, was buried with full military honours in Darwin Cemetery. *In fact only one Sea Harrier was shot down, killing the pilot Lt Taylor.*

6/7th May 1982

Between the 6th and 7th of May, all those wounded in action were evacuated to Comodoro Rivadavia.

Summary of Casualties to Date

	<i>Wounded</i>	<i>Killed</i>
Army	8	–
Navy	8	2
Air Force	20	10
Naval Prefecture	1	–
Total Casualties	37	12

Our Baptism of Fire

The Argentines of yesterday were capable of crossing the Andes and ploughing the seas to liberate half the Continent. The Argentines of today are finishing the task of re-integrating that part of our territory snatched away by England 149 years ago. In the hearts of our men beat the same ideals as those of years gone by. Now the enemy knows the strength of our fire, the

strength of our resolve and that the oath we have sworn is not an empty one. Every man should feel satisfied that, in the hour of truth, he has triumphed.

Port Stanley, 11th May 1982

Year 1 Number 2

Editorial. Because of the Anglo-Argentine confrontation, several latin-american countries are pressing for the creation of a body to replace the Organisation of American States (OEA). Faced with the serious proportions which the Conflict has taken, and the USA turning its back on the Latin-American states, several states have proposed the creation of a new organisation; "The United States has abandoned Hispanic-America by placing itself alongside Great Britain in the Falklands Conflict" declared Nicanor Costa Mendes, Argentine Minister for Foreign Affairs. The lie is also supposed to apply in America. However, the heroic stand of Argentina and the valiant support of the Hispanic-American nations have exposed it. The history of the American Continent has split from now on: the past and since the re-conquest of the Falkland Islands by the Argentine Republic.

Military Events between 8th and 10th May 1982

8/9th May 1982

Two enemy ships bombarded the area of Port Stanley, causing light damage. *The ships were the destroyer Coventry and the frigate Broadsword.*

090930 May 1982

Two enemy Sea Harriers attacked and sank the Argentine fishing vessel 'Narval'. The crew abandoned ship in rubber lifeboats and one wooden lifeboat. Afterwards, the enemy aircraft machine-gunned the rubber lifeboats. All personnel had to take refuge in a single boat; their rescue is being attempted. *The "Narwal" was a trawler believed to be involved in intelligence gathering. It was attacked by 2 Sea Harriers of 800 Sqn returning from an abortive attack on Port Stanley airfield.*

9/10th May 1982

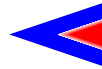
Two enemy ships bombarded the area of Port Stanley, without causing damage. *Believed to be Coventry and Broadsword.*

NATIONAL NEWSUB

Support for the Recovery of the Falkland Islands

"We come to express our active solidarity with the just cause of the Argentine Republic" stated minister Gonzalo Garcia Bustillo of the Venezuelan Presidency, during a meeting yesterday with the President of the Nation, Don Leopoldo Fortunato Galtieri.

Women across the entire country, at the same time as reciting the Prayer of the Holy Rosary, are knitting pullovers, scarves, gloves etc and everything else which could serve as protection for soldiers stationed in the Falkland Islands in the defence of



national sovereignty. They are also carrying out collections for the soldiers by means of the Patriotic Fund, and have reached a total of approximately \$10m.

Sport

This week sees the visit to our Country of the Romanian Football Squad, who on Wednesday 12th will meet the Argentine team in Rosario.

The Argentine team beat Colombia 113-44 in a game during the 8th American Basketball Youth Championships, played in Montevideo.

First-Leg Results from the National Football Championships:

River	2	Instituto de Córdoba	3
Ferro	4	Unión San Vicente	0
Boca	0	Talleres de Córdoba	4
Huracán	1	Central Norte (Salta)	1
Estudiantes	1	Rosario Central	0
Platense	3	Renato Cesarini	0
Racing	0	San Martín (Tucumán)	0
Racing (Córdoba)	3	Vélez	2

International News

The President of the Nation, Lieutenant General Leopoldo Fortunato Galtieri, thanked “with deep gratitude and emotion” the letters of support sent by the presidents of Brazil and Panama regarding the attack against the cruiser ‘ARA General Belgrano’.

The President also sent letters of thanks to those countries which backed the Argentine position at the 20th Meeting of Foreign Ministers of the Organisation of American States (OEA). The letters were sent to the heads of state of: Bolivia, Brazil, Costa Rica, El Salvador, Ecuador, Guatemala, Haiti, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, Venezuela, Uruguay and the Dominican Republic.

FOR HISTORY

PATRONAGE OF THE HOLY VIRGIN OF THE ROSARY

By decree of the Military Government of the Falkland Islands, South Georgia and South Sandwich Islands, this day the 27th April 1982, the Military Government is placed under the protection of the Holy Virgin Mary, in the name of Our Lady of the Rosary and the Re-Conquest and Defence.

Editorial. All soldiers learn to handle weapons; they come to know and use them properly. However, above all one should know oneself and others in order to work with them. But there is something important: to know the truth. Someone said “it is because someone does not know the truth that they do not proclaim it; they become accomplices of liars and cowards”. Because of that, the soldier will know principally the Eternal Truths, which are the undying and guarding principles. Furthermore, the truths that require full knowledge, such as The Argentine Truth, are that the Falkland Islands are ours.

Military Events between 9th and 13th May 1982

9th May 1982

An Army Aviation Puma helicopter, which was directing the rescue of crewmen from the Narval (which had been sunk by an English air attack), was shot down by the enemy. The whereabouts of the 3 crewmen are unknown. *The Puma was shot down by a Sea Dart missile from the destroyer Coventry.*

10th May 1982

The auxiliary ship ‘ARA Isla de los Estados’ (Island of the States) was attacked by an enemy frigate and sunk in San Carlos Water. *The frigate concerned was Alacrity.*

11th May 1982

In the final hours of the day, the naval bombardment recommenced against our positions in Port Stanley. Neither damage nor casualties were caused.

12th May 1982

In the morning, a high-altitude over-flight by an enemy aircraft was noted (presumed to be a photographic reconnaissance flight).

Also, several attempts to penetrate the airspace over Port Stanley were beaten off by our air defences, which prevented the enemy from approaching.

1130 hrs: An English frigate and destroyer recommenced the bombardment of positions around Port Stanley.



1415 hrs: A4-B and A4-C aircraft of the Argentine Air Force (FAA) attacked the same ships, lightly damaging one and shooting down an enemy Sea King helicopter.

In said attack, one of our aircraft was shot down by an English Sea Wolf missile. A second of our aircraft was shot down by our air defences whilst over-flying, without prior warning, a prohibited flight corridor in the Darwin sector.

In this action, 2 flights of 4 Skyhawks attacked the destroyer Glasgow and the frigate Brilliant which were engaged in shelling Port Stanley. Of the leading flight, 2 aircraft were shot down by Brilliant's Sea Wolves, whilst a third crashed into the sea trying to avoid a missile. Of the second flight, Lt Gavazzi scored a direct hit on Glasgow, but his bomb did not explode. Gavazzi himself was killed soon afterwards when his aircraft was shot down by "friendly fire". A Sea King of 826 Sqn was forced to ditch following an engine failure. The crew of 4 were all rescued.



14th May 1982

Enemy Sea Harrier aircraft bombarded positions around Port Stanley, without causing damage.

International News

The Prime Minister of Curaçao (Caribbean) rejected an English request for repair of the damaged aircraft carrier 'Hermes'.

Pope John Paul II was attacked during a visit to the shrine at Fatima (in Portugal), but was unhurt.

MISCELLANEOUS

Comrades, if you possess radio equipment capable of reaching the Continent (Argentina), remember that its use is strictly forbidden, would endanger the life of your comrades and the execution of military operations, and might constitute an act of treason.

FOR HISTORY THE FIRST TELEVISION CHANNEL IN THE FALKLAND ISLANDS

On 13th April at 1900 hrs, the first TV channel in the Falkland Islands (with the abbreviation LU78 (Channel 7 Falkland Islands)) was officially opened in Port Stanley. It transmits daily, in Spanish and English, from 1900 to 2100 hrs.

SPORTS

Motor Racing

Gilles Villeneuve was killed in Belgium. The spectacular accident, which cost the life of the Canadian driver, added a dramatic note to the second qualifying session of the Formula 1 Belgian Grand Prix. Villeneuve's Ferrari, upon colliding with the March of the Jochen Mass, went out of control, rolled several times and ejected its driver. Seriously wounded, he was taken to hospital where he died during the night.

The Belgian Grand Prix was won by John Watson at the wheel of a MacLaren. Second was the Finn Keke Rosberg driving a Williams and third was Eddie Cheever, driving a Talbot. The average speed of the winner was 187kmh. The Austrian Niki Lauda was disqualified due to weight problems with his car. The Drivers' World Championship table is as follows: first, Alain Prost with 18 pts; second, John Watson with 17 pts; Keke Rosberg with 14 pts.





Football

The most important results of the 15th round of the Football Championship:

Zone A:

Gimnasia (J)	1	Neuva Chicago	0
Newell's	2	Quilmes	0

Zone B:

Unión Atlético Concep	5	Argentinos Jr	0
Tucumán	1	Independiente	2

Zone C:

Talleres Córdoba	4	Boca	0
Gimnasia Mendoza	3	Mariano Moreno	0

Zone D:

Racing Córdoba	3	Vélez Sarsfield	2
Guarani Mnes	1	Dep Roca R Negro	2

With one round of the National Championships left, the positions of the following are already decided: Fereo, Racing of Córdoba, Talleres and Instituto. Without a chance of winning are Boca and River, amongst others.

Vladislaus Cap has been released from his position as Technical Director at River. Carlos Cavagnaro will be the new Technical Director at Xeneize.

Basketball

The Argentine Youth Squad has reached the semi-final of the South American Youth Championships, after beating Brazil 86-85.

Tennis

Argentina was eliminated yesterday (9th May) from the World Team Championship, played at the Roschusclub in Dusseldorf, Germany.

EDITORIAL

ARGENTINE NAVY DAY

Today sees another anniversary of the Battle of Montevideo, one of the most decisive actions amongst those fought for independence from the former Spanish Empire. A powerful Spanish fleet carried supplies, ammunition and equipment to the Royalist Garrison in Montevideo, which was besieged on land by patriots and carried the Royalist flame in Rio de la Plata. Furthermore, its ships were carrying out devastating raids along the rivers Parana and Uruguay. It was then Admiral Guillermo Brown, at the head of a small but valiant squadron, established the blockade of Montevideo and, in a fierce battle, beat off the Spanish fleet attempting to break it. Several Spanish ships were sunk in the process. The operation was completed by means of a bold and successful landing on Martin Garcia Island, key to the River Plate, which had been fortified and was strongly defended by the Royalists. These victories bore fruit soon afterwards when the strong-point of Montevideo, bastion of Spanish power on the River Plate, surrendered to the patriots.

In this way the constant threat to our recent independence was removed, and the May Revolution consolidated. It is because of this great victory that 17th May is now celebrated as Navy Day.

Today, 17th May 1982, the Motherland fights to defend our land against the aggression of another former colonial power, one that is resisting change in its status.

Once again, today as before, victory will be ours.

Summary of Military Events on 15th and 16th May 1982

15th May 1982

0430 hrs: The Enemy attacked the base at Bahia Elefante (Elephant Bay) in an action combining naval bombardment and the landing of commandos by helicopter, and produced damage of varying degrees amongst the 10 aircraft located there. No casualties were suffered amongst our personnel. To date, some of the damage caused by the attack has been repaired. *This is the famous raid on the airfield on Pebble Island by the SAS. The attack resulted in 11 aircraft being put out of action, a serious blow to Argentine air strength on the Islands.*

1200 hrs: Air attacks against Port Stanley Airport continued. It should be emphasised that the enemy is employing bombing techniques that lack precision, as he does not get in close in order to avoid our anti-aircraft fire.

0430 hrs: Two enemy Sea Lynx helicopters attacked, to no effect, the area of Bahai Zorro (Fox Bay). *The Lynx were from HMS Brilliant.*

0500 hrs: Two Sea Harriers carried out a bombing attack against our ships in the area of Bahia Zorro. Neither damage nor casualties resulted.

1000 hrs: The auxiliary ship ARA Forrest rescued the commander and a crewman from the ship Isla de los Estados (Island of the States). *This was the ship sunk by Alacrity on 10 May.*

1000 hrs: The 'ARA Bahia Buen Suceso' was attacked by Sea Harrier aircraft in Bahia Zorro. Neither damage nor casualties resulted.

1325 hrs: An uncontrolled fire broke out aboard the 'ELMA Rio Carcarana', following an attack by enemy aircraft. An orderly evacuation was carried out, without casualties.

1420 hrs: The Baia Buen Suceso was attacked once more, again without causing more damage or casualties.

According to British records, 2 pairs of Sea Harriers of 800 Sqn bombed and strafed these 2 ships, causing them to be abandoned by their crews.

1625 hrs: Our anti-aircraft fire beat off an air attack against Port Stanley. One enemy machine was damaged.

2200 hrs: An English frigate approached our positions and began a bombardment. Our artillery fired 3 shots; according to the radar plot, the first shot fell 400m short; the second shot fell 400m long. It is not known precisely where the third shot fell. However, it is known that, after the third shot, the English frigate left at full speed and did not return.

Other News

Enemy information sources have confirmed that, in the actions of 12th May, A4-Bs and A4-Cs of the FAA sank the Class 22 missile destroyer 'Brilliant'. The Brilliant had initially been listed as damaged. *Brilliant was not damaged in the action on 12 May, but the destroyer Glasgow was hit by a 500lb bomb which passed through both sides of the hull without exploding. Glasgow was withdrawn to the UK for repairs.*

The Hermes

The aircraft carrier Hermes is significantly damaged and sailing north in search of a port in which to carry out repairs. The aforementioned damage was caused by our own air attacks. *Hermes was never hit during the conflict.*

We will not talk about what our helicopters are doing as we can see it for ourselves. Furthermore, at one time or another more than one of us has been carried by the Chinooks of the FAA, the Super Pumas of the Naval Prefecture or the UH-1Hs of Army Aviation.

We will talk, albeit briefly, about the combat and transport aircraft based on the Continent. The Hercules is like a railway truck with wings, and has the same capacity. They arrive by day and by night, sometimes in very bad weather, and bring literally everything. It signifies nothing more nor less than the link with the Continent.

Combat aircraft include the Super Etendard, whose lethality is already known to the Enemy and proven by the sinking of the Sheffield. The class also includes the Dagger, Mirage, A4-B and A4-C, whose attacks sank the missile destroyer Brilliant on 12th May.

The tasks of these combat aircraft are not easy. To get close to the target they have to fly between 600 and 1,000km from our bases on the Continent. They have to fly at very low level, almost grazing the sea in order to avoid detection by enemy radar. Finally, they have to get within firing range whilst under fire by anti-aircraft missiles.

Well, in spite of everything; in spite of the great distance and of the missiles, the courage displayed in combat by these men has gained the following confirmed results to date:

- Missile destroyer Sheffield: sunk.
- Type 22 missile destroyer Brilliant: sunk.

Both these destroyers were sunk despite their being fitted with anti-missile missiles.

- The aircraft carrier Hermes: severely damaged, and has left the area of operations in search of a port in which to effect repairs.
- 3 other destroyers and frigates, all unidentified: damaged.

Hitherto, only Sheffield had been sunk. Glasgow had been damaged and forced to withdraw, and Brilliant had had a narrow escape.

Port Stanley, 21st May 1982

Year 1 Number 5 (Special Edition)

Editorial. Soldiers, sailors, airmen; on this day the Armed Forces of the Motherland have covered themselves in glory thanks to their valiant and brilliant conduct, and have fought with characteristic bravery. The Enemy has suffered a grave defeat and has demonstrated once again the courage of the Argentines, who fight to defend their land, their homeland.

During the night of 20/21st May 1982, and at first light on 21st May, an ambitious attack took place in the area of San Carlos Settlement, at the northern entrance to San Carlos Water.

12 to 14 ships of different types took part in this operation and disembarked an unknown quantity of personnel, who are now fighting against detachments of our troops.

0600 hrs: Darwin came under naval fire from 1 or 2 warships.

0800 hrs: 2 to 4 Sea Harriers attacked a position and put out of action a Chinook, Puma and UH-1H. No personnel were injured. *In fact this attack was carried out by a pair of newly arrived RAF Harrier GR3s of No 1 Sqn aboard Hermes.*

0930 hrs: An Aermacchi aircraft of Naval Aviation attacked the Enemy at San Carlos, hit either a frigate or a destroyer, and returned to re-arm at Port Stanley. *Lt Crippa mounted a solo attack on the frigate Argonaut, causing some damage. He was later awarded the Argentine Medal for Heroism and Bravery in Combat, the highest decoration awarded to the Navy during the conflict.*

1000 hrs: Commandos based in Port Howard shot down a Sea Harrier with a Blowpipe missile, and captured the pilot who had subsequently ejected. *In fact the aircraft was an RAF Harrier GR3, piloted by Flt Lt Jeff Glover.*

A Sea Harrier was shot down in the area of Port Howard by a Mirage of the FAA; our patrols are looking for the pilot. *No such loss.*

1510 hrs: A Sea Harrier was shot down by commandos using a Blowpipe. *No such loss.*

The English pilot shot down at Port Howard this morning was operated upon for his injuries.

Throughout the day the FAA and Naval Aviation carried out 7 air attacks against the Enemy, some of which involved up to 16 aircraft; 2 ships were sunk and a further 3 seriously damaged.

1700 hrs: Opposite Port Howard, an enemy frigate was in flames and sinking slowly. A second ship that came to its help was attacked by the FAA.

The naval pilot of an A4-Q ejected over Port Stanley and was rescued, without further difficulty, by an Army helicopter.

Throughout 21st May 1982, 2 sections from the 25th Infantry Regiment resisted enemy actions in the area of San Carlos Settlement.

During 21 May the British landed more than 3,000 troops and nearly 1,000 tons of stores on the shores around San Carlos Water. By placing themselves in positions to draw the Argentine air attacks on themselves, the warships in the 'gun line' saved

the vulnerable transports from a severe battering. But the cost had not been light: one frigate sunk (Ardent), a frigate and a destroyer seriously damaged (Argonaut and Antrim), 24 sailors killed and several wounded.

In addition to the helicopters destroyed by RAF Harriers in the morning, the Argentines lost 12 aircraft during the day's fighting: 5 Skyhawks, 5 Daggers and 2 Pucarás. Three British aircraft were lost: Flt Lt Glover's Harrier and 2 Royal Marine Gazelle helicopters.

More Messages of Support

Radiogramme from 'La Capital' newspaper of Santa Rosa, La Pampa Province – "From the first newspaper in La Pampa to the first newspaper in the re-captured Falkland Islands – we welcome the appearance of THE ARGENTINE GAZETTE. The written truth is a formidable weapon of liberty and sovereignty. Long Live the Fatherland".

The Differences Between Ourselves and the Enemy

The Enemy does not know the reasons for which he fights

The Enemy fights for pay

The Enemy fights to defend colonialism

The Enemy does not have behind him the support of an entire nation

You know the reasons for which you fight

You fight for sovereignty and national honour

You have behind you the support of the entire Argentine Nation

You fight for a just cause

SPORT

Results from Sunday 16th May

Zone A: Quilmes 3 – Gimnasia Jujuy 1; Instituto 1 – Newels 1; Indep Riv Mza 4 – River 2; Nueva Chicago 3 – Sarmiento 3.

Zone B: Indep 0 – Ferro 4; Estudiantes Sgo Est 0 – Concepción Tuc 1; Arg Jr 2 – San Lorenzo MP 1; Union S Vicente 0 – Unión 2.

Zone C: Central N Salta 0 – Est de la Plata 1; Rosario 1 – Talleres 1; Roca 1 – Gimnasia Mza 0; M Moreno 1 – Huracán 1.

Zone D: Vélez 2 – Racing 0; San Martín Tuc 5 – Guarani 1; Dep Roca 0 – Platense 1; Renato Cesarini 2 – Racing Cba 1.

Quilmes – Independiente Riv Mza – Ferro – Unión Sta Fe – Estudiantes LP – Talleres Cba – Racing Cba – S Martin Tucumán.

MAY SAYING

To be alert is to open the heart and mind to all that is good. It is to feel that the standard-bearer of the Lord, who is Christ, moves over the sea and over the illuminated land. It is to love these Islands as one loves the re-conquered heritage. To be alert is to live in the fence of the wind in which sing the voices of our dead benefactors. It is to lift one's arms high and to feel in one's hands the warmth of the fathers and of the sons.

It is to see, yes see, that Mankind is the splendour between the seas and the islands. That is to say to Man that it is pure to dedicate our lives to both the Cross and the Sword. Geronimo.

WHAT IS THE ENEMY LIKE?

The radio programmes, newspapers and magazines which arrive from the Continent report upon specific English units which are travelling on-board the enemy fleet. What are they like? The answer is simple; they are men like you and I. Tall, short good- and bad-tempered, none of them have the attributes of Superman, especially invulnerability to bullets. They are armed with: FAL rifles like ours, MAG machine guns, rocket launchers and mortars identical to ours. However, they are not armed with 120mm mortars.

Briefly, you are not poorly armed compared to them; you have the same equipment and weapons. They are not invulnerable to the fire of our weapons.

You have clear knowledge of the reasons for your being here. You know why you are fighting. Therefore, SHOOT TO KILL. Your fire will be effective.

THE ACTIONS OF THE ENEMY COMMANDO

Much has been said about the capacity of English commandos, and there are indications that they have carried out several operations on the Islands, some of particular importance and causing considerable damage. It is, therefore, worth reflecting upon the following:

- A good soldier does not underestimate the enemy, nor does he overestimate him.



- The English commandos are good soldiers, but they are not supermen.

Why are they not supermen? The answer is very simple: none of them have a skin hard enough to resist a well-aimed shot from a FAL, FAP or MAG.

To make that shot, each one of us has to keep our eyes wide open and our ears very alert, especially at night since the enemy operates primarily in darkness.

To attack us they have to move and try to get close. We know better than they do the ground occupied by our positions. Therefore, we are able to determine that whatever is moving at certain times and in certain locations is the enemy.

Then, in order to be ready for and to repel his attacks, it is essential to react both instantly and decisively.

WARNING BY THE MILITARY GOVERNMENT

All military personnel stationed in this territory are to note that all buildings, property, vehicles of all types, consumer goods etc are the property of individuals. Furthermore, they are and should be protected by contracts concluded with their respective owners, who are to be paid with funds from the Argentine State since no confusion does, or should, exist.

All damage caused to individuals' property is to be paid for by National Funds since they are, mostly by virtue of having been born on these Islands, our countrymen.

INDEX

Editor's note

Owing to the length of the complete "Argentine Gazette", Numbers 6 to 11 will follow in Vol 3 No 4.

Edition	Date	Military Events
Year 1 Number 1	8th May 1982	1st to 7th May 1982
Year 1 Number 2	11th May 1982	8th to 10th May 1982
Year 1 Number 3	14th May 1982	9th to 13th May 1982
Year 1 Number 4	17th May 1982	15th to 16th May 1982
Year 1 Number 5 (Special Edition)	21st May 1982	21st May 1982
Year 1 Number 6	25th May 1982	22nd to 14th May 1982
Year 1 Number 7 (Special Edition)	26th May 1982	Not applicable
Year 1 Number 8	30th May 1982	27th to 29th May 1982
Year 1 Number 9 (Special Edition)	1st June 1982	30th to 31st May 1982
Year 1 Number 10	3rd June 1982	1st to 3rd June 1982
Year 1 Number 11	7th June 1982	3rd to 8th June 1982

DOUGLAS HAIG, THE EDUCATED SOLDIER

Cassell, London, 2000

John Terraine is no stranger to air power readers in general, and to a whole generation of RAF Staff College graduates in particular. His history of the RAF in the Second World War in Europe – *To the Right of the Line* – remains one of the most comprehensive and readable books on the subject. The provocative edge to Terraine's choice of titles is matched in this appraisal of one of Britain's most controversial military figures. This book was originally published (by Hutchinson) in 1963 and has recently been re-released by Cassell. This reviewer is reluctant to state that any book should be mandatory reading, but Terraine's treatment of Haig is so clear, easy to read and above all balanced that anyone who is proposing to join the increasingly popular sport of 'Haig-bashing' should at least attempt to pick up the salient points. The alternative is to accept, as gospel, the simplistic and damaging treatment that is to be found from GCSE revision guides through many texts, to the TV series, *Blackadder Goes Forth*.

book reviews

For the modern reader, a number of areas strike a chord beyond the unwelcome realisation that manoeuvre warfare, in its purest form, may just not be feasible. Haig was a confirmed exponent of centralised command and control with decentralised execution and was evidently frustrated when his aims were thwarted. Haig's experiences of political shenanigans make chilling reading with it being made quite clear that the phenomenon of the 'long screwdriver' is not new. In fact Haig's treatment at the hand of Lloyd George makes appalling reading with Terraine at his most incisive in revealing the depths to which the Prime Minister went during the war and in its aftermath. Lloyd George's revisionist writing after the war – less politely termed elsewhere 'the air-brushing of history' has done the armed forces of the Empire a major disservice in masking the credit that should have been due for the major victories that were won in 1918. (Terraine has produced a separate history of this in *To Win a War: 1918 The Year of Victory*, reprinted in paperback by Cassell, London, 2000).

Terraine does not seek to place Haig on a pedestal; his faults and mistakes are scrupulously presented along with the trials, tribulations

listen would in any event have rendered the effort nugatory. This was in marked contrast to other theatres where eminently sensible use was made of all source material; Tedder stands out as one such example.

The air power student is recommended to read the book as a whole and not just Chapter 4 on Bomber Command. The analysis in the main chapters is exemplary and the narratives in the Appendices make an excellent accompaniment.

ASYMMETRIC THREATS TO BRITISH MILITARY INTERVENTION OPERATIONS

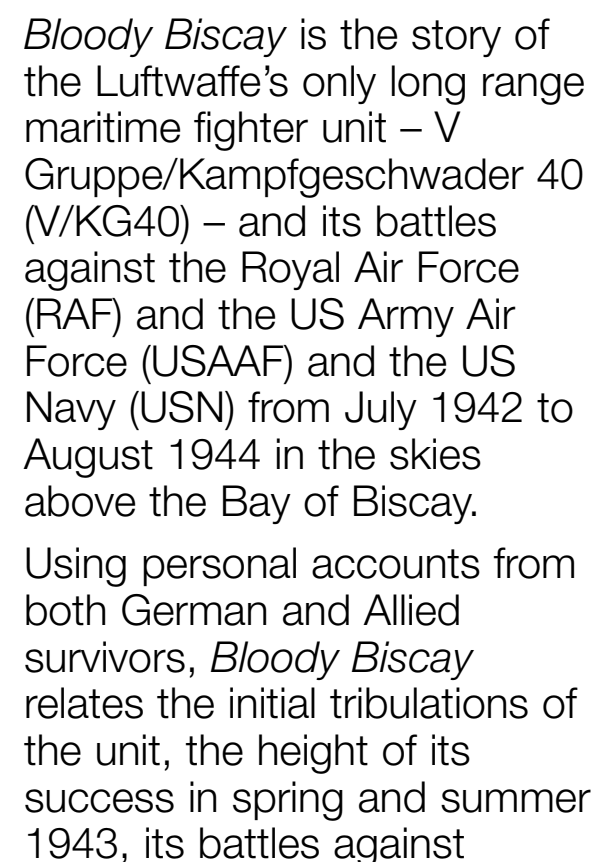
Although the paper is concerned with military operations in the round there is much of interest for the air minded reader, with numerous examples of how asymmetric strategies might be employed against air forces. It highlights the vulnerability of High Value Assets, such as AWACS and JSTARS, and the range of threats that can be posed against air bases and their supporting infrastructures. The paper also introduces the concept of virtual attrition whereby the need to carry out force protection measures and react to threats will slow down and disrupt operations, inflicting attrition on sortie rates just as tangible as any actual attack. This is an interesting concept that adds to the equation when analysing the cost and benefits of force protection measures.

The paper draws heavily on the American work in this area and consequently it can at times appear to be too biased towards the US experience and perceptions. To give the paper a more rounded view it would have been useful to explore asymmetric threats from a more European stance, however, I suspect that there is not the research material available to do this. Similarly, the paper might have benefited from some views ‘from the other side of the hill’ namely those states that have employed asymmetric strategies in the past, such as North Korea, Vietnam and Afghanistan. An exposure of such perspectives, together with some analysis on whether they did actually employ a deliberate asymmetric strategy or were merely reacting to events

In its concluding chapter the paper usefully exposes the current state of the United Kingdom's position and preparedness to respond to asymmetric threats, and it is not comfortable reading. There are many areas that need substantial policy, doctrine and budgetary

Overall the paper is a veritable tour de force of the subject and draws together contemporary thought on asymmetric threats. It is recommended reading for all those with an interest in, or responsibility for, air operations in the 21st century.

Chris Goss



overwhelming odds to its eventual annihilation over the Normandy beaches in June 1944.

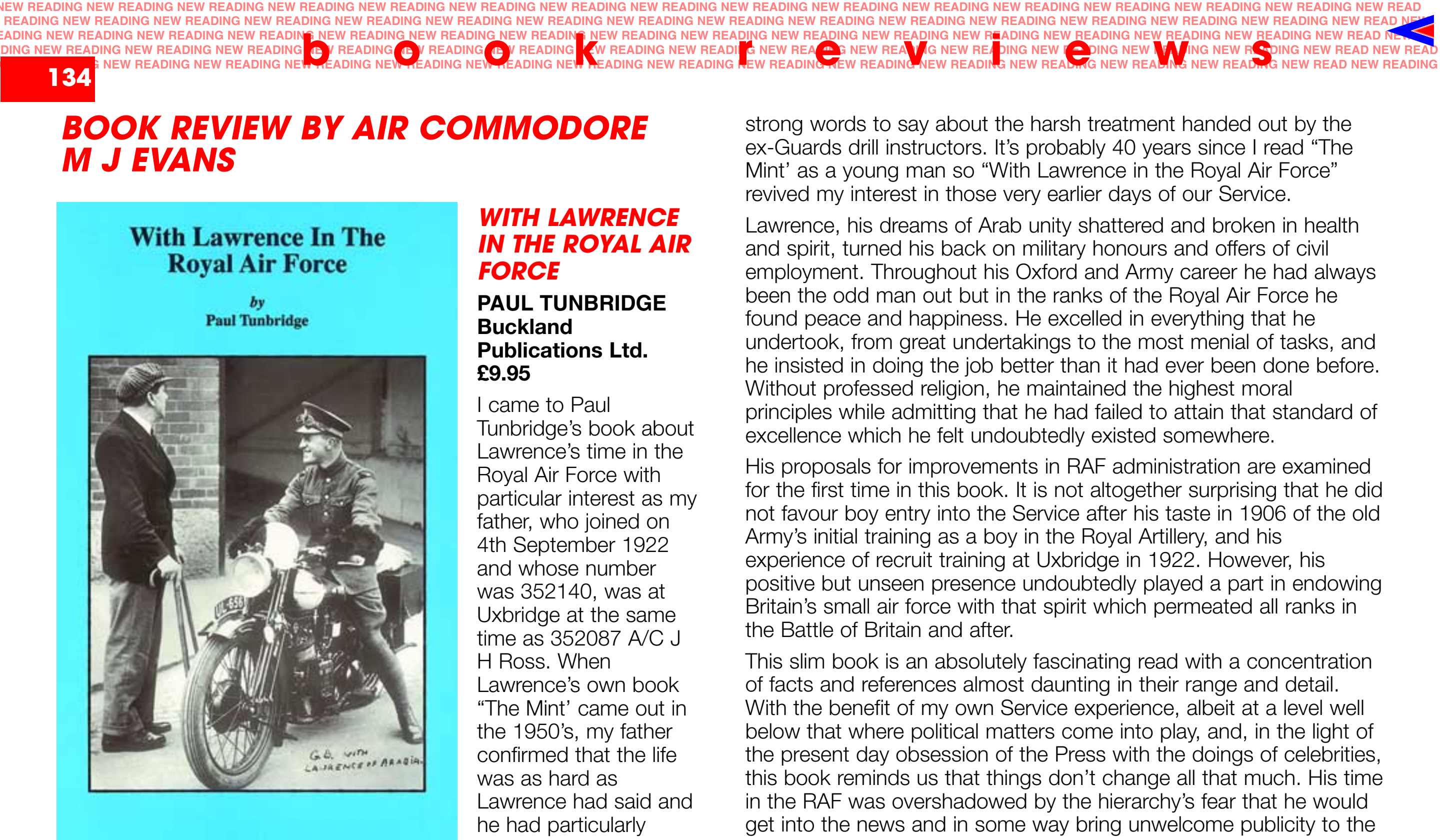
The book contains comprehensive appendices detailing the unit's commanding officers, known aircrew, all of its 109 known 'kills' matched to Allied losses and the 88 combat losses of the unit with the details of who shot those aircraft down. The 26 aircraft lost in accidents and further aircraft interned in Spain are also listed.

Containing nearly 200 photographs, the vast majority of German origin, *Bloody Biscay* will give the reader a graphic insight into V/KG40's aircraft, crews and 'kills' together with the Allied aircraft and crews pitted against them.

Chris Goss is a serving officer with the Royal Air Force and author of a number of books on aerial warfare of the 2nd World War including *Brothers in Arms* (1994) and *It's Suicide But It's Fun* (1995). His two-volume series on the Battle of Britain – *The Fighters' Battle* and *The Bombers' Battle* – will be published by Crécy in Summer 2000.

Crécy Publishing Ltd £14.95
Publication: Autumn 2000
ISBN: 0 947554 87 4

b o o k r e v i e w s



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**BOOK REVIEW BY AIR COMMODORE
M J EVANS**

**With Lawrence In The
Royal Air Force**

**WITH LAWRENCE
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FORCE**

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134

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134

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A black and white photograph used as part of the book's cover art. It depicts two men outdoors. On the left, a man stands facing right; he wears a dark jacket over light-colored trousers and holds a cane or walking stick. On the right, another man sits astride a vintage motorcycle, facing slightly towards the first man. He is dressed in a military uniform, complete with a peaked cap and breeches. The background shows a brick wall and some foliage.

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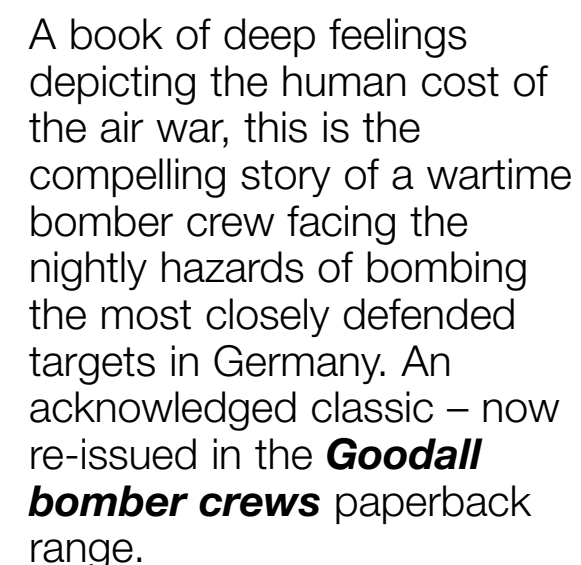
His proposals for improvements in RAF administration are examined for the first time in this book. It is not altogether surprising that he did not favour boy entry into the Service after his taste in 1906 of the old Army’s initial training as a boy in the Royal Artillery, and his experience of recruit training at Uxbridge in 1922. However, his positive but unseen presence undoubtedly played a part in endowing Britain’s small air force with that spirit which permeated all ranks in the Battle of Britain and after.

This slim book is an absolutely fascinating read with a concentration of facts and references almost daunting in their range and detail. With the benefit of my own Service experience, albeit at a level well below that where political matters come into play, and, in the light of the present day obsession of the Press with the doings of celebrities, this book reminds us that things don’t change all that much. His time in the RAF was overshadowed by the hierarchy’s fear that he would get into the news and in some way bring unwelcome publicity to the

Paul Tunbridge, whose own career began at pre-war Halton, has produced what is a sometimes unexpected account by incorporating many personal anecdotes from more than fifty ex-RAF contemporaries of Lawrence. For anyone with an interest in the history of our Service and in the life of an extraordinary man, I commend "With Lawrence in the Royal Air Force".

Don Charlwood

Don Charlwood was born in Melbourne in 1915 and was accepted for RAAF aircrew in 1940. He carried out his initial training in Victoria, his air observer training in Canada and was posted to 103 Squadron at Elsham Wolds in the winter of 1942. There he crewed up with a pilot from Western Australia, with the rest of his crew coming from the UK. When he had completed his operational tour, he went to the USA to fly Liberators. At the end of the war, Don Charlwood joined the Department of Civil Aviation in Australia as an air traffic control officer.



Crécy Publishing Ltd £5.99
Publication: August 2000
ISBN: 0 907579 97 3

Chaz Bowyer



Moving to No 11 Squadron in May 1916, Ball's score quickly accumulated. He had acquired a reputation as a tenacious scout pilot, often

After joining the RAF at the age of sixteen as a Halton Aircraft Apprentice, Chaz Bowyer completed twenty-six years regular service before voluntarily retiring to become a full-time professional aviation history author, researcher and consultant. Since then his lifetime affinity with aviation history has resulted in nearly forty hardback books on the subject, as well as numerous paperback titles and hundreds of magazine articles. In addition he has edited and/or illustrated several other books and journals. His *History of the RAF*, published in 1977, has so far sold over 100,000 copies and continues to be reprinted; while his magnum opus *For Valour – The Air VCs* (1978) is universally acclaimed as the definitive work on that subject.

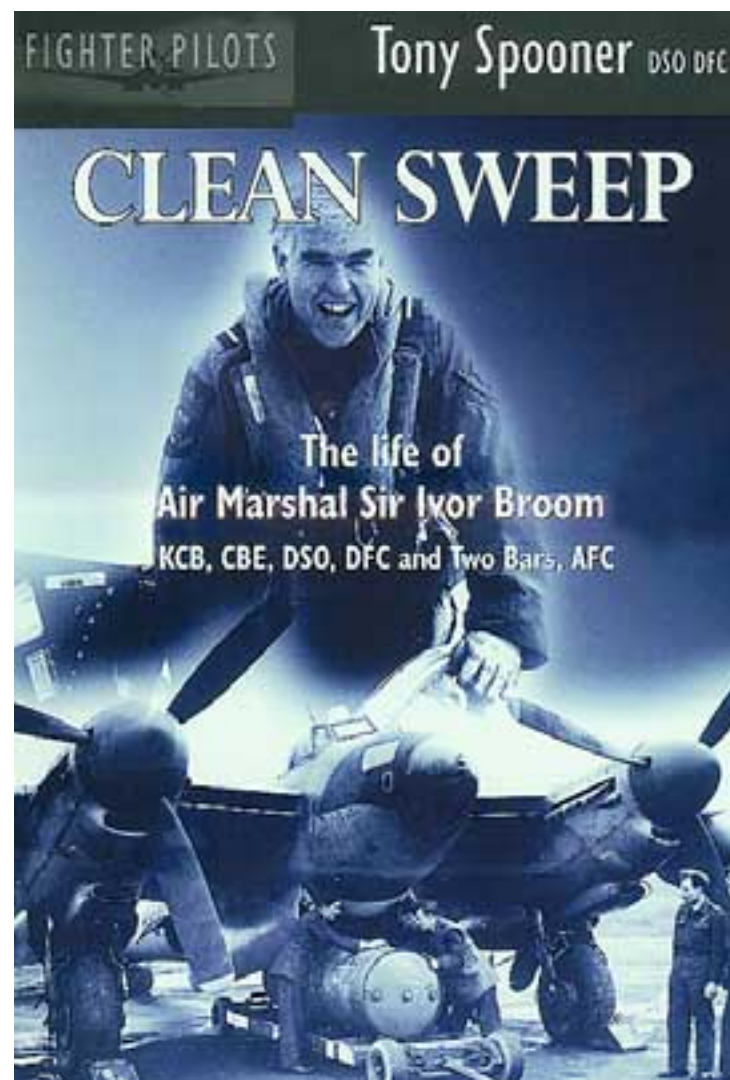
ISBN: 0 947554 89 0

Heron Books £16.99
Publication: September 2000
ISBN: 0 953225 00 3

CLEAN SWEEP

THE LIFE OF AIR MARSHAL SIR IVOR BROOM

Tony Spooner



The remarkable story of a lad from the Rhondda Valley who rose from the rank of Sergeant Pilot to Air Marshal receiving the DSO, three DFCs, an AFC and other decorations along the way. He completed three tours of operations over enemy territory including thirty-one extremely dangerous low level attacks on enemy targets from the beleaguered island of Malta. All the officer pilots in his squadron had been killed or were missing and he was commissioned by the AOC Malta and led the squadron on a number of missions.

But *Clean Sweep* is not only the story of a skilful and courageous wartime pilot

but also relates his varied post-war life. In 1955 he set a new speed record flying from Canada to England in a Canberra bomber, became Commandant of CFS which included the management of the Red Arrows and he commanded the strategically important No 11 Group at the height of the Cold War. In 1972 whilst still in the RAF he became Deputy Controller of the National Air Traffic Services and took over as Controller in 1974, retiring from the RAF in 1977.

Tony Spooner is a former Coastal Command and BOAC pilot who helped to pioneer transatlantic routes. His other books are *In Full Flight*, *The Spooners of Middle England*, *Warburton's War* and *Coastal Ace*, his biography of Squadron Leader Terence Bulloch.

Sir Ivor Broom was central to the RAF's operational activity for the majority of the 2nd World War. He became one of its most highly decorated pilots and subsequently a widely respected commander. But *Clean Sweep* also gives a fascinating glimpse of RAF life through some of its most eventful years and will have broad appeal across the military history market. Now available in **Goodall** paperback.

Crécy Publishing Ltd £5.99

Publication: August 2000

ISBN: 0907579 18 3



ST. CLEMENT DANES, STRAND, LONDON
CENTRAL CHURCH OF THE ROYAL AIR FORCE
A 60th ANNIVERSARY SERVICE OF
COMMEMORATION AND THANKSGIVING
FOR VICTORY IN
THE BATTLE OF BRITAIN
1940

Sunday, 17th September 2000 at 11 a.m.
Preacher: **The Venerable Brian H. Lucas, former Chaplain-in-Chief (RAF)**

Forthcoming Services

Wednesday, 6th September,
at 12.30 p.m.

International Club for Air Force Officers' Wives. Holy Communion.
(Will follow a visit to the church commencing at about 11 a.m.).

Sunday, 10th September,
at 11 a.m.
Choral Matins.

Some members of 3604 F.C.U. will be attending this Service.

Sunday, 17th September.

Battle of Britain Service – 60th Anniversary. See notice above.

Sunday, 24th September,
at 11 a.m.
Choral Eucharist.

12.15 p.m. to 2.30 p.m.

The R.A.F. Liturgy Advisory Team will give a presentation on the new Liturgy/Common Worship.



THE AIR LEAGUE EDUCATIONAL TRUST

encouraging air-mindedness in Britain's youth

From its inception in 1909, an integral part of The Air League's activities has been to encourage air-mindedness in the youth of Britain. This has taken a number of forms over the years, and it was The Air League (of the British Empire) that in 1938 founded the Air Defence Corps, which became the Air Training Corps in 1941. The youth air education work of The Air League was formally recognised in 1968 by the creation of the Air League Educational Trust, a registered charity. Today the Trust gives guidance on flying training and flying careers in both military and civil aviation to the many young men and women who seek advice. The Trust also provides practical assistance in the form of flying scholarships (including a scholarship for a Private Pilot's Licence (Aeroplanes)), flying bursaries, engineering scholarships and a Private Pilot's Licence (Balloons and Airships). In selecting the award winners, the Trustees look for enthusiasm for flying and for a career in aviation, flying achievement, youth and voluntary service, academic ability, 'outward bound' activities and general 'get up and go'. The benefit of these awards is evident from the many young men and women who have been motivated to take the first steps in their desired careers in aviation; it is a source of great satisfaction to both the Trustees and the sponsors. This year (2000) 90 young men and women have received awards.

2000 Breitling Balloon PPL Scholarship

The Trustees of the Air League Educational Trust are pleased to announce the award of the following PPL (Balloons and Airships) Scholarship to be flown in Summer 2000. The training is being co-ordinated by Brian Jones:

Mr T W Sawle of St Agnes, Cornwall

Congratulations to the winner

The Trustees wish to thank Breitling for this generous award.

2000 Flying Bursaries

The Trustees of the Air League Educational Trust are pleased to announce the award of the following bursaries to be flown during Summer 2000:

Flying Bursary/Sponsor

Air League Educational Trust
Air League Educational Trust
Air League Educational Trust
Air League Educational Trust
Air League Educational Trust
Beavis Trust
British Women Pilots' Association
Buckland Memorial
Sir Michael Cobham
Sir Michael Cobham
Sir Michael Cobham
Sir Michael Cobham
Mark Philip Jones Memorial
Royal Society of St George
Sir Ross Stainton
Women in Aviation

Recipient

Mr W Boyle from Airdrie, Lanarkshire
Miss S J Fitzpatrick from Glasgow
Mr M A Lane from Lichfield, Staffordshire
Mr P J Larkin from London
Mr I J A Whittaker from Huntingdon, Cambs
Miss C L Davison from Congleton, Cheshire
Ms S Chapman from Hove, East Sussex
Mr G J Fairs from Ilford, Essex
Mr R D Bentata from Reading, Berkshire
Mr R J Denman from High Wycombe, Bucks
Mr H S Grant from Cambridge
Mr D J Shields from Twickenham, Middlesex
Mr A Lowndes-Knight from Wendover, Bucks
Mr R A Hart from Southampton
Mr J A Mercer from Shoreham, West Sussex
Miss C F Gresty from Sale, Cheshire

Congratulations to the winners

The Trustees wish to thank the sponsors for the most generous support of the Air League Educational Trust

2000 Engineering Scholarships

The Trustees of the Air League Educational Trust are pleased to announce the award of the following engineering placements to be undertaken in August 2000:

Sponsor Company

- BAE SYSTEMS, Warton
- Britannia Airways, Luton
- British Airways Engineering, Gatwick
- Flight Refuelling, Wimborne
- FR Aviation, Bournemouth
- GE Aircraft Engine Services, Cardiff
- GKN Westland Helicopters, Yeovil
- Marshall Aerospace, Cambridge
- Short Brothers, Belfast
- Slingsby Aviation, Kirbymoorside
- Smith Industries, Cheltenham
- Tayside Aviation, Dundee

Recipients

- Mr M A Broadbent from Inverness
- Mr D A Johnson from St Helens, Merseyside
- Mr B Clifford from Cambridge
- Mr C Garnett from Ware, Herts
- Mr P G Donovan from Penzance, Cornwall
- Mr O Oyinloye from Warrington, Cheshire
- Mr W J Begley from Hampton Dene, Hereford
- Ms F N Moyo from Battle, East Sussex
- Mr H R Jones from Crymch, Pembrokeshire
- Mr J White from Stoke-on-Trent, Staffs
- Miss S S Mutukwa from Enfield, Middlesex
- Miss A L Wood from Plymouth
- Miss E L Bennett from Bottesford, Notts
- Miss A Nicholls from Stockport, Cheshire
- Mr E J Hughes from Limavady, Co Londonderry
- Mr C A Young from Eglinton, Co Londonderry
- Mr R O Denning from Stockport, Cheshire
- Mr J E Harris from Barnsley, Yorkshire
- Mr P A Belle from London
- Mr R P Jones from Llanelli, Carmarthenshire
- Mr A R Irving from Carlisle, Cumbria
- Mr H Murray from the Isle of Lewis

The Guild of Air Pilots and Navigators (GAPAN) invite applications for The J.N. Somers Award: Airline Transport Pilot's Licence Scholarship

For the second year GAPAN is proud to announce that this generous bequest has been granted to our Guild for award to a suitable applicant who most closely meets the following criteria:

- Age 18 to 28 years
- Holder of valid PPL and Class 1 CAA Medical
- Educational standards of at least 5 GCSE passes & A levels in relevant subjects (e.g. English, Maths, Science)
- Evidence of strong motivation towards a career in aviation

The JN Somers Award will generously provide funding, through GAPAN, for a full time course of Air and Ground studies at BAE

Systems Flight Training (Europe) in Jerez, Spain, leading to the award of a frozen ATPL. Training will commence in early 2001.

The selection process will commence in October 2000 and will include an interview and pilot aptitude tests at the RAF College, Cranwell. The selection process will be conducted by GAPAN in line with their policy of fairness and equality of opportunity.

For further details and an application form write, enclosing a stamped, addressed envelope to:

GAPAN, Cobham House, 9 Warwick Court, Gray's Inn, London WC1R 5DJ. Please mark your enquiry letter 'Scholarship' and enclose your return sae.

Telephone enquiries will not be accepted. No applications will be accepted unless submitted on the valid GAPAN application form submitted by the closing deadline date.

**Closing date for Applications:
30 October 2000**



Jaguar GR3, No. 16 (Reserve)
Squadron,
RAF Lossiemouth