## THE ROYAL AIR FORCE AR POWER REVIEW

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Brian Finch

0171 305 7140

#### **Production Editor**

Harvey Grainger

#### **Studio**

John Griffiths **David Mitchinson** 

Contributions and correspondence should be addressed to the Editor. Air Power Review, Room 5/128, St Christopher House, Southwark Street, London, SE1 0TD. Alternatively, Group Captain Peter Gray, Joint Doctrine and Concepts Centre, Shrivenham, Swindon, Wiltshire, SN6 8RF. e-mail: defs-raf@netcomuk.co.uk

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01554 822 399 Tel· Fax: 01554 822 515

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### FOREWORD

The advocates of land and sea power are rarely slow to point out that air power is very much the 'new kid on the block'. These learned scholars are, however, often entrenched in their own subject areas with a tendency to conservative ideas and narrowness of vision. Their more enlightened colleagues (who almost certainly read Air Power Review) acknowledge the reality that air power has gained in stature and importance at a vast rate over the last century and, to many of its stauncher proselytisers, is *primus inter pares.* Part of the key to the development of air power has been the rapidity with which technology has enabled man's conceptual notions of warfare in the third dimension to become reality. Some could argue that his has been an evolutionary process occasioning little remark. I would suggest, however, that in many instances the pace of scientific change was forced considerably by the demands of air power and its revolutionary thinkers. What is beyond doubt is that the debate that has accompanied this change has been furious: acrimonious at times and passionate at others. Willingness to contribute and to debate is a generic characteristic of all of those involved in aviation, whatever their context. This edition of the Air Power epitomises these twin themes of technology and debate.

In his Templer Lecture to the members of the Farnborough Branch of the Royal Aeronautical Society, the Chief of the Air Staff, Air Chief Marshal Sir Peter Squire takes on both of these themes. He covers the importance of conceptual thinking in the formulation of doctrine and in the direction of operational requirements. It is in all of our vital interests to ensure that thought and vision contribute to future force structures and the equipment that they operate. CAS also highlights the reality that the more we embrace technology, the more expensive the drain on national treasure. Not only is it expensive to field the latest pieces of equipment, but we must also ensure that adequate resources are spent on research and development. Finally, the finest technology in the land is to no avail if we do not invest in our people.

The next two articles highlight the scope for debate in the field of air power with two views on the utility of Air Policing in the inter-war years. The first is by Dr James Corum, a distinguished academic from the USAF School of Advanced Air Power Studies at Maxwell AFB, Alabama. Dr Corum seeks to take the lessons of air control and assess their applicability to contemporary USAF operations. My contribution attempts to situate those early operations in their wider context, both within the Imperial setting and accepting the relatively limited capabilities of air power prevalent at the time. Dr Corum's article appeared in a recent edition of the USAF Aerospace Power Journal; my own will appear in the same journal in the Fall.

In the fourth article, the pendulum swings back in favour of technology with Dr Alfred Price's paper on the Messerschmitt 262. He traces the development of this revolutionary jet fighter and chronicles the inevitable teething troubles that accompany 'quantum leaps' in technology. Dr Price also covers the internal debate as to whether the aircraft should have been developed as a fighter or as a bomber, with Hitler determined to use the technology in an offensive role. Finally, Dr Price analyses the potential of the Me262 to have become a war-winning weapon.



In this companion piece to the Article that he wrote in the Summer 2000 edition of this journal (though not included in the index), Dr Grant Hammond of the Air War College at Maxwell AFB challenges received wisdom on the success of Operation Allied Force. Dr Hammond warns of the dangers of the 'victory of air power' as being misconstrued. The resulting risk is then that it may be used in future conflicts in lieu of valid national objectives and strategy.

The penultimate article is by Wing Commander R W Jones of the Air Warfare Centre. He contributes to the debate on the European Security and Defence Identify by looking at the implications for future force structure. Wing Commander Jones traces the evolution of ESDI and the financial incentives for going down this route. He then looks at the challenges for the Royal Air Force that will inevitably follow.

The final article is essentially second-degree debate with a review essay submitted by Dr John Olsen who looks at the recent product of CAS's Air Power Workshop *Air Power 21 – Challenges for the New Century.* He bases his analysis on Carl Builder's *The lcarus Syndrome* and then looks at the recurring themes. Dr Olsen discusses the contributions and provides a brief assessment of the book as a whole.

### **CONTRIBUTIONS TO THE ROYAL AIR FORCE AIR POWER REVIEW**

The Royal Air Force Air Power Review is published under the auspices of the Director of Defence Studies (RAF) and has the sponsorship of the Assistant Chief of the Air Staff. It is intended to provide an open forum for study which stimulates discussion and thought on air power in its broadest context. This publication is also intended to support the British armed forces in general and the Royal Air Force in particular with respect to the development and application of air power.

Quality contributions from both service and civilian authors are sought which will contribute to existing knowledge and understanding of the subject. Any topic relevant to the study of contemporary or historical air power will be considered by the Air Power Review Management Board and a payment of £200 will be made for each article published.

Articles should be original and preferably not previously published, although those of sufficient merit will not be precluded. Between 2,000 and 10,000 words in length, articles should list bibliographical references as end notes. Lengthy articles may be published in instalments. Contributions from serving military personnel should be in accordance with DCI GEN 313 dated 26 November 1999.

Submissions can sent in a variety of electronic IBM or Apple Mac based formats, on floppy disk, Zip or CD, but these must always be accompanied by numbered page copy. No responsibility can be accepted for loss or damage to photographs or other related material sent with articles.

Final design format for article presentation on printed page will be entirely at the discretion of the editor.

Send articles to:

Editor RAF IMTTP, Air Power Review, Room 5/127, St Christopher House, Southwark Street, London, SE1 0TD

or

Director of Defence Studies (RAF), Joint Doctrine and Concepts Centre, Shrivenham, Swindon, Wiltshire, SN6 8RF. e-mail: defs-raf@netcomuk.co.uk

## The **Templer** Lecture 2001

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Presented to members of the Farnborough Branch of the Royal Aeronautical Society on 16 January 2001

n preparing for tonight's address, I was given the broadest possible canvas – the future of the Royal Air Force and the future of Air Power. As the two are so closely inter-linked, I plan to cover elements of both. The future development of Air Power is subject to many variables and many diverse challenges. Some of the challenges are as old as aviation itself and would have been evident to the pioneers who flew from the airfield at Farnborough. Other challenges are of more recent origin and have arrived with the changes and rapid progress in technology, factors that have been more evident in aviation than in any other sphere of warfare – except perhaps space – but more of that later. The United States has long been at the forefront of many, but not all, of the advances in technology. Their stealth programmes with the F117A and B2 aircraft, as well as earlier black programmes, are obvious examples; USAF leadership in space is another. Reading Malcolm Pemberry's excellent booklet on Templer, I was reminded that Black programmes have not always been the prerogative of the US. In developing "Goldbeater's skin", possibly with RAM characteristics, but certainly impervious to hydrogen, Templer was in the van of balloon technology. However, if in 1882 it was possible to lead the field in this and many other areas, it is quite evident that the United Kingdom can no longer match US defence spending on a pound for pound basis.

Nor is it likely in the immediate future that Europe will have the stomach to do so on a Euro for Euro basis. According to some scholars, the Soviet Union attempted this feat in the 70s and 80s, and the rest as they say is history. This does not mean, however, that British or European scientists cannot still match their American colleagues in some key areas. At a centre of excellence such as Farnborough, it would be presumptuous to say otherwise; as it happens, I actually believe it. Nevertheless, I feel on fairly safe ground in suggesting that some here many covet the research budgets of their colleagues across the Atlantic.



It behaves us all to remember that dominance in the field of technology does not bring ex officio primacy in theory, doctrine or conceptual thinking I have already intimated that the future of my own Service is inextricably linked to future developments in Air Power. The two paths are certainly not coincident and it is one of the greatest challenges facing the Royal Air Force to ensure that we not only respond quickly and sensibly to changes in conceptual Air Power thinking, but where it is appropriate, we should aim to be – to steal John Terraine's title – *The Right of the Line*. It behoves us all to remember that dominance in the field of technology does not bring *ex officio* primacy in theory, doctrine or conceptual thinking.

The historical legacy in this field is considerable. In contemplating the original 'prophets of Air Power' – Douhet, Trenchard, Mitchell and de Seversky – it is one thing for academics and their students to pore over the writings and speeches of these eminent thinkers. For them it may be an interesting exercise to see whether or not their predictions were in tune with the realities of

technological advances and actually came to pass in the crucible of air fighting. However, it may be more relevant to look at their contemporary influence – who actually read their works, who referred to them and what messages were drawn from them. It may sound cynical to suggest that Douhet (the author of *Command of the Air* and incarcerated by his fellow countrymen for the extreme nature of his views) is far more frequently cited in footnotes than actually studied. Similarly, de Seversky is possibly better known for his World War II Disney film *Victory through Air Power*, than the book of the same name. Tony Mason in his book *Air Power*, *A Centennial Appraisal*, has suggested that Trenchard had never read Douhet's work. Neither Douhet nor de Seversky were required Staff College reading.

The same cannot be said of Trenchard whose work was widely studied on both sides of the Atlantic. Likewise, some of Mitchell's writing assumed the status of almost 'holy writ' proportions. Similarly, Jack Slessor's work – *Air Power and Armies* published in 1936 – was highly influential at the time and remains a valuable contribution to thinking about the air/land battle. Our contemporary response to these challenges is vigorous and varied. I have continued the initiative started by my predecessors in sponsoring the Chief of the Air Staff's Air Power workshop. This was set up by Mike Graydon in 1994, and the resulting book – *The Dynamics of Air Power* – was published in 1996. It was followed by *Perspectives on Air Power* in 1998 and in December last year I had the pleasure to launch *Air Power 21 – Challenges for the New Century*. The Air Power

...Air Power in Air Clues and has been transformed into a full Journal. It is also widely distributed and is available, in full, on the World Wide Web Workshop takes the product and ideas of civilian academics as well as serving officers from all three Services. It not only reflects the changing nature of Air Power, but ensures that our conceptual thinking is widely available throughout the Services in UK; in academia; and around the world. In parallel we seek a similar exposure, but on a more routine basis, with the *Royal Air Force Air Power Review*. This has taken what used to be a short monthly article on Air Power in *Air Clues* and has been transformed into a full Journal. It is also widely distributed and is available, in full, on the World Wide Web. I am also very pleased that members of the recently formed Air Power Study Group of the Aeronautical Society have been added to the distribution. Hopefully their deliberations will be available to the Management Board. Existing contributors range from flight lieutenants serving on operational tours, through senior officers in NATO, to eminent academics and historians.

In a lecture to RUSI in 1973, one of this country's most eminent military historians – Professor Michael Howard – stated: '*I am tempted to declare that whatever doctrine the Armed Forces are working on, they have got 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'. I suggest to you that, at the height of the Cold War, we could probably afford to 'get it right' on the day; options were limited, operational flexibility constrained. The changing nature of warfare is now such that our doctrinal thinking – and our force structures – need to be sufficiently elastic to be able to cope with rapid transitions from low key peace keeping operations to war fighting. Doctrine in its simplest format is 'that which is taught'. In a more meaningful form it represents the fundamental principles by which military forces guide their actions. In the United Kingdom, as in America, this often reflects what has usually worked best. However, doctrine is not new. The Royal Air Force's first doctrine manual CD22 '<i>Operations*' and its successor AP 1300, the *RAF War Manual*, published in 1922 and 1928 respectively, are a far cry from the shelves of national and NATO manuals now dedicated to the subject.

The popular conception of that inter-war period is that the Royal Air Force had been totally fixated on strategic bombing. The reality was that conceptual thinking, and the implicit formulation of doctrine, went far beyond this. Much work was done in preparing the doctrine for the defence of the United Kingdom and laying down the operational requirements for fighter aircraft such as the Hurricane and Spitfire. The British aircraft industry revelled in the challenge, as did the manufacturers of engines. As government finance became increasingly available, so industry spooled up for what was going to be a longer struggle than just the Battle of Britain.

Of the many lessons than can be learned from history, by warriors of whatever colour cloth, the enduring lesson that came from the events of 1940 was the vital importance of control of the air. This flows through the veins of every aviator: but it is also close to the hearts of soldiers and sailors. The message was reinforced in every subsequent campaign in the Second World War no

The popular conception of that inter-war period is that the Royal Air Force had been totally fixated on strategic bombing



matter whether it was maritime, land or air. The same message was again evident ten years later when United Nations forces were involved in the skies over Korea. Anyone who was closely involved in the military operations to retake the Falkland Islands, or in subsequent operations, will have no doubt of the continuing veracity of Montgomery's dictum – that loss of control of the air results in an early loss of the war.

Air operations during the Gulf War and subsequently in the Balkans have shown graphically what can be done with air superiority or, better still, air supremacy. And no one should be in any doubt that air superiority was not ceded in the face of overwhelming Coalition or NATO firepower. It had to be fought for, established, and then maintained – exactly as was the case over Normandy and then Korea. Control of the air can never be taken for granted. Investment in the design, development and deployment of aircraft such as the Eurofighter is neither done on a whim, nor merely to look good at air shows. These aircraft, their weapons systems and crews must be ready to fight for air dominance in every potential conflict scenario.

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While control of the air denies the enemy scope to utilise his own air assets in the way that he would wish, the benefits extend much further than limitation or denial. They also go beyond allowing friendly forces to prosecute their own campaign free from interference. Control of the air, most importantly, allows the Joint Force Commander to shape the



battlespace – ranging from space itself, through the conventional battlefield to the depths of the oceans – in order that he can maximise his own strengths to the discomfiture of the foe. This shaping of the battlespace is fundamental to the doctrine of manoeuvre warfare which lies at the heart of British defence doctrine and thinking.

But air power clearly contributes far more than just the potential to establish control of the air. It is self-evident that a commander must have access to relevant and timely information and this is invariably best gathered by air or space based



6 platforms. The assets involved may come from any of our own Services, or from those of our allies. They must, however, be co-ordinated if the synergy required in manoeuvre warfare is to be achieved. The benefits are, however, at their greatest when air dominance allows untrammelled access to the air and space medium.

It is equally important that the information gathered by the array of platforms, that are likely to be deployed, is assessed and then distributed in as timely a manner as possible. In the ideal world we will then be able to reduce the operational decision making cycle (or the sensor to shooter time) to close to real time. This is a challenge facing all armed forces – internationally – and I am confident that the RAF, in concert with our colleagues in industry and in the research and trials world, is well placed to play a leading role in the quest for information dominance. Air and information dominance are the key foundations for the subsequent battle.

Having achieved control of the air and found the enemy, we must then attack him, either to destroy his assets outright, or more likely to shatter his will and cohesion Having achieved control of the air and found the enemy, we must then attack him, either to destroy his assets outright, or more likely to shatter his will and cohesion. Air power is in its element in this area with its speed of response, reach and versatility – particularly as it remains an inherently offensive means of warfighting. Moreover, it has the ability easily to raise and lower the tempo of operations to match the political scenario, and it can be effected without getting one's fingers too enmeshed in the mangle. Operations may be in direct support of ground

troops who are engaged with the enemy, but are more likely to be mounted against more distant targets. Delivery platforms themselves should no longer be designated strategic or tactical – it is the nature of the task being carried out that dictates the level of warfare. Strategic bombing does not now imply the massive area bombing raids associated with the strategic offensives of the last World War and of Vietnam. A single weapon dropped from a tactical aircraft can now achieve a strategic effect, while traditional strategic assets, such as the B52 with its massive payload, can have a devastating effect on massed troops or armour – very much a tactical role. Air power will continue to have great utility in both direct and indirect air operations to enable joint or combined warfare. Indirect operations will continue to shape and prepare the battlespace for the arrival of surface forces. Meanwhile direct air operations can prove decisive in concentrating force and allowing freedom in the air to complement maritime or surface force manoeuvre. Neither will this use of air power for strategic effect be limited to bombardment or attack, as it is likely to encompass the whole spectrum of roles and mission types.

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No military campaign will succeed without combat support air operations. Such assets are pervasive in the prosecution of all joint and multinational operations, and can be used to enhance and multiply various forms of combat power. Suppression of enemy air defences is the precursor of almost any campaign and while the work of the tanker force goes largely unsung, their contribution is simply vital to the conduct of modern air operations. As you know, we will be expanding our combat support air assets with the introduction of the Airborne Stand-Off Radar (ASTOR) system. This radar surveillance system will provide day/night, all weather imagery of the ground over a large area – both static and mobile targets – and will give the UK's armed forces a powerful and immensely capable intelligence gathering tool. It will transform the way we do business in all phases of conflict and will offer a step change in our overall capability. The planned in service date for these 5 aircraft, based on the Global Express business jet, is 2005 and some 400 Army and RAF personnel will support the new ASTOR Unit at RAF Waddington. ASTOR is a cornerstone of our evolving doctrine for Joint and Coalition operations, and will – I believe – keep the UK at the forefront of developing surveillance technology.

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Assuming an opponent retaliates, then the force protection of all air and ground elements also takes on a crucial importance. This is not a new revelation but resources are limited and we are increasingly restricted to fighting with what we have. Consequently, a full programme of active and passive defence and recuperation measures will be required to preserve our limited assets. In the Royal Air Force, that role has been adopted and developed by the Royal Air Force Regiment. They have demonstrated an expertise second to none and we will see their employment increasingly in a joint environment.

The final task of air power is sustainment. Sustainability is an all embracing concept which includes manpower, equipment and logistics. Combat power forms the physical component of our "fighting power". While sustainability forms an integral part of that physical component, it can also have a marked effect on the other two, namely the conceptual component and the moral component. To put it in simple terms, a perfect plan is not worth the paper that it is written on if it cannot be sustained, and the fastest way to undermine the morale of a fighting force is to fail to sustain it properly.

The utility of air power in combat operations is now beyond doubt. But in the difficult and uncertain circumstances of the world today, air power has much to offer to help preserve and strengthen international security. The Royal Air Force takes considerable pride in its many contributions to disaster relief and, by its very existence, air power also offers a most useful contribution to the preservation of peace – first through the promotion of international relations and secondly through the provision of reassurance that should help avert threats to peace, both real or imagined.



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Our ability to carry out the roles I have outlined will remain inextricably linked to our platforms and weapons and so to the speed of technological change. Hence we need to be prudent in developing our future systems, and carefully balance the military needs of the new operating environment with the art of the possible. Given sufficient money, some will tell you that almost anything is technologically feasible. We are not, nor likely to be, in that fortunate position and so the traditional balancing act will continue. Incremental improvement will play a major part in our procurement of capability. I am, of course, delighted that the RAF will benefit immediately from the modest but real increase in Defence monies and the announcement that we will take forward the highest priority programmes – all weather precision guided munitions, Maverick and secure communications – which emerged from an analysis of the Kosovo Air War.

Another important factor is the constructive working relationship we enjoy with our defence industries, while the effective use of limited research and development funds has often allowed us to respond quickly to new requirements. Indeed, in recent times, much of the development and testing of specialist new systems has been conducted during live operations. The introduction of our Thermal Imaging and Airborne Laser Designation pod during the Gulf War and the development of our LOROP and VICON reconnaissance pods during policing operations over Iraq are good examples. As a result, the United Kingdom remains a world leader in certain key military technologies such as airborne reconnaissance, the development of



...the United Kingdom remains a world leader in certain key military technologies such as airborne reconnaissance, the development of designation capabilities and our skills in collecting and fusing passive electronic warfare and signals intelligence data



designation capabilities and our skills in collecting and fusing passive electronic warfare and signals intelligence data. A key ingredient to this type of technological development and aircraft integration is the role that DERA plays. I look forward with interest to see how New-DERA emerges; we will most certainly need it to be every bit as effective and innovative as our current arrangements – without, of course, any downturn in value for money.

The future use of space offers enormous potential but, for many, affordability will be difficult. Current military operations already rely heavily on space-based support systems and the US are considering migrating several roles, in particular their Warning and Control System, into space. The cost of such programmes is likely to remain beyond most, but however limited our ability to contribute and participate in the American space programme, we should persist with our modest involvement and offer our support. The benefits that accrue from being involved, albeit only in a small way, in the development of these leading edge technologies are substantial.

The 20th Century saw the birth of air power; it has also been the preserve of manned aircraft and these have proved to be the prime and most flexible means of delivering air power. However, technology is now advancing at such a pace that Unmanned Air Vehicles may be ideally suited to the new hostile environment of high density threat, precision strikes and minimum human losses. In most future conflicts, offensive air action will be paramount and represent an essential



element of the overall military campaign. Modern aircraft, with their firepower, range and accuracy will strive to destroy, or at least neutralise, our opponent's war-fighting assets in the early days or even hours of a conflict.

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Such abilities are undoubtedly the key to victory or survival. Therefore, the primary mission of the Unmanned Combat Air Vehicles of the future will be to strike effectively and quickly at our opponent on the ground, at sea and in the air. Yet whilst cruise missiles can, to a certain extent, fulfil this offensive role against static ground targets, limitations of cost. payload and accuracy suggest the need for a complementary system, similar in size and method of launch, but re-usable, dropping its warhead and coming back for a quick turnaround for another mission.

Presently, Unmanned Air Vehicles are able to scan wide areas and provide high quality imagery. The next logical step will not only be to locate potential targets, but to also engage and destroy them. But these highly advanced technologies are still under development and I believe that the use of Unmanned Combat Air Vehicles, at least in the United Kingdom, is still some time away. One cannot always predict the types of military operations of the future but the 'fog of war', uncertainty and friction of conflict would always require the presence of a human brain in the loop, to make the right decisions at the right time. Therefore, manned aircraft will continue to offer the best compromise in terms of flexibility and efficiency to deliver air power in the next decades. Unmanned Combat Air Vehicles will, I believe, play a significant future role as a force multiplier, by replacing and supporting manned aircraft in specific missions such as SEAD and other attacks on heavily defended targets. Acting in this role as a 'first day of conflict enabler', Unmanned Combat Air Vehicles would enhance greatly the capabilities of air forces.

I have covered, in the last few moments, several areas of our thinking that could be potentially divisive – the exploitation of space, deployment of UAVs, and reconnaissance assets such as ASTOR. If I add Attack Helicopter into the equation you will immediately be able to comprehend the dangers of our conceptual thinking, and our doctrine, descending into a morass of dogma centred on the ownership of assets. I cannot over-emphasise the dangers of reams of so-called 'emerging doctrine' being written by Services competing like tribal elders for the ownership of the 'new toys'. The reality is that these assets have unique capabilities and their entrance into service has come at considerable cost. They are all elements of the Air Power debate irrespective of cap badge and colour of cloth. In low intensity conflict or peace support operations they will have their roles to play. In anything resembling a medium scale operation, or greater, these assets and platforms will be allocated to the Joint Force Commander who will use them to best effect. In practical terms, the more expensive, or capable, the platform, the more carefully controlled its employment will be through Air Tasking Orders, Airspace Control Orders and the like.

I have briefly covered our conceptual and doctrinal thinking process along with the roles and capabilities of air power that flow from them. I would be remiss if I did not finish by saying something about the people – the practitioners – that actually produce this air power. Since the Cold War, the demands we place on our personnel and their expectations have changed considerably; their training and retention now represents the single biggest challenge that we face as a Service. The pull of commercial aviation and the defence industry more widely has ensured a steady exodus of high quality people. This flow has been exacerbated by successive reviews and studies that have reduced our uniformed manpower by over 40% since 1990. Add to this insecurity and its associated turbulence, – the redeployment of Harrier and Tornado units back from Germany will have involved inter-unit moves for more than 14,000 servicemen and their families – the pressures of current operations, where many are regularly experiencing 4 months or more per year away from home, and the Armed Forces present a less attractive proposition to potential recruits. Now more than ever before we must ensure that our terms and



...technology can and will provide invaluable assistance, but it is the air and ground crews who refine and fuse the information, and ultimately arrive at the decisions that make the difference Now more than ever before we must ensure that our terms and conditions of service reflect the aspirations and concerns of our existing people and of those we hope will join us

conditions of service reflect the aspirations and concerns of our existing people and of those we hope will join us. No longer can we assume an unlimited queue of quality people committed to a full career and who regard the service of their country as a vocation. We are competing against an ever more voracious and enticing civilian job market where incentives abound and stability is taken as read.

To this end, we are urgently researching and monitoring sensitive areas in order that we can deregulate wherever possible. While it would be foolhardy to try and cater for every individual moan and groan, we must go as far as we can to remove systematic obstructions and adopt a more flexible approach to personnel management. In the first instance, we are looking at ways by which we can spread the load of operational deployments as widely as possible across the whole of the Royal Air Force, but this will take time and the options are limited. In the meantime,

the underlying requirement is for our people to feel that their contribution to the generation of air power is important and is valued by those in command. It is the contribution of the men and women in the air power loop that make it so flexible and provides the free-thinking and innovative approach that our chosen medium demands. Yes, technology can and will provide invaluable assistance, but it is the air and ground crews who refine and fuse the information, and ultimately arrive at the decisions that make the difference.

The continuing success of the Royal Air Force will depend on recruiting and retaining highly trained and motivated men and women all capable of operating in a joint environment, but imbued with the ethos, history and pride of their parent Service.

Commanders of all of the Services in this country and throughout NATO have been faced with huge challenges over the last decade in responding to sudden and drastic changes to the world order. Force structures and equipment programmes could not be radically changed overnight, and it is probably fair to say with hindsight that effective change was impeded by the race for 'peace dividends' and that a more rational approach has only come about through measured reflection – processes such as the Strategic Defence Review. The expeditionary nature of warfare has emerged, not surprisingly, as a common theme from these deliberations. Furthermore, the nature of the process has allowed us, and our allies on both sides of the Atlantic, more easily to quantify the scale of likely involvement and the resultant force structures that we will need. The decision to enhance our strategic lift capability, in the short term with C17s and subsequently with A400Ms, is evidence of determination and commitment in this area. Further work is being done in the vital area of air-to-air refuelling and we are also looking at improving our capabilities in the suppression of enemy air defences. No matter how desirable, or even essential, these improvements and enhancements may seem, particularly by those closest to the coal-face – whether they be in industry or on the frontline – *it is unlikely that we will get everything that we regard as a priority. Some acquisitions will be funded through more effective procurement processes.* For other additions to our overall capability, we may have to look to greater co-operation with our allies.

There is little doubt in my mind that not only will the world remain unstable well into this new century, but the pressure on us all to act as a force for good will also increase. That said, to be a force for good requires a credible warfighting capability, and I am equally certain that air power, ranging from Tomahawk Land Attack Missile to Attack Helicopter, will increasingly be the weapon of first political choice in anything but a benign environment. As experience of real air campaigns continues to increase – as opposed to traditional stovepipe-style exercises – I am confident that air power will also be at the forefront of all military commanders' minds. This does not mean that air power can solve all ills, and we must guard against making such claims. But the ability of air power to strike at the complete range of targets from those of the utmost strategic value down to the smallest tactical levels will guarantee its



place in the vanguard of any offensive operation. Equally, the range and required speed of response in humanitarian and peace support operations will mean that air power will inevitably be required as an essential enabler. Balancing these often-competing priorities will be one of the great challenges facing the Royal Air Force in the next decade. It is a challenge in which I am confident that we have the people and equipment to meet.

...air power, ranging from Tomahawk Land Attack Missile to Attack Helicopter, will increasingly be the weapon of first political choice in anything but a benign environment



## Air Control: Reassessing the History

#### By Dr James S Corum



n the aftermath of World War I, a financially strapped Britain had to face up to several expensive, new colonial obligations in the form of League of Nations mandates to govern Palestine, Transjordan, and Iraq. At the same time that the armed forces received orders to assume a costly burden of military occupation in regions rife with violent internal conflicts, the government moved to demobilize the wartime forces and to economize by any means possible. This meant that the British had to police new imperial obligations on the cheap.

At the same time, the Royal Air Force (RAF), which had recently become a separate service in April 1918, was fighting for its institutional existence. Both the army and navy argued that the RAF ought to revert to its position as a subordinate arm of the two senior services. Air Marshal Hugh Trenchard, RAF chief of staff, sought a mission that would justify the service independence of the RAF. The effectiveness of a few aircraft in putting down a minor rebellion in British Somaliland in 1919–20 provided Trenchard and the Air Staff the concept of an independent mission for the RAF. Trenchard proposed that the RAF be given full responsibility for conducting military operations in Britain's most troublesome new mandate – the former Ottoman provinces of Mesopotamia.<sup>1</sup>

Trenchard promised that the RAF could police the mandate with air squadrons and a few armored-car squadrons, supported by a few British and locally recruited troops, at a fraction of the cost of a large army garrison. That particular argument proved irresistible to Whitehall, so in October 1922, RAF air marshal John Salmond took over military command and assumed military responsibility for Iraq. The RAF's primary garrison for Iraq consisted initially of eight squadrons of fighters and light bombers,



All through the 1920s and 1930s, the RAF was able to quell minor rebellions and tribal banditry by swiftly punishing the culprits from the air such as DH-9s. As the RAF's account goes, the air-control doctrine worked remarkably well. All through the 1920s and 1930s, the RAF was able to quell minor rebellions and tribal banditry by swiftly punishing the culprits from the air. Bombing and the threat of bombing seemed to keep Iraq relatively quiet. Policing the empire by means of airpower became popular in other colonies as well. RAF bombing raids largely replaced the army's traditional punitive expeditions mounted against troublesome tribes on India's Northwest Frontier. In Aden, the British also used air attack on numerous occasions to deal swiftly with trouble in the interior.

The idea of occupying and pacifying a country by airpower alone, or with the air force as the primary force employed, is especially attractive to airmen. Indeed, in the 15 years that the United States has found itself involved in various peacekeeping and peace-enforcement operations, as well as no-fly-zone enforcement and a variety of small and conventional wars, Air Force officers and airpower theorists have looked at the RAF's colonial air control as a useful model for the kind of militaryoccupation missions that the United States conducts today.<sup>2</sup> Further, the idea of controlling a country by airpower, with few

or no ground troops involved, has excited the interest of such influential airpower theorists as Carl Builder.<sup>3</sup> The low cost of air control is an especially attractive feature of the operation. Another is the fact that ae-rial policing does not put US soldiers at risk. It is a good doctrine for casualty avoidance.

However, if one offers air control on the imperial British model as a model for the US Air Force, then one should look carefully at the actual record of air control in the British Empire. The following questions are in order: Did the RAF overstate its role and minimize the actions of ground troops in order to defend its budget? Did air control really work as well as advertised? What were the drawbacks to air control? What was the political context of air control, and is there an analogy to today's political situations? Did other countries use air control, and, if so, what was their experience? After reviewing the record, I will draw a few lessons of my own.

#### THE GENESIS OF AIR CONTROL

The British first employed the concept of air control in the wastes of Somaliland, one of the most primitive backwaters of the empire. Since the 1890s, Mohammed bin Abdullah Hassan, a charismatic tribal leader known as "the Mad Mullah," had caused trouble in the British protectorate by raiding tribes friendly to the British. From 1900 to 1904, the British mounted several punitive expeditions against him and took fairly heavy losses. In 1904 they finally brought the Mad Mullah's main force to battle, defeated it, and drove him out of British territory. However, the trouble did not end. In 1909 Abdullah Hassan started raiding again, and in 1913 his forces shot up a unit of British constabulary. During World War I, the British ignored the problems in Somaliland, but after the war, the British government decided to reinforce the protectorate with an RAF squadron of DH-9 reconnaissance/light-bomber aircraft. Eight aircraft had arrived by January 1920, and the British set to work with surprise bombing raids on Abdullah Hassan's forts. Several days of bombing inflicted heavy casualties, forcing the Mad Mullah to abandon his forts. The army field force – consisting of detachments from the King's African Rifles, Somaliland Camel Corps, and Indian army – moved in pursuit of the mullah's force. Over the next weeks, the RAF reverted to supporting the ground force by reconnaissance and bombing. The mullah escaped and took his remaining forces over the border into Ethiopia, where he died the next year.<sup>4</sup> For the astoundingly low price of 80,000 pounds, airpower had played a central role in defeating a force that had irritated the colony for many years.

The RAF, fighting for its institutional survival, made much of this use of airpower in colonial policing, not stressing the fact that it flew most of the sorties in support of the ground forces. Indeed, the most important part of the outcome was the low cost of the affair. After the successful operation in Somaliland, in March 1921 at the Cairo Conference on Mideast Affairs, chaired by Colonial Secretary Winston Churchill, Air Marshal Trenchard formally proposed that the RAF take over the task of directing military operations in Iraq and that the primary British force employed in that troublesome country be RAF squadrons.<sup>5</sup>

#### THE RAF REVERTED TO SUPPORTING THE GROUND FORCE BY RECONNAISSANCE AND BOMBING

Somaliland had been a very small operation, but the problems in Iraq were enormous, and the military situation looked grim for the British. Their army had seen heavy fighting in Iraq throughout World War I. British expeditionary forces, mostly from the Indian army, fought for four years trying to push the Turks out of the region. Iraq was the scene of one of Britain's greatest defeats in the war when the Turks cut off a British army of nine thousand men and forced them to surrender at Kut in April 1916. The British reinforced their army, counterattacked, and in 1917 took Baghdad.<sup>6</sup> By the end of the war, they had pushed the Turks to Mosul and had occupied most of the country. At the end, the British had 420,000 men in Iraq.<sup>7</sup>

After the war, the British Foreign Office and Colonial Office had little idea of what to do with Iraq. It was a poor and backward part of the Ottoman Empire, and the British had no major strategic interest in the area (the extent of the oil reserves remained

18 unknown). However, various wartime deals had allocated responsibility for Mesopotamia, Jordan, Arabia, and Palestine to Britain and had given France the responsibility for Lebanon and Syria. During the war, the British placed occupied portions of Iraq under military rule and brought in Indian civil service political officers to administer the territory. This arrangement persisted after the end of the war.

If the British government had deliberately and carefully crafted a grand strategic plan to alienate the three major groups in Iraq (Kurds, Shiite Arabs, and Sunni Arabs) and force the whole country into a massive rebellion against their British occupiers, it could not have succeeded more handily. The Indian political officers tried to impose a very alien Indian-style administration upon the Arabs and Kurds. Under the Turks, the administration might have been inefficient, but at least the Turks spoke Arabic and left the tribes largely alone.<sup>8</sup> On top of this new and irritating administration, the British and French governments had issued a declaration on 7 November 1918, promising the Arabs freedom and self-government after the war.<sup>9</sup> They had given hopes for self-government not only to the Arabs but also the Kurds.<sup>10</sup> Such promises were quickly forgotten as the British moved to create an Iraqi monarchy and put a Sunni Arab on the throne. The fact that the British consulted none of the major groups in

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Iraq especially offended the Kurds and Shiites, the majority of the population.<sup>11</sup> By 1920 Iraq was ready to blow up – and did. The rebellion began in Kurdistan and quickly spread throughout the country.

The 60,200 British troops in the country when the rebellion began were hard-pressed simply to hold on. Small British garrisons in the hinterlands were surrounded and wiped out. The Kurd and Arab rebels were not the primitive and poorly armed tribesmen that the British had faced in Somaliland. When the Turkish Empire had collapsed, large stocks of modern arms and ammunition throughout Syria and Mesopotamia fell into the hands of local tribesmen, equipping the rebels with modern rifles and machine guns.<sup>12</sup> Many of the leaders of the revolt had served in the Ottoman and Arab armies during the war and had a pretty good understanding of modern warfare. They were not likely to be overawed by British aircraft and technology.<sup>13</sup>

The hard-pressed British garrison called for army and air force reinforcements. Nineteen battalions (4,883 British and 24,508 Indian army troops) as well as two additional RAF squadrons were dispatched to Iraq to reinforce the two squadrons already in the country.<sup>14</sup> By August the British were able to mount a successful counteroffensive that stamped out the rebellion by the end of the year. The RAF squadrons performed sterling service in evacuating British personnel, dropping supplies on besieged outposts, and performing constant reconnaissance and bombing missions in support of the ground forces. The Iraqi rebellion of 1920 amounted to a fairly large conventional war, and some major pitched battles occurred between the rebels and British forces. At Rumaitha on 13 October, a three-thousand-man rebel force dug in and stood up to a daylong attack by a British brigade. Starting at 0800, the British pummeled the Iraqis with artillery, and RAF aircraft relentlessly bombed the defenders.

Finally, under the weight of a full-brigade attack, the rebels broke and retreated in disorder at 1700.<sup>15</sup> The British 19 suppressed the rebellion but at a cost of 1,040 killed and missing soldiers and 1,228 wounded - not to mention an estimated 8,450 dead Iragi rebels.<sup>16</sup> The financial cost of the enterprise also shocked the British government. In order to maintain control of a minor colonial mandate with little strategic value, British military operations had cost the treasury 40 million pounds, considerably more than Britain had spent in supporting the Arab revolt against the Turks in World War I.

Iraq proved such a drain of manpower and resources that when the RAF offered to garrison the country at minimal cost, the British government welcomed the idea. On 1 October 1922, the RAF assumed control of military forces in Iraq, marking the first time that an airman directed all military operations in a country.<sup>17</sup> The British government could then announce that it had pulled all army forces out of Irag at great savings to the taxpayer. Henceforth, the military garrison in Iraq would consist of eight RAF squadrons and four RAF armored-car companies.<sup>18</sup> The British recruited five thousand of the 15,000 local Iragi levies and police and organized them as the core of an Iraqi army. These local forces would be British equipped, officered, and trained but supported by revenues of the Iraqi state.<sup>19</sup>

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The government's announcement that it had withdrawn all British forces from Iraq was technically correct. However, it made little mention of the fact that Indian army brigades and supporting troops had replaced them. Since the Indian State military budget rather than the British War Department budget paid for the Indian army troops, British taxpayers and politicians got a pretty good deal – the only player unhappy with the arrangement was the government of India.<sup>20</sup> Although Iraq became an example of a country garrisoned by airpower, a significant army force remained on hand throughout the entire period of the British mandate until Iraq received full independence in 1932. By 1926 the British had created the framework of an Iraqi army, which boasted a military college, training center, and cavalry school – and the regular army had grown to a force of six infantry battalions, four cavalry regiments, four artillery batteries, and various supporting units.<sup>21</sup> The British also maintained at least a brigade of Indian army troops in the country until the 1930s.

#### **AIR-CONTROL POLICY**

The British Empire had long relied upon punitive expeditions to bring rebellious natives back into line. When a border tribe on India's Northwest Frontier violated a treaty or when a band in Aden took a British official hostage, the standard response called for putting together a military expedition, marching on the tribal center, burning some villages, destroying crops, and killing any tribesmen who offered resistance. Then the army column would return to the garrison, knowing that the natives had been taught a lesson and would not likely defy British power again. The lesson and deterrent effect would last for a short time sometimes months, sometimes years – and then the tribesmen would commit another outrage, necessitating another British

20 expedition to punish them.<sup>22</sup> Punitive expeditions ranged in size from a platoon of the Camel Corps riding against one village to months-long operations mounted on the Northwest Frontier by thousands of soldiers. A comprehensive list of punitive expeditions mounted by Britain at the height of the empire – between 1840 and 1940, from Burma to India to the Sudan – would certainly number in the hundreds, probably in the thousands. In short, such expeditions were brutal but indispensable means of keeping the empire under control.

To put it simply, air control meant substituting aerial bombardment for the traditional ground-based punitive expedition. Airplanes could reach the object of the expedition (e.g., the tribal headquarters or main village) very quickly. Airplanes had an impressive amount of firepower and the capability to inflict serious harm upon rebellious natives. Since disruption and destruction were the goal of a punitive expedition, a small force of airplanes proved cheaper and more efficient since it could inflict as much damage as a large and cumbersome ground-force expedition.

The early RAF statements on air control stress its effectiveness and lethality. In the spirit of the empire, everyone acknowledged that strong and forceful action was the best means of keeping natives under control. As pointed out by RAF wing commander J. A. Chamier in 1921,

To establish a tradition, therefore, which will prove effective, if only a threat of what is to follow afterwards is displayed, the Air Force must, if called upon to administer punishment, do it with all its might and in the proper manner. One objective must be selected – preferably the most inaccessible village of the most prominent tribe which it is desired to punish. All available aircraft must be collected... The attack with bombs and machine guns must be relentless and unremitting and

## ...the Air Force must, if called upon to administer punishment, do it with all its might and in the proper manner



carried on continuously by day and night, on houses, inhabitants, crops and cattle... This sounds brutal, I know, but it must be made brutal to start with. The threat alone in the future will prove efficacious if the lesson is once properly learnt.<sup>23</sup>

The draft of the RAF's *Notes on the Method of Employment of the Air Arm in Iraq* proudly pointed out that "within 45 minutes a full-sized village... can be practically wiped out and a third of its inhabitants killed or injured by four or five planes which offer them no real target and no opportunity for glory or avarice."<sup>24</sup> Although such tactics expressed the common military view on how the empire needed to be policed against the rebellious tribes and bandits that threatened good order, such policies came under increasing attack in parliament during the 1920s. The RAF had to defend itself against the charge of inhumane warfare when a Labour government came to power in 1924. That year, Colonial Secretary James Thomas wrote to the high commissioner in Iraq and complained that critical press stories had appeared about bombing rebellious tribesmen and that heavy casualties "will not be easily explained or defended in Parliament by me."<sup>25</sup> In order to make air control more palatable to the politicians, later drafts of the RAF's notes on air control stressed its humanitarian aspects. Rebellious villages would first receive a warning that they would be bombed if they did not accede to government demands. After allowing a reasonable time for evacuation, aircraft would demolish the houses with bombs – not with the intention of destroying the village but with the aim of disrupting daily life.<sup>26</sup>

The War Ministry, which resisted the idea of the RAF's controlling military operations in any colony, also chimed in about the inhumanity of bombing women and children.<sup>27</sup> The argument, however, falls flat when one considers that army punitive expeditions routinely burned the crops and food stores of rebellious tribes and fired artillery into villages.<sup>28</sup> In fact, most of the army officers in the colonies heartily approved of immediate and forceful action by the RAF as a means of keeping incipient native rebellions in check. After the massacre of 1919, when army troops under Gen Reginald Dyer killed four hundred unarmed civilians at a protest meeting at Amritsar, India, the armed forces policing the empire were directed to operate under the doctrine of "minimum necessary force." The RAF learned to report the casualties of air control in vague terms, and enthusiastic supporters of the policy, such as Basil Liddell Hart, argued that prompt action by the air force at the first sign of trouble had calmed "tribal insubordination . . . before it could grow dangerous and there has been an immense saving of blood and treasure to the British and Iraqi governments."<sup>29</sup>

### An assembly was normally defined as ten people... Indeed, in my case I can remember actually finding nine people and saying 'That's within ten per cent and that's good enough,' so I blew them up

Although the RAF officially acknowledged the humanitarian policy of minimum necessary force and the proponents of air control could point out that the RAF stayed its hand on occasion to avoid inflicting casualties on women and children, one suspects that in the far reaches of the empire – out of the reach of nosey correspondents and acting against people without any direct communication to the British government or League of Nations – humanitarian sentiments gave way to the practical mission of running an empire. In his book *Imperial Policing* (1936), Maj Gen Sir Charles Gwynn probably expressed the views of the average British officer concerning the minimum-necessary-force policy: "The far-reaching effects of General Dyer's action at Amritsar should be noted by soldiers. The government of India appears to have allowed itself to be drawn into the common error of altering well-recognized and tested procedure in consequence of one exceptional incident."<sup>30</sup> An RAF flight commander based in India's Northwest Frontier in the 1930s recalled the fairly constant action against tribes in that part of the empire: "If they went on



being troublesome, we would warn them that we would bomb an assembly of people. An assembly was normally defined as ten people... Indeed, in my case I can remember actually finding nine people and saying 'That's within ten per cent and that's good enough,' so I blew them up."<sup>31</sup>

#### THE REALITY OF AIR CONTROL

From the start, the British used air control quite enthusiastically in Iraq as a basic means of keeping the population in line. The RAF found that a few airplanes, without support from the other arms, could deal with myriad police problems common to a violent, tribal society. Tribes that persisted in raiding caravans found themselves under air attack, which soon coerced them into changing their ways. The British also widely applied air-control methods in other colonies, including Aden, Sudan, Transjordan, and India's Northwest Frontier. Indeed, the Northwest Frontier Province, home to numerous warrior tribes with a long history of hostility against British India, saw more instances of air-control operations than did Iraq in the period between the world wars. A typical operation occurred in March 1921, when a band of one hundred Mahsud raiders stole 50 camels. Later, the same band got in a firefight with an Indian army detachment, wounded a British officer, and inflicted 36 casualties on the Indian troops. The RAF responded with a series of raids and dropped 154 bombs on the Mahsud capital. The area soon quieted down.<sup>32</sup>

Aden was the scene of numerous air-control operations. A typical example of the coercive power of air attack, or the threat of attack, dealt with deterring Yemeni rustlers. In July and September 1933, Yemeni tribesmen raided the territory of the Aden Protectorate and made off with livestock from a tribe under British rule. Moreover, the Yemenis took some hostages from the tribe and held them for ransom – fairly typical behavior for the tribes in that part of the world. The small British garrison at Aden got word of the incident and promptly threatened the Yemenis with a bombing raid unless they returned the livestock, along with all the remaining hostages and ransom money. They took the British threat seriously and promptly returned the looted property.<sup>33</sup>

In Iraq the British used air-control tactics as a means of enforcing revenue collection. At the outset of the air-control program, the RAF in several instances bombed tribes that refused to pay their taxes. The Colonial Office in London considered this policy a bit heavy-handed, but the high commissioner in Iraq insisted it was necessary since he considered the nonpayment of taxes defiance of the British regime. Although not widely publicized, the bombing of tax evaders continued.<sup>34</sup> Once tribes got the word that the British were *really* serious about paying taxes, fiscal cooperation seems to have become the order of the day, and tax compliance in Iraq reached a satisfactory level.

Although one gets the impression from RAF reports to London and articles written by sympathizers such as Liddell Hart that RAF operations in the colonies consisted primarily of airpower policing operations, the reality was quite different. Most of these operations in the interwar years both supported and cooperated with ground troops. Although an RAF officer was in command in Iraq, the British needed significant ground forces to keep order. Any banditry or rebellion on a larger scale than the minor instances noted above required a force of ground troops to engage the enemy. As already noted, sizeable Iraqi and Indian army

forces were available to deal with serious rebellions, and from 1922 to Iraqi independence in 1932, they saw considerable fighting.

In 1920 Sheik Mahmud, a tribal leader with his capital at Suliamania, was one of the first Kurdish nationalist leaders to rebel against the British. The latter forced Mahmud into exile after the rebellion but allowed him to return in 1923 with the agreement that he would support British rule of Kurdistan and oppose Turkish attempts to encroach on the province. However, Mahmud began to negotiate secretly with the Turks, and open conflict began between the British and the Kurdish tribes supporting Mahmud. For three years, Mahmud carried on a guerrilla campaign against the British and the Iraqi government.<sup>36</sup> The RAF bombed Suliamania for several months without noticeable effect on the morale of Mahmud and his supporters. In the operations against Mahmud, the air force cooperated with army and police columns trying to corner the rebels. The army columns were often mounted and as light as possible. The primary role of the RAF in such operations was reconnaissance, and in this role the aircraft proved fairly effective. When British/Iraqi troops cornered the rebels, the RAF provided heavy firepower in the form of close air support.

One army officer who participated in the campaign against Mahmud noted that the British had overestimated the effect of airpower against tough guerrillas like Mahmud's Kurds. First of all, the air force appeared to have consistently exaggerated its claims of casualties inflicted by air attack.<sup>36</sup> Furthermore, aerial reconnaissance often failed to spot rebel forces since they had cleverly learned to camouflage their camps and positions and to move by night.<sup>37</sup> The British tried to supply ground columns by aircraft during the campaign, but that effort proved unsuccessful.<sup>38</sup> Only after a three-year combined air and ground campaign did British forces finally force Mahmud into exile in Iran.

In September 1930, an election in Kurdistan turned into an antigovernment riot, and antigovernment protests soon turned into a demand for a united Kurdistan. In October, Mahmud returned from exile and mounted a guerrilla campaign against the British.<sup>39</sup> From October 1930 to May 1931, the Iraqi army put two mounted columns in the field against him. In this campaign, the RAF was relegated to an army-support role, providing reconnaissance and attacking Mahmud's forces only after army units had found and fixed them. In this campaign, the British prohibited the bombing of villages since such action would likely generate support for Mahmud.<sup>40</sup> For a campaign against another Kurdish rebel leader, Sheik Ahmed of Barzan, carried out between December 1931 and June 1932, the British assembled a ground force of three battalions, a machine-gun company, an artillery battery, and two hundred police. The RAF supported the ground troops in several battles and conducted an extensive bombing campaign against Sheik Ahmed's territory, all of which forced Ahmed into exile in Turkey.<sup>41</sup>

#### FOREIGN AIR-CONTROL OPERATIONS

The other major colonial powers – Spain, Italy, and France – all used their air forces extensively to help police their colonies and to help their armies suppress rebellions. In most respects, the experience of the French in using airpower closely paralleled British doctrine and experience.



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When the French occupied their Mideast colonies of Lebanon and Syria in 1919, they faced the same sort of nationalist unrest that the British faced in Iraq. Initially, the French sent a larger air contingent to garrison Syria than the British sent to Iraq and by the end of 1919 had built up a force of four squadrons in Syria. French



Breguet 14 light bombers, sturdy aircraft from the Great War, played the same role that the RAF's DH-9s played in British colonial operations. Gen Maxime Weygand, commander of the garrison in Syria, argued that airpower was "indispensable" and requested more air squadrons so that he could withdraw ground troops.<sup>42</sup> In 1924 Weygand issued directives to his air units that closely resembled British air-control doctrine. He intended to use aircraft to bomb tribal groups when incidents occurred as a means of intimidating them into complying with the French regime.<sup>43</sup> The French increased their air presence in Syria and by the end of 1923 had several squadrons organized into the 39th Air Regiment.

From 1925 to 1927, the French faced a major challenge to their rule in Syria in the form of a revolt by 40,000 tribesmen (the Druze Revolt). The French quickly deployed 30,000 troops and additional air units to suppress the rebellion. The French army and air service saw some heavy fighting against the tough and well-armed Druze forces. They used air units extensively in reconnaissance and close-support operations for the ground troops. In some of the larger battles, such as the assault on the Druze stronghold at Soueida in December 1925, the French claimed that airpower played a decisive role, fixing and destroying a large Druze force in the turning point of the campaign.<sup>44</sup>

In Morocco in the 1920s, the French faced a level of fighting against warrior tribes that resembled the constant warfare the British faced on India's Northwest Frontier. By 1923 Marshal Louis Lyautey, the French commander, was heavily engaged in pacification operations in Morocco and requested reinforcements. The French government sent 36 army battalions and six air



squadrons to Morocco.<sup>45</sup> By 1925 the French air service in Morocco had increased to 10 squadrons of mostly two-seater light bombers. However, even this large force could not handle an invasion of French Morocco by a well-armed nationalist force under Abd el-Krim, who led the Rif tribes and had destroyed an entire Spanish army in 1921.

The French air service, whose mission was primarily army support, saw extensive action. In 1923 the French had dropped 345 tons of bombs in Morocco.<sup>46</sup> Air operations were dramatically increased in 1925–26. In 1925 Marshal Lyautey requested reinforcements to face a major rebel offensive that pushed the French out of the highlands towards the coast. Aircraft saw constant action in support of the hard-pressed French defenders in an effort to delay the rebel advance. The combat was intense. In July 1925, the 10 squadrons of the 37th Air Regiment flew a total of 1,759 combat sorties against the Riffians.<sup>47</sup> Eventually, the French pacified Morocco, but tribal flare-ups were common into the 1930s.

In two respects, the French proved more innovative than the British in the use of airpower in colonial campaigns. First, the French relied much more on aerial resupply of outlying garrisons and small detachments, using airdrops and light bombers as transports, which landed at small forward airfields. Aerial supply allowed the French to successfully maintain many isolated, small forces for long periods in the rugged terrain of Morocco's Rif region.<sup>48</sup> In Morocco the French established the first large-scale aerial medevac system. The French air service specially modified 22 Bloch 81, Potez 29, and Hanriot 431 aircraft (the Hanriot 437 was the medevac version of the Hanriot) and formed air detachments with the exclusive mission of air evacuation of the sick and wounded.<sup>49</sup> The French also established a regular system of collection points at forward airfields so that aerial ambulances could get wounded and sick soldiers from the battle lines to forward and central military hospitals in only an hour.<sup>50</sup> During the heavy fighting of 1925, the French evacuated 987 wounded and sick soldiers to rear hospitals by air.<sup>51</sup>

In his book on air control, David Omissi argues that the French had the reputation of being more ruthless and less humane in their methods of air control than the RAF. For example, he accurately characterizes the French as less likely to send warnings to villages before they bombed them, thus allowing no time for civilians to evacuate.<sup>52</sup> But one should note that the French faced a rebellion in Syria in 1925 that was essentially a conventional war. They suffered heavy casualties and fought some major battles just to hold on in parts of Syria.<sup>53</sup> The French also faced a more formidable and dangerous enemy in the Rif tribes in Morocco in the 1920s than the British faced in Iraq or the Northwest Frontier. In 1925, when Abd el-Krim attacked, the French retreated and built a defense line; they were hard-pressed just to hold those positions against the well-armed Rif forces, who were equipped with artillery captured from the Spaniards. In any case, although the French, under their air-control doctrine, regularly bombed tribes and villages, no evidence exists that they ever bombed the natives as a means of revenue enforcement, as did the British in Iraq. This difference in air-control doctrines between the French and British may indicate deep cultural differences between the two nations. A likely explanation is that the French are culturally more tolerant of and sympathetic to tax evasion than are the British.



#### **26** CREATING THE MYTH

In the early years of air control, the RAF leadership carefully avoided offending the army or slighting the ground forces in their advocacy of air-control doctrine. As one RAF officer wrote in 1922, "It is not for one moment to suggest that aircraft alone can garrison any country without military assistance, but rather to show that economy in military strength and in money may be effected by a more extensive employment of aircraft."<sup>54</sup> Air Marshal Sir John Salmond, writing of his campaigns against Kurdish rebels in Iraq and his operations to drive back Turkish incursions on the northern border, gave full credit to the many British and Iraqi army units that had participated in the campaigns.<sup>55</sup> However, by 1929, after a decade of fairly successful air operations, RAF chief of staff Trenchard had such confidence in the effectiveness of air control that he proposed that the RAF assume defense responsibilities for Kenya, Uganda, Tanganyika, and Nyasaland. Airplanes could replace six battalions of the King's African Rifles in East Africa.<sup>56</sup> The army opposed this scheme as well as Trenchard's proposal to have the RAF take responsibility for the Northwest Frontier of India.

Once the future of the RAF as an independent service was assured – largely due to the success of the air-control program – the RAF and its supporters began to assert their views with considerably more boldness. Unsurprisingly, RAF accounts of air-control operations written in the 1930s tended to minimize the army part of the operations and magnify the role of airpower, so the role of the army in the RAF's account of air control gradually faded.<sup>57</sup> Indeed, one such account of air control in Iraq written in 1945 completely excludes any mention of the army in the colonial campaigns of the 1920s and 1930s.<sup>58</sup>

The primary criticism of air control was its function as a blunt instrument that operated on the basis of group accountability. The RAF would indiscriminately target a village or whole tribe for the transgressions of a small bandit gang or clan. Field Marshal George Milne, chief of the Imperial General Staff, criticized the RAF for its air-control techniques in Aden, arguing that constantly bombing the tribesmen would not create conditions for a peaceful administration.<sup>59</sup> Senior British officials in India, including the viceroy, disliked the airpower concept for similar reasons. Bombing villages and attacking civilians in order to punish a tribe for the actions of some of its bandits seemed not only morally doubtful but also politically risky, since it would likely increase the border tribes' hatred of the British.<sup>60</sup>

The RAF replied by emphasizing the humanitarian nature of the air-control system. Since the British warned tribes about impending bombing, the air attacks mostly destroyed property – and certainly did not kill many innocents. However, the warning policy was never very consistent. Often, officers in the field preferred that bombing take place without warning so as to achieve maximum effect. Indian Air Headquarters reluctantly accepted the requirement to warn in 1923 but argued that inflicting heavy casualties caused the greatest moral effect.<sup>61</sup> Although the Air Ministry maintained that warnings were always issued, in practice this was not true. Oftentimes, British aircraft bombed tribes on the Northwest Frontier in the 1920s without warning.<sup>62</sup>

Another RAF argument asserting the humanity of its operations emphasized the precision of aerial bombardment. The RAF Air Staff pointed out that air operations over the Northwest Frontier in November 1928 proved that the RAF could single out



Usually, RAF bombing accuracy in the interwar period was appallingly bad. Of the 182 bombs dropped on tribesmen in the Northwest Frontier in November 1928, 102 completely missed the target villages

specific houses of tribal leaders for destruction while leaving the rest of the village unharmed – a true claim in a few cases. Carefully selected pilots and aircrews could in fact hit a target with some accuracy at low level. For the most part, however, the claim was frankly ludicrous. Usually, RAF bombing accuracy in the interwar period was appallingly bad. Of the 182 bombs dropped on tribesmen in the Northwest Frontier in November 1928, 102 completely missed the target villages.<sup>63</sup> Because the Bristol fighters that equipped many of the units flying air control lacked bombsights, only very low-level attacks came close to the target. In the border campaign of March 1932, only half the bombs dropped fell within the target villages.<sup>64</sup>

More embarrassing than not being able to hit the target was hitting the wrong target. Interwar gunnery and bombing training in the RAF were poor, and the service's navigation skills were no better.<sup>65</sup> In the hills of Kurdistan or on the wild Northwest Frontier of India, one valley and village looked very much like another. Coupled with often-mediocre intelligence and the fact that one group of tribesmen looked very much like another at seven thousand feet, it is understandable that villages of friendly tribesmen were sometimes attacked by mistake.<sup>66</sup> One cannot be sure just how often this kind of "imperial friendly fire" occurred. The victims had no means of reporting their outrage to parliament, and the RAF was not likely to report mistakes publicly. In any case, the official reports of the RAF and the writings of its supporters continued to maintain that the service's air-control methods were very humane, resulted in very little loss of life, and were always carried out with full warning.<sup>67</sup> Air control may not have won the good will of various native peoples, but it did a pretty effective job of keeping many of them in line – at least for a time.

In general, air control by itself seems to have had only very temporary effects. A tribe would steal cattle or raid a police outpost, get bombed, desist, and then the whole cycle would repeat itself in the next year or so. The RAF itself could handle only the smallest rebellion, but when it flew in support of army columns, it certainly made military operations more efficient. A couple of aircraft could provide the same level of support as a cavalry battalion for the army. The heavy firepower that aircraft could bring to the battle was a psychological shock to the enemy and a great morale boost for British troops. However, that is not

the way the RAF wanted air control remembered. Whereas critiques of air control circulated mostly within the closed circles of the government and the military, the RAF pushed its version of the success story in military journals, parliamentary reports, and releases to the general public. Eventually, the RAF view of air control became well established in the public mind.

The public and the government accepted air-control doctrine not as a result of its fairly modest success but because of the low cost. Journal and newspaper articles by RAF officers and supporters of air control invariably pointed to the much lower cost of conducting colonial police operations from the air. At a time that defense and colonial expenditures had to be kept low, air control proved cost-effective.

The true limits of air-control doctrine were displayed during the Arab revolt in Palestine from 1936 to 1939. The revolt started with an estimated five thousand insurgents, which grew to a force of 15,000 by 1938. Although most of the fighting, which consisted of small skirmishes and ambushes, occurred in the countryside, much of the combat took place in urban areas.<sup>68</sup> The British rushed thousands of troops to the colony. In 1938 alone, 486 Arab civilians, 292 Jews, 69 British, and 1,138 rebels were killed.<sup>69</sup>

Air Commodore Arthur Harris, commanding officer of the RAF in Palestine, proffered a characteristic solution to the revolt that foreshadowed his strategy as chief of Bomber Command in World War II. The solution to Arab unrest was to drop "one 250-pound or 500-pound bomb in each village that speaks out of turn...

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The only thing the Arab understands is the heavy hand, and sooner or later it will have to be applied."<sup>70</sup> To the dismay of 29 the RAF, the army rejected this approach, did not apply air control, and restricted the RAF to missions such as flying cover for convoys in ambush-prone rural areas.<sup>71</sup> The army wisely decided that air control had reached its limits and that the political reaction to employing airpower in largely urban areas would have exacerbated an already ugly situation and brought strong international protests. Unlike Iraq and the Northwest Frontier, Palestine was more urban and developed and had good communications with the outside world. Given the bombing accuracy of the RAF in this era, its aircraft would have soon leveled the wrong Arab village. Such an event would have received much publicity and would have brought the RAF's policy of air control under intense criticism. By turning down the RAF's advice in dealing with the Palestinian revolt, the army saved the RAF and its air-control policy from a grand failure. By confining air control to the more isolated reaches of the empire, one could portray the policy in a romanticized, if inaccurate, way.

#### THE US AIR FORCE AND AIR CONTROL

For many years, people have had a certain fascination with the interwar RAF's concept of air control. The first serious attempt to use its doctrine as a model occurred in 1948, when the US Air Force had completed only its first year as an independent service. Col Raymond Sleeper, a member of the Air War College faculty, became interested in adapting the air-control system of the 1920s and 1930s to deal with the increasingly hostile Soviet Union. He determined that British air control was cheap, effective, and a recognized means of achieving political ends with minimal force.<sup>72</sup> After identifying the critical factors of air control – air superiority, detailed intelligence, clear objectives, communication with the enemy leaders, and the ability to persuade (or coerce) an indigenous political structure to accept US terms – Sleeper obtained Pentagon and Air University support to put together a group of 10 officers and six civilians to study the matter in depth.<sup>73</sup> "Project Control" took on a life of its own, and by 1953 more than a hundred Air Command and Staff College students, as well as additional personnel detached from the Pentagon, were working on the project.<sup>74</sup> The reports crafting an air-control doctrine to deal with the Soviet Union never got anywhere, but one team came up with a proposal to deter China and defeat Communist insurgents in Indochina by means of an air-control doctrine based largely on the British model.<sup>75</sup> That report also met with little interest, and the project was shelved.

Years of low intensity conflicts and the assumption of peacekeeping operations in Lebanon and the Sinai by the United States in the early 1980s generated fresh interest in applying British air-control experience to current US Air Force operations and doctrine. In an article in Air University Review in 1983, Lt Col David Dean, USAF, presented an idealized version of the RAF's experience with air control. Dean saw air control as a cheap and effective means to police the empire, accepting uncritically the RAF's claims about air control made in the 1920s and 1930s. Colonial policing had been carried out in many instances by airpower alone. Although the army's methods of punitive expeditions had proved slow and ineffective, the RAF's bombing



30 campaigns had achieved rapid effects, had been inexpensive, and had succeeded in achieving political effects with the least amount of violence.<sup>76</sup> Dean argued that the British had conducted air control humanely – with warnings and a minimum of violence – which had coerced tribesmen to comply with the British authorities and to harbor little ill will towards them.<sup>77</sup> By adapting the principles that the British had so successfully employed, Dean believed that the United States might build on its technological capabilities to apply air-control solutions to low intensity conflicts in the Third World. In this manner, the United States could avoid sending ground troops to the Third World, relying instead upon the Air Force to play a major role.<sup>78</sup> Other articles written by Air Force officers in this period also supported Dean's version of the air-control experience.<sup>79</sup>

The end of the cold war and the rapid increase of US military intervention overseas have also stimulated considerable interest in using the RAF's interwar air-control system as a model for US air operations. Articles and monographs by Air Force officers or by civilians working for the Air Force have presented the British air-control experience in a very positive light, as did Colonel Dean's articles.<sup>80</sup> Noted airpower theorist Carl Builder discussed British air control in an *Airpower Journal* article in 1995, arguing that it provided an excellent model for the kind of "constabulary missions" in support of the United Nations or peace operations that have come to characterize the current US military mission.<sup>81</sup> Builder pointed out that the RAF had done the lion's share of policing the empire with airpower and asked, "Could air and space power – by themselves – substantially pursue the constabulary objectives of the United States today?"<sup>82</sup> He argued that the US Air Force could and should look to conducting air-constabulary missions without committing ground troops.<sup>83</sup>

The concept that airpower alone can enforce the national will in low intensity conflicts is very attractive to the US Air Force. It certainly supports the idea that the Air Force ought to be the primary military service of the United States. The history of RAF air control has been used fairly consistently to support the position that an airpower-alone solution is possible. For instance, Air Force political scientist Robert Pape used the RAF's deployment to northern Iraq in 1924 as an example of successful airpower coercion. He points out that the Turks made incursions into Kurdistan and kept large ground forces on the border in an attempt to control the Mosul region. These incursions were met with a forward deployment of RAF squadrons and a few bombing raids to demonstrate British will. The British made it clear that if the Turks tried to cross the border in force, RAF attacks would seriously hinder their operations. Pape points out that this airpower coercion worked and that the Turks withdrew all forces from the border in October 1924.<sup>84</sup>

The problem with Dr. Pape's example of the effectiveness of airpower as a means of threatening an enemy army, as well as the argument by others that with airpower one can control regions and populations, is that the idealized air-control system described by US Air Force writers never really existed. For example, the RAF did play an important role in coercing the Turks to retreat from the Iraqi border in 1924, but no one mentions that the army also deployed two brigade task forces (six battalions, two artillery batteries, one engineer company, and one machine-gun company) north of Mosul at the same time.<sup>85</sup> Throughout
the era of British air control, in all but the cases of minor local banditry, the British met any serious challenge to their authority with both airpower and sizeable ground forces. Airpower alone put down none of the serious rebellions in Iraq. On the Northwest Frontier of India, airpower was a wonderfully effective force multiplier; however, one cannot escape the fact that these military actions were actually joint operations rather than airpower-alone operations.

If one cannot really police an empire with airpower alone, then what are the lessons learned from the British experience in air control? I offer five lessons learned from the interwar RAF experience that ought to be relevant to modern military operations.

### **Clausewitz Was Right: War Is about Politics**

When confronted with fairly large native rebellions, British officers often seem to have been clueless about their causes. Lt Gen Sir Aylmer Haldane, British commander in Iraq during the national uprising of 1920, believed that the rebellion had occurred because British occupiers had been too soft on the Arabs, who had naturally taken advantage of British slackness. He declared that "Arabs, like other Eastern peoples, are accustomed to be ruled by a strong hand."<sup>86</sup> An RAF officer explained the fighting in Iraq in another way: "A large percentage of the tribes fight for the mere pleasure of fighting… We oppose the tribes with infantry, the arm that supplies them with the fight. Substitute aircraft and they are dealing with a weapon that they cannot counter."<sup>87</sup> Evidently, British officers in Iraq did not suspect that the major rebellions in Kurdistan had anything to do with a political objective – such as the Kurds' desire for self-government. The British military apparently could not grasp that the "natives" might have strong nationalist sentiments and were fighting for a specific political objective – even though the British had encouraged such sentiments during the World War. After the war, the Colonial Office and Foreign Ministry quickly and conveniently forgot promises of self-government to the Kurds and Arabs.

In Iraq, during the four major rebellions in the 14 years of the British mandate, the British applied air control and military force to deal with the symptoms of the problem. By treating only the symptoms (rebellion), the British failed to look seriously at the primary cause of the conflicts – the politically unsatisfactory arrangement of the Kurds under the Iraqi government.

### Multiculturalism Cannot Be Imposed by Airpower

Without much thought, British political leaders cobbled together a large piece of the old Ottoman Empire consisting of three large groups that disliked and distrusted each other. The British imposed a multicultural state and system of government upon the population without any apparent plan. For 80 years, the three main ethnic groups of Iraq have been in a steady state of conflict, often exploding into large-scale rebellion. During this time the Kurds, in particular, have not given up aspirations for forming their own state.

Iraq is only one example of the failure of a major power to impose a multicultural state upon a country with large and mutually hostile ethnic groups. In Aden and the Sudan, British air campaigns temporarily suppressed conflicts among the tribes, but

# If Iraq is a typical example of the imposition of a multicultural state by superpower air and military forces, then the current US goal of imposing multicultural states upon unwilling groups in the Balkans is clearly in trouble

when the British pulled out, the ethnic conflicts remained. Indeed, one cannot find an example of a viable, stable, and peaceful multicultural state that has been successfully imposed upon a nation by an external power in the twentieth century. If Iraq is a typical example of the imposition of a multicultural state by superpower air and military forces, then the current US goal of imposing multicultural states upon unwilling groups in the Balkans is clearly in trouble.

### **Populations Adjust to Bombing**

The very first cases of air control, such as Somaliland in 1920, seemed to have worked very well. Aerial bombardment was a novelty, and its effect was impressive. However, as the British continued to use air-control methods on the frontiers of the empire, the psychological effect largely wore off. Many of the hostile tribes in Aden, on India's Northwest Frontier, and in Kurdistan learned to camouflage their camps and dig air-raid shelters for their villages. Tribes in Kurdistan set up a primitive warning system with observers and smoke signals to warn the most likely targets of the approach of British aircraft.<sup>88</sup>

In later campaigns against the Kurdish leader Sheik Mahmud, the British heavily bombed the rebel capital and center of operations, but the rebels fought on. Arabs fighting the British in Palestine in the 1930s were not overawed by RAF airpower. Indeed, the revolt in Palestine ended not through military force but through a political deal and British compromise that limited Jewish immigration.

### Air-Control Skills Do Not Translate Well into Other War-Fighting Skills

Air control took up a great deal of the RAF's effort and attention during the interwar period. For 20 years, the RAF took part in constant combat operations – either bombing campaigns or ground-support operations. Despite these operations, the air-control experience did not translate into tactics useful in conducting a major conventional war.<sup>89</sup> Surprisingly, 20 years of combat experience in supporting ground forces on the imperial frontiers did not develop into a close air support doctrine for the RAF when it went to war in 1939. Indeed, during the first years of World War II, the RAF could not provide effective close air support to troops on the battlefield. The organization, tactics, and control systems all had to be worked out from scratch during the first three years of the war. In short, although air control proved very effective in protecting the RAF's force structure and budget in the interwar period, no one showed interest in learning any lessons that might apply to a serious conventional war.

### Beware of Serendipitous Solutions

Air control looks like a perfect doctrinal solution to problems with some of the current peacekeeping operations that burden the US defense establishment. It appears cheap, looks effective, keeps US casualties low, and plays to the Air Force's strengths of

precision and rapid response. As an airpower-alone or predominantly airpower solution, it is especially appealing to many Air Force people. In short, it looks like the ideal answer.



Of course, the reality of the situation differs considerably. Air control was never as effective as advertised, and it could not provide answers to the political causes of colonial insurgencies. Except in the case of minor policing, airpower served mostly as a support arm to ground forces. A colonial power in the 1920s could employ such a doctrine on the far reaches of the empire against natives who had no direct contact with parliament or the media. Even then, the RAF's air-control methods set off a considerable amount of protest from politicians. Basically, one could barely justify air control as a doctrine 80 years ago, and people who advocate an updated version of such doctrine for current US Air Force operations have misread history.

#### Notes

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- 4. Flight Lt F. A. Skoulding, "With 'Z' Unit in Somaliland," *The RAF Quarterly* 2, no. 3 (July 1931): 387–96.
- 5. David Omissi, *Air Power and Colonial Control: The Royal Air Force, 1919–1939* (Manchester, England: Manchester University Press, 1990), 25–27.
- 6. A. Kearsey, *Notes and Lectures on the Campaign in Mesopotamia* (London: Hugh Rees, 1927), provides a useful summary of the World War I campaign in Iraq.
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- 8. Howard Sachar, *The Emergence of the Middle East, 1914–1924* (New York: Alfred Knopf, 1969), 368–70.
- 9. Ibid., 366-68.
- 10. David McDowall, A Modern History of the Kurds (London: I. B. Tauris, 1996), 152.
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- 16. lbid., 357.
- 17. Omissi, 31.
- 18. lbid.
- 19. Maj Gen H. Rowan-Robinson, "Iraq," RUSI Journal 77 (November 1932): 384.
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- 21. Lt Col R. H. Beadon, "The Iraqi Army," RUSI Journal, May 1926, 343–54.
- 22. For a good example of a typical punitive operation in the British Empire during the nineteenth/early twentieth century, see Winston Churchill, *The Story of the Malakand Field Force* (1898; reprint, New York: W. W. Norton & Co., 1989). The book is Churchill's personal account of an expedition in which he took part.
- 23. Wing Comdr J. A. Chamier, "The Use of Air Power for Replacing Military Garrisons," *RUSI Journal* 66 (February–November 1921): 205–12, especially 210.
- 24. Cited in Towle, 20.
- 25. lbid.
- 26. lbid., 20-21.
- 27. lbid., 19–20; see also Omissi, 182.
- 28. Omissi, 182.
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- 44. Ibid., 55.
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- 61. Omissi, 153.
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- 64. lbid., 167.
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- 67. See Liddell Hart, especially chap. 7, "*Air and Empire*: The History of Air Control," 139–61. Liddell Hart, who accepted all of the RAF's positions on air control, was an enthusiastic supporter. As military correspondent for the *Daily Telegraph*, Liddell Hart was in a good position to influence the public and politicians.
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- 70. Cited in Hoffman, 32-33.
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- 72. Lt Col David J. Dean, *Project Control: Creative Strategic Thinking at Air University*, CADRE Papers (Maxwell AFB, Ala.: Air University, August 1985), 3.
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- 85. Salmond, 492.
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### CONTRIBUTOR

Dr. James S. Corum (BA, Gonzaga University; MA, Brown University; MLitt, Oxford University; PhD, Queen's University) is professor of comparative military studies at the School of Advanced Airpower Studies, Maxwell AFB, Alabama. A previous contributor to Aerospace Power Journal, he is the author of *The Roots of Blitzkrieg: Hans von Seeckt and German Military Reform* (University Press of Kansas, 1992), *The Luftwaffe: Creating the Operational Air War*, 1918–1940 (University Press of Kansas, 1997), and (with Richard Muller) *The Luftwaffe's War of War: Luftwaffe Doctrine*, 1910–1945 (Nautical and Aviation Press, 1998). Dr. Corum, a lieutenant colonel in the Army Reserve, is a graduate of Army Command and General Staff College and Air War College.

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### The Myths of Air Control and the realities of Imperial Policing

### By Group Captain Peter W Gray



he concept of 'air control' has long had considerable appeal to advocates of air power from its inception in the cash-starved days immediately after the Great War through to present times when the more extreme exponents of our art cite it as an early example of air power 'doing it alone'.<sup>1</sup> The term 'air control' is almost invariably used to refer generically to the activities undertaken by the Royal Air Force in the far-flung corners of the Empire in the interwar years. Notwithstanding the existence of several worthwhile studies on the role of air power in these areas, many myths have arisen over the intervening years. Some of these myths were deliberately generated at the time, either to inflate the omnipotence of air power, or to denigrate it. It has been the subject of academic research in its own right and has long been a popular subject for journal articles and staff college papers as will be evident from the footnotes to this paper.<sup>2</sup> Part of the debate has been healthy, but some is less so as generalisations have often been made in order to draw modern parallels where none exist. The use of Iraq as a common venue can be positively unhelpful. The distaste, or embarrassment, felt by some authors over the Imperial aspects of the subject and the period does little to aid understanding.

This paper seeks to outline the wider geo-strategic issues that were extant when air policing was in vogue with appropriate reference to the political priorities and niceties of the time. These latter factors will inevitably acknowledge the inter-Service rivalries – particularly for funding. The paper will also examine the various facets and the realities of air policing. As Sir John Slessor makes abundantly clear in *The Central Blue*,<sup>3</sup> these roles extended far beyond the traditional concept of air control,



### THE GEO-STRATEGIC ENVIRONMENT AND THE ROLE OF AIR POWER

As has already been suggested, the continuing struggle against Saddam Hussein tends to focus the mind of the modern analyst towards Mesopotamia as the central example of air policing in general and air control in particular. The reality is that the wider issues implicit in air policing were applicable from Great Britain and Ireland through Palestine and Africa to India. The political situation was different in each region as were the strategic imperatives. It should therefore go without saying that the missions facing Imperial forces (not just the British troops) were different, as were the threats.

Key to an understanding of the environment of those lean years is an overview of the economic situation. By mid-way through the First World War it was evident that the material costs would be unprecedented. The countries on whose territory the war was fought clearly endured the costs of the physical destruction of hundreds of thousands of homes and farms. Similar havoc was wrought on miles of roads, railways and telegraph lines. Livestock was slaughtered and vast tracts of land rendered unusable for agriculture. The actual monetary value of the munitions expended was greatly exacerbated by the hidden costs involved in refiguring industry onto a wartime footing and then returning it to peace – turning ploughshares to swords and then back again does not come cheap. These costs escalated rapidly with the unprecedented application of science and technology into areas such as shipbuilding, tanks and the aircraft industry. Shipping losses were huge. The human costs were horrendous with 8 million servicemen killed, 7 million permanently disabled and a further 15 million wounded in some way. Civilian casualties

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amounted to at least 5

Britain lost 6.3% of her male population (723,000) a significant proportion of whom were from the social elite (28% of those going up to Oxbridge in 1910–1914 died in the War).<sup>5</sup> The manpower requirements had caused Britain to draw deeply from the resources of the Empire as well as from home – nearly one third of British manpower came from abroad. Not only were India

and the Dominions galvanised by the need to provide troops; the pace of industrialisation in these countries was also considerably accelerated. There was inevitably a price to pay with food shortages, inflation and consumption of raw materials resulting in a concomitant need for closer British control. These factors in turn fuelled discontent.

A rather bizarre combination of German anti-colonial propaganda, American idealism and Oxbridge educated lawyers (preaching the virtues of self-determination back in their own countries) fanned the flames of revolution from Mesopotamia to Egypt and beyond to India

The macro-political costs of the conflict were therefore significant. Labour disputes contributed to the growth of nationalist **40** movements, accelerating moves towards self-determination. Clamour for democracy found voice in the mass parties that were being formed. A rather bizarre combination of German anti-colonial propaganda, American idealism and Oxbridge educated lawyers (preaching the virtues of self-determination<sup>6</sup> back in their own countries) fanned the flames of revolution from Mesopotamia to Egypt and beyond to India.<sup>7</sup>

Thoughts in Whitehall in 1919 would have been largely shared between domestic matters and concern over the Empire – Europe was by no means as central as it was to become in later years. A combination of wishful thinking, economic necessity and opportunism gave rise to a defence policy based on there not being a war in Europe for the foreseeable future - ten years or more. All planning was therefore based on this premise. The primary function of the Army would be Imperial policing and maintenance of law and order at home for the next decade.<sup>8</sup>

By 1916, it was evident that the Great War would see an end to the Ottoman Empire. Britain and France therefore completed a secret agreement partitioning the former Turkish provinces. The resulting Sykes-Picot Treaty of 1916 set up planned zones of influence with either independent Arab states or confederations thereof 'under the suzerainty of an Arab chief'. In their respective areas of influence, Britain and France would have 'priority of right of enterprise and local loans' and would be the sole suppliers of advisers or 'foreign functionaries at the request of the Arab State or Confederation of Arab States'. Britain was absolutely determined that its routes to India would not be jeopardised by instability, misrule or foreign intervention (Turkey or Russia). Furthermore, increasing dependence on oil reserves with the wane of the age of steam meant that the region was, even then, taking on its own strategic importance. But it is evident that the chosen modus operandi was not just a simple acquisition of territory – economic activity and strategic stability did not require such a blunt approach. The League of Nations mandate resulted in Syria and the Lebanon going to France; Mesopotamia and Palestine went to Britain. The theory was that Britain or France would act as if they were guardian (to a child) while the League acted as a Board of Trustees.<sup>9</sup> Under international law, however, the mandate was not merely annexation.<sup>10</sup> Article 22 of the Covenant of the League of Nations expressed the degree of responsibility of the mandatory power as 'the well being and development of such peoples form a sacred trust for civilisation'. The mandated territories were effectively self-governing, even though they received considerable 'political support' from the mandatory authority.<sup>11</sup> In practical

By 1916, it was evident that the Great War would see an end to the Ottoman Empire. Britain and France therefore completed a secret agreement partitioning the former Turkish provinces

terms, as is evident from Sir John Salmond's description below, this was how business was conducted. In the case of Iraq, this method of self-governance provided a transition from the days of Ottoman to Britain relinquishing its mandate in 1930 on formal independence – albeit as a formal signatory to the Anglo-Iraqi Treaty. Inevitably, this Treaty in Iraq and its companion six years later with Egypt, did little to meet the more extreme demands of Arab nationalism.

The Balfour Declaration of November 1917 pledging a future Jewish homeland was plainly incompatible with the rising demands of Arab nationalists. Nor was the situation eased by President Wilson's utterances on self-determination



Stability in the middle-east was inevitably complicated by the Jewish question. The Balfour Declaration of November 1917 pledging a future Jewish homeland was plainly incompatible with the rising demands of Arab nationalists. Nor was the situation eased by President Wilson's utterances on self-determination. Neither these fine sentiments, nor the Treaty of Versailles, brought concrete gains for Arab nationalists or wider stability. Repatriation of thousands of British troops at the end of the War meant that the region would remain at best volatile.

### Great Britain and Ireland

It may seem questionable to start a consideration of Imperial air policing with the home front. But the reality has always been that events at home have considerable priority and solutions devised will have some primacy. The popular perception of a loyal and motivated domestic population

The popular perception of a loyal and motivated domestic population wholeheartedly supporting the war effort tells, at best, only part of the story. Coal and rail strikes were almost commonplace. Conditions in the munitions factories were such that strikes were frequent...

wholeheartedly supporting the war effort as the Great War drew to its successful conclusion tells, at best, only part of the story. Coal and rail strikes were almost commonplace. Conditions in the munitions factories were such that strikes were frequent with, on one occasion, tank production grinding to a halt.<sup>12</sup> Contributory factors included allegations of profiteering, seemingly arbitrary transfers of personnel between factories and the ever42 increasing demands of the draft. Support for the small, but active, Communist Party was evident. Notwithstanding the rather dubious sympathies of some its members, the armed forces were used to uphold a political and social order that was no longer immutable. As early as December 1917, aircraft were used to drop leaflets to aero-engine workers urging them to end their strikes.<sup>13</sup>

Euphoria following victory was short lived in the economic conditions of the time. After the War, a major rail strike threatened to disrupt totally the postal system in Britain. Aircraft were used to fly urgent despatches to 76 administrative centres thereby ensuring that contact was maintained between the police and central government. In an early example of the use of air power in information operations (or psyops) copies of *The Times* were distributed to administrators in the provinces. This exercise was repeated during the General Strike of 1926. Bombers from 9 and 58 Squadrons delivered 1,377,000 copies of the *British Gazette*.<sup>14</sup> In some areas, hostility to the middle classes, and their reading proclivities, was so great that bundles of newspapers had to be dropped from the air.

By the summer of 1920, two squadrons of aircraft had been deployed to Ireland. Mail drops were carried out along with regular patrolling duties. The presence of aircraft had something of a deterrent effect on the Irish Republican Army. Frustration over the flexibility of the terrorists was such that there were frequent calls for armed aerial intervention – Churchill had demanded the use of aircraft against Sinn Fein members involved in drill in order 'to scatter and stampede them'.<sup>15</sup> Such requirements were strongly resisted, not least by Trenchard himself.<sup>16</sup> This may have been because he could see that a successful outcome was unlikely and he was unwilling to attract the criticism for his air arm that would inevitably follow. In the event, armed patrols were eventually sanctioned, albeit under strict regulation, and few hours were actually flown.<sup>17</sup>

### **Mesopotamia**<sup>18</sup>

The fall of the Ottoman Empire and the widespread rise of nationalism that followed threatened Britain's trade routes to and from India. Stability could not, however, be guaranteed by diplomatic means alone and garrison forces were required in many critical locations. Notwithstanding the evident potential for trouble, Churchill as Secretary of State for War and Air warned that the garrison in Mesopotamia would



of aircraft against Sinn Fein members involved in drill in order 'to scatter and stampede them'

have to be cut from its existing level (25,000 British and 80,000 Indian troops).<sup>19</sup> His attempts to find novel, and cheap, 43 solutions fell on ground as stony as the desert. Even after the first round of cuts, the garrison was still costing over £18 million per year. In mid-February 1920, Churchill asked Trenchard if he would be prepared 'to take Mesopotamia on'. The deal would involve the reduction of the standing garrison to 4,000 British and 10,000 Indian troops, but with an Air Officer as Cin-C and an extra £5 million on the air estimates. The Air Staff plan envisaged ten squadrons mainly based around Baghdad.

Arab nationalism spread during 1920 with a revolt in Syria followed by public protests in Mesopotamia. Reinforcements had to be brought – at considerable cost – from India. Order was subsequently restored by methods that probably made the activities of the paramilitary Black and Tans in Ireland seem rather tame. The efficacy of air power was hotly contested with army accusations that the use of aircraft had been instrumental in provoking the crisis. Trenchard countermanded that deployment of sufficient air power would have had the necessary 'morale effect' to prevent the rebellious outbreak.<sup>20</sup> Admittedly with the benefit of hindsight, Lt Gen Sir Aylmer Haldane, who had been C-in-C in Mesopotamia at the time of the rising, stated;

'I must not omit to state that I had a few aeroplanes, which during the insurrection were increased by a squadron. Those available did invaluable work and, had I had sufficient at the outbreak of the rising I am inclined to think that it might have been possible to stifle or perhaps localise it.'21

It is worthy of note that Haldane had agreed to speak at RUSI because he had 'been struck by the almost complete ignorance regarding the occurrences' in Mesopotamia after the Armistice. That lack of knowledge had not been reflected by an absence of rhetoric!

With doctrinal and practical disputes running continuously between Army and Air Force it appeared as if compromise would be impossible. Churchill, however, still needed to reduce costs. He held a conference in Cairo in March 1921 at which a system of 'air control' was proposed. After the inevitable round of bickering, his proposals went before the Cabinet in August 1921 with the suggestion that eight squadrons take over the policing duties in October 1922. They would be supported by 2 British and 2 Indian battalions, 3 companies of armoured cars and various ancillary units. (On the due take-over date there were actually 9 battalions.)

Air Vice-Marshal John Salmond took over as AOC in less than auspicious circumstances. The Turks were threatening the northern province of Mosul and the Kurds were fighting a guerrilla war in Sulaymaniyah. A small-scale bombing attack on Turkish positions achieved striking success that was quickly capitalised on by Iraqi levies.<sup>22</sup> The air control method was very much a joint operation involving considerable co-operation between air and land assets, often with the Royal Air Force ferrying troops, dropping supplies and evacuating the wounded – as well as bombing. By May 1923, Salmond had achieved what Maurice Dean has described as a 'tremendous victory'.<sup>23</sup> For those unfamiliar with the 'finer points' of air control, a part of Salmond's despatch to Trenchard gives the details and is repeated below:

'No action is ever taken (wrote Salmond) except at the request of the British civilian adviser on the spot, and only after this request has been duly weighed by the (Iraqi) Minister of the Interior and by the British Adviser and by the High Commissioner (in Baghdad). Even after a request has passed this three-fold scrutiny, I have on more than one occasion, as the High Commissioner's chief Military Adviser, opposed it on the military grounds that I did not consider that the offensive action which I had been asked to take would lead to the result desired; and His Excellency has always acceded to such advice on the acknowledged basis that I am more perfectly acquainted with the effects it may be expected to achieve...

It is a commonplace here that aircraft achieve their results by their effect on morale, and by the material damage they do, and by the interference they case to the daily routine of life, and not through the infliction of casualties. The casualties inflicted have been most remarkably small. A tribe that is out for trouble is well aware when the patience of Government has reached breaking point; and negotiations inevitably end in what is in effect an ultimatum in some form or other. Complete surprise is impossible and the real weight of air action lies in the daily interruption of normal life which it can effect, if necessary for an indefinite period, while offering negligible chances of loot or of hitting back....

It (air action) can knock the roofs of huts about and prevent their repair, a considerable inconvenience in winter time. It can seriously interfere with ploughing or harvesting – a vital matter – or burn up the stores laboriously piled up and garnered for the winter. By attacks on livestock, which is the main form of capital and source of wealth to the less settled tribes, it can impose in effect a considerable fine or seriously interfere with the actual sources of the tribe – and in the end the tribesman finds it is much the best to obey the Government.'

Occasionally the house or fort of a rebel leader like Sheikh Mahmud would be selected as a target of individual attack and this called for a high degree of bombing accuracy. Otherwise it was unnecessary, and indeed undesirable, to inflict serious or extensive damage. The object was really the air blockade of the recalcitrant village by means of intermittent light attacks,



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By 1925, air control had effectively maintained the British influence in Mesopotamia – at a significantly reduced cost. It had also contributed considerably to the survival of the RAF

which were never delivered without due warning to the villagers so that they could leave their dwellings. After they had surrendered, troops or police would be flown in, with medical staff, to restore order, stop looting, treat the sick and the injured, distribute food and rehabilitate the area generally.<sup>24</sup>

Success in Mesopotamia was influential in convincing the Salisbury Committee that the

fledgling Service should remain in being. The acrimony between Army and Air Force remained bitter at the highest of levels with inevitable comments on the primacy of the bayonet (from Lord Derby the Secretary of State for War) as well as accusations of brutality. MRAF Sir John Slessor cites Sir John Salmond with approval in pointing out that casualties on both sides were considerably lower under air control.<sup>25</sup> The relative impunity with which aircraft could operate was a constant feature in the lists of virtues – particularly in comparison with cumbersome land operations.<sup>26</sup> By 1925, air control had effectively maintained the British influence in Mesopotamia – at a significantly reduced cost. It had also contributed considerably to the survival of the RAF. The euphoria surrounding these two rather momentous statements should not detract from the reality that it was the broader concept of air policing – allied with conventional diplomacy at ground level – that had stabilised a potentially disastrous situation. We pretend at our peril that air did it alone!

### **Palestine**

The situation in the second mandate – Palestine – was somewhat less emotive on the military front, because the War Office did not consider the region to be as strategically important as Mesopotamia. There was therefore less resistance to Churchill's proposal to extend air control in this area. Furthermore, the survival of the new Service would not be guaranteed by the actions of the single squadron that Churchill proposed to send. During the Jaffa riots of 1921 some bombs were dropped to protect Jewish Settlements from Arab raids. An AOC took Command in May 1922, but by the mid-1920s, patrolling borders was the main occupation.<sup>27</sup> Again political influences and economic factors played their parts. Article 4 of the 1922 Mandate for Palestine established a 'Jewish Agency' as the appropriate 'public body for the purpose of advising and co-operating with the Administration of Palestine in such economic, social and other matters as may affect the establishment of the Jewish national home and the interests of the Jewish population'. Over the period of the inter-war years Jewish immigration increased with the population growing from 11% in 1922 to 30% in 1940.<sup>28</sup> The authorities had the task of balancing Arab nationalist aspirations with this influx from Europe and Asia.

Increased Jewish immigration in 1928 caused tension in Arab circles which was followed by attacks on Jewish settlements. The garrison at that stage had been reduced to aircraft, armoured cars and police. Inevitably, they were unable adequately to police the urban rioting. Air power was used for patrolling outlying areas, defending convoys, attacking looters and flying reinforcements. Further riots in the mid-1930s again had to be suppressed on the ground and control (and Command) passed to the Army. Air power continued to be used until the end of the mandate, albeit largely in a support role.

The defence of India, and more importantly its borders, was a matter of critical importance to Imperial Britain. Although internal unrest was of considerable concern, and aircraft were used briefly in this role, the Air Ministry was at its most active in defence of the Frontier



### 46 India

The defence of India, and more importantly its borders, was a matter of critical importance to Imperial Britain. Although internal unrest was of considerable concern, and aircraft were used briefly in this role, the Air Ministry was at its most active in defence of the Frontier. There was no real attempt to coerce the indigenous tribes into accepting Indian administration, the priority was maintenance of stability – in effect an early form of peacekeeping. Air power was used in force in operations in 1925 with more than 2,000 hours flown and over 150 tons of bombs dropped.<sup>29</sup> Trenchard immediately proposed that the existing six Squadrons be increased to ten, with a corresponding reduction in battalions. This was not accepted, and sporadic action continued. Further proposals in 1929 met similar results. Beyond the usual Army resistance, the nature of Imperial life in India ensured that little progress could be made. The government of India was loath to embark on the risky course of entrusting vital Frontier defence to new-fangled aeroplanes – particularly if the *quid pro quo* was widespread unemployment among Indian Army officers and a reduction in their treasured policy of road building. Although Trenchard had negotiated direct access for the AOC to the Viceroy, the Royal Air Force was a lowly 23rd in the rigidly adhered to order of precedence.<sup>30</sup> 'Bomber' Harris – as one of the Squadron Commanders – wryly made the point that having to follow the Army pack mule transport made the going rather heavy! Furthermore, the local air staff comprised 15 officers in marked contrast to the hundreds in the Army HQ in Delhi. Harris's frustration over lack of resources and poor tactics led to him being so disillusioned that he resigned from the Service; only Salmond's intervention stopped him from settling in Rhodesia as a farmer.<sup>31</sup>

There was therefore little prospect of Trenchard achieving air control primacy on the Frontier. Those actively involved in operations were consistently frustrated by the overly prescriptive rules imposed by conservative (i.e. out of date) army headquarters staff. Slessor was also adamant that closer co-operation was essential between the squadrons and the troops that they were supporting.<sup>32</sup> Again air operations went far beyond mere bombing raids against mountain tribesmen. The efficiency of their operations, however, was often hindered by the age, condition and obsolescence of the equipment.

### The Realities of Imperial Air Policing Operations

The first point that must be re-emphasised is that Britain, its Empire and the majority of her allies were in relatively dire economic straits at the end of the Great War. The War itself had wrought considerable financial and physical damage. Technology, and the rising of cost of mobilising manpower, had made armed conflict, and the prevention thereof, expensive propositions. The Great War had also encouraged the spread of nationalism and increased social expectations. The era of imperialism was ever more rapidly coming to its close. The negotiations leading up to Versailles, coming as they did on top of fine promises made, or imagined, in the heat of war raised expectations that could not be met. Self-determination was to remain a source of hope for nationalists and a bane for those charged with administering empires on decreasing budgets. The requirements for Imperial defence, as well as for policing operations, were therefore increasing rather than the other way round.

The struggle for their due share of the defence expenditure has always been high on the military list of priorities. It is not at all surprising therefore that both the Navy and the Army would resent every penny spent on the third arm

Government defence policy centred on this role in the absence of a credible European threat; as neither a resurgent Germany nor a return to animosity with France seemed likely, national affinity for matters of the Empire could take priority.

Imperial policing was a major, if not the most significant, defence task for all three services. The Army, along with Imperial forces and locally raised levies was constantly involved. The Royal Navy was charged with protection of the sea and trade routes. It was only natural that the fledgling Royal Air Force would seek a role in the work at hand. The centrality of these tasks to the *raison d'etre* of the armed forces is hard now to grasp with our later focus on home defence and then NATO. But it is evident from the biographies of the RAF's senior leadership that such postings were regular occurrences.<sup>33</sup>

The struggle for their due share of the defence expenditure has always been high on the military list of priorities. It is not at all surprising therefore that both the Navy and the Army would resent every penny spent on the third arm. It is equally unsurprising that Trenchard and his senior colleagues would employ all means to ensure its survival. Whilst this is well-trammelled ground, it is important to note that what was in dispute was not the immediate use of air power. What was contentious was that the Royal Air Force needed to exist as a separate Service in order to provide that capability at the front line. At the time, it appeared that this could only be justified if air power could claim outright primacy with its own people as the C-in-C, or with independent access to the political authority of the country or mandate concerned. Anything less than this would have undermined the chances of survival. This is not the same as more recent arguments advocating that air power can 'do it alone'. Nor do many of the 'air control' arguments rest on the use of the bomber acting against strategic targets – although this was suggested from time to time (for example, over Kabul). Ironically, the real debate was not about air power doing it alone – it was more about air in the lead. This can best be illustrated using the expression of 'air control' as meaning air as supported commander – i.e. in control of the whole operation.<sup>34</sup>

To the modern reader, who has almost certainly joined his or her own Service and remained largely within its 'stovepipe' of influence – or at least within its 'comfort zone', the prospect of an airman taking direct control of all operations may seem strange. This, in part, reflects a noticeable tendency on the part of airmen to feel uncomfortable at the prospect of disposing of the assets of the other Services.<sup>35</sup> The senior Royal Air Force officers of the inter-war years would have had less compunction in such matters. The vast majority started their military careers in the army and would have been trained accordingly. Trenchard, for example, served in India in the Royal Scots Fusiliers where he proved himself to be an excellent horseman.<sup>36</sup> Similarly, Dowding joined the Army as an artilleryman and Salmond served in the West African Frontier Force.<sup>37</sup> Slessor's four years at the Army staff College at Camberley would have given him more than a mere insight into operations. Taking responsibility for the joint force would present few problems to such men.

# 48 Familiarity with the modus operandi of the other Services is much easier to achieve – especially at the operational or tactical level. First hand accounts, from the likes of Slessor, illustrate the extent to which the Services could act in harmony...

Familiarity with the *modus operandi* of the other Services is much easier to achieve – especially at the operational or tactical level. First hand accounts, from the likes of Slessor, illustrate the extent to which the Services could act in harmony, when there is a willingness to make full use of the potential of air. Harris's experiences show the dangers of relegating air to an under-resourced and dormant support role. This has a clear resonance with many operations today.

Much of the contemporary debate on the efficacy of air control was at the military strategic level – rather than at the tactical where problems could, theoretically, be relatively easily resolved. Part of the acrimony stemmed purely from the airmen's need to secure command positions in the scramble for the survival of the Service. Relinquishing these positions of power was anathema to the Army, both for reasons of pride and to prevent the new arm gaining a toehold. Modern controversy over 'star counts' again has some resonance. The debate went far beyond the confines of these issues, even though they almost certainly underlay much of the controversy. Nor did the discussion revolve solely around the military efficiency of a given arm in any one situation – although this was contested on many occasions. The ethical and moral aspects of the situation were frequently mobilised – often with little attempt at veiling the underlying hypocrisy.

The air method was often criticised as being brutal and that it caused resentment on the part of the victims. There were frequent accusations of 'indiscriminate bombing'. Sir Henry Wilson, as Chief of the Imperial

General Staff, spoke in rather contemptuous terms of 'the bomb that falls from God knows where and lands on God knows what'.<sup>38</sup> Another line of rhetoric that holds some resonance in the aftermath of Kosovo! Slessor goes to some lengths to convince his reader that the attacks were neither indiscriminate nor brutal. He also points out that the rules extant in one theatre of operations allowed the, presumably rather brutal and fairly indiscriminate, shelling of villages, but did not countenance air attack. No one would pretend, however, that accidents did not occur or that many bombs did miss their targets. But the environment in which the operations took place was comparatively Hobbesian – life was brutal, uncomfortable and relatively short.

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### Modern Lessons?

If one is to attempt to draw modern lessons from the British military (not just the Royal Air Force) experiences of Imperial policing, it is important to strip away the rhetoric and look beyond the internecine bickering. Many of the lessons at the grand strategic level merely reflect the economic and political realities of an Empire in terminal decline where commitments and responsibilities continue to have to be met with declining resources. To suggest that any military force, let alone air power, can instantly resolve the problems of self-determination is either naïve or demonstrative of wishful thinking.

The lessons drawn also have to be viewed in the context of their times when the Empire was central to British foreign and domestic policy. This may not have universal appeal in these days of political correctness, but they were the reality of the day. At the military strategic level, what could have been a healthy doctrinal debate over the best use of military force in a vast range of potential scenarios rapidly degenerated into a morass of dogma. If one modern lesson is to be drawn from the period of Imperial policing and air control, it is the avoidance of such a futile debate.

To a lesser extent, this applies at the operational level where there was, in modern parlance, the distinct risk of spending more energy in deciding who was to be the 'supported', and who was the 'supporting commander' than in concentrating on the

### If one modern lesson is to be drawn from the period of Imperial policing and air control, it is the avoidance of such a futile debate

military task in hand. The second significant, and related, lesson at the operational level also involves the avoidance of dogma – particularly at the extremes of the spectrum where advocates either suggest that air power 'can do it alone' or that only the bayonet can triumph. Commanders and their teams, of whatever cloth, need to be aware of each other's doctrine and must be comfortable with capabilities and limitations. From the airmen's perspective, there is more to modern air power than just precision weaponry. This may sound like a truism, but so much of the debate on the inter-war role of the Royal Air Force has centred on air control – to the exclusion of other tasks – that it is worth reiterating. Slessor stressed the point that aircraft were used extensively in direct co-operation with land forces; in reconnaissance duties; patrolling convoys; photographic survey and map-making; civilian evacuation; medical re-supply and evacuation; anti-slavery patrols; famine relief; fishery protection; troop transport; and the development of air routes. The lesson that advocates of air power should be drawing from this list is that the ubiquity and flexibility of air power renders it a key asset to any commander. Many of the tasks facing us today chime with the roles enumerated by Slessor, reminding us that the missions in the core capability now termed combat support air operations are under-resourced at our peril.<sup>39</sup>

Any discussion on lessons learned, or as has become more fashionable – lessons identified, must be tempered with the acknowledgement that lessons are more often forgotten. Those that are remembered must be applied with the precision of a



50 legal precedent – only in directly equivalent circumstances. Trenchard was well aware at the time that what was good in Mesopotamia may not be directly transferable to, say, an urban environment in Ireland or Palestine.<sup>40</sup> What is often more important than expecting lessons to be transferred from theatre to theatre is the accumulation of experience based on credible analysis of events. If the aftermath of an incident is dominated by rhetoric and recriminations the emotion of the moment is more likely to lodge in the memory than the analysis. Rhetoric is therefore best left to journalists and armchair pundits.

The spectrum of conflict is as wide today as it was in the inter-war years. There was an implicit danger at the time that the rhetoric necessary to ensure the survival of the fledgling Service would be internalised during the formulation of the strategy needed to counter the emergent Nazi Germany. Notwithstanding the personal experiences of officers who subsequently joined the Air Staff, the linkage between 'air control' and emerging strategy has not been proven.<sup>41</sup> The range of works covering British inter-war strategy tends to emphasise the role of the bomber in relation to cities and industry rather than tribesmen.

Finally, the advocate of the 'air power can do it alone' school would be well advised to read Trenchard's paper to the Imperial Defence College – 'The War Object of an Air Force'. In this seminal work, Trenchard expressed the inevitability of aerial bombardment in the war of the future, and that this was likely to be done without scruple and that it would not be restricted to the zones of opposing armed forces. In language that is a far cry from the lessons of the colonial wilds, Trenchard went on to state that:

*`..attacks will be directed against any objectives which will contribute effectively towards the destruction of the enemy's means of resistance and the lowering of his determination to fight. These objectives will be military objectives. Among these will be comprised the enemy's great centres of production to every kind of war material, from battleships to boots, his essential munitions factories, the centres of all of his systems of communication and transportation, his docks and shipyards, railway workshops, wireless stations, and postal and telegraph systems.<sup>42</sup>* 

Trenchard does not rule out air-to-air combat, nor does he preclude attacks on air bases; he just points out that these will not necessarily be the vital areas. Most importantly, Trenchard states that he has no wish to imply that:

'Air by itself can finish the war'.

### NOTES

1 Whilst not necessarily extreme, see the views expressed in Carl Builder, 'Doctrinal Frontiers', Airpower Journal, Winter 1995, pages 1- 6., and Major Marc K Dippold, 'Air Occupation: Asking the Right Questions', Airpower Journal, Winter 1997, pages 69 – 84. The role of air power in general and in the far-flung corners of the Empire was a regular subject in the Royal United Services Institute (RUSI). In addition to the notes below see also Wg Cdr J A Chamier, 'The Use of the Air Force for Replacing Military

Garrisons', JRUSI, LXVI, 1921, page 205; Gp Capt J A Chamier, ' Strategy and Air Strategy'; Flt Lt C J Mckay, 'The Influences of the Future of Aircraft on Problems of Imperial Policing', JRUSI, LXVII, 1923, page 274.

For serious works on the subject the reader should start with either David E Omissi, Air Power and Colonial Control: The Royal Air Force 1919 – 1939, Manchester University Press, Manchester, 1990 or the relevant chapters in Philip Anthony Towle, Pilots and Rebels: The Use Aircraft in Unconventional Warfare 1918 –1988, Brasseys, London, 1989.

- 3 MRAF Sir John Slessor, *The Central Blue: Recollections and Reflections*, Cassell, London, 1956, page 53 *et seq*.
- 4 All figures taken from Paul Kennedy, *The Rise and Fall of the Great Powers: Economic Change and Military Conflict from 1500 2000*, Fontana, London, 1989, page 360.
- 5 David Reynolds, *Britannia Overruled: British Policy and World Power in the 20th Century*, Longman, London, 1991, page 105.
- 6 Self-determination is a dangerous phrase with connotations of breaking down or reforming supposed nation states. A plethora of International Law textbooks deal with the subject, as does the author's unpublished M Phil thesis, *The Impact of the Dissolution of Yugoslavia on the International Law of Self-Determination*, University of Cambridge, 1995.
- 7 Kennedy, *ibid*, page 369.
- 8 See for example John Charmley, *Churchill: The End of the Glory*, BCA, London, 1993, page 163.
- 9 Lawrence James, *The Rise and Fall of the British Empire*, Abacus, London, 1998, page 399.
- 10 See M N Shaw, *International Law*, third edition, Cambridge, 1991, page 156 and Ian Brownlie, *Principles of Public International Law*, fourth edition, OUP, Oxford, 1990.
- 11 See for example the King-Crane Commission Report, 28 August 1919.
- 12 Described in Martin Gilbert, *Churchill, A Life*, Heinemann, London, 1991, pages 392 393.
- 13 Omissi, Air Power and Colonial Control, page 40.
- 14 Omissi, Air Power and Colonial Control, page 41.
- 15 Gilbert, Air Power and Colonial Control page 422.
- 16 Andrew Boyle, Trenchard, Collins, London, 1962, page 370.
- 17 Omissi quotes 10 out of 338 in April 1921, Air Power and Colonial Control, page 43.
- 18 In the hope of detaching events in the inter-war years from those of today, Meopotamia has been used in preference to Iraq.
- 19 Omissi, Air Power and Colonial Control, page 21.
- 20 Omissi, Air Power and Colonial Control, page 24.
- 21 Lt Gen Sir Aylmer Haldane, 'The Arab Rising in Mesopotamia', *JRUSI*, LXVIII, 1923, page 68.
- 22 Omissi, Air Power and Colonial Control, page 32.
- 23 Sir Maurice Dean, *The Royal Air Force and Two World Wars*, Cassell, London 1979, page 37.
- 24 Salmond to Trenchard, 29 September 1923; Trenchard Papers, C11/27/143/2.
- 25 Slessor, *The Central Blue*, page 67.
- 26 Group Captain A E Borton, 'The use of Aircraft in Small Wars', *JRUSI*, LXV, page 310.
- 27 Omissi, Air Power and Colonial Control, page 44.
- 28 Martin Gilbert, Israel: A History, Doubleday, London, 1998, page 50.
- 29 Omissi, Air Power and Colonial Control, page 48.
- 30 Omissi, Air Power and Colonial Control, page 49.
- 31 Dudley Saward, 'Bomber' Harris, Sphere Books, London, 1984, page 32.
- 32 Slessor, The Central Blue, page, 122.

- For a brief survey, the reader could worse than glance through Air Commodore Henry Probert, High Commanders of the Royal Air Force, HMSO, London, 1991.
- 34 For those military readers unfamiliar with this concept it is laid down in some detail in Joint Warfare Publication 0-10, *United Kingdom Doctrine for Joint and Multinational Operations*, paragraph 538.
- 35 See Lt Col Howard D Belote, Once in a Blue Moon: Airmen in Theatre Command, Lauris Norstad, Albrecht Kesselring, and their relevance to the 21st Century Air Force, Cadre Paper No 7, Air University Press, Maxwell AFB, July 2000.
- 36 Boyle, *ibid*, page 35 et seq. Whatever the shortcomings of Boyle's biography, some of the anecdotes make entertaining reading. These include a clash over polo with the young Winston Churchill whose gamesmanship did not endear the future Prime Minister to the future CAS. Trenchard also had a knack of subsidising his own polo through the judicious buying and selling of ponies.
- 37 Probert, *ibid*, provides details on most senior leaders.
- 38 Slessor, The Central Blue, page 66.
- 39 AP 3000 *British Air Power Doctrine*, third edition HMSO, London, 1999, Chapter 8. The concern that these operations are downplayed was made by USAF General John Jumper in the aftermath to Operation Allied Force in 'Kosovo Victory a Commander's Perspective, *Royal Air Force Air Power Review*, Winter 1999, Vol. 2 No 4, page 2.
- 40 Boyle, *ibid*, page 371. See also Malcolm Smith, *British Air Strategy Between the Wars*, Clarendon, Oxford, page 30.
- 41 See Smith, *ibid*, page 43. H Montgomery Hyde, *British Air Policy Between the Wars* 1918 – 1939, Heinemann, London, 1976, page 167 & 224. Phillip S Meilinger, 'Trenchard and 'Morale Bombing' : The Evolution of Royal Air Force Doctrine before World War II', in *The Journal of Military History*, Vol 60, No 2, page 265. These references tend to be 'negative' in that each provides an opportunity to prove the case that is not taken.
- 42 Reproduced in full in Sir Charles Webster and Noble Frankland, *Strategic Air Offensive Against Germany 1939 –1945*, Vol IV, HMSO, London, pages 71 83.

The

# Missed Opportunity

## 262 Jet Fighter or Impossible Dream?



The turbojet powered Me 262, faster than the RAF's meteor jet-fighter. The aircraft with its powerful 30 mm cannon was seen as a significant counter to the swarms of US heavy bombers.

### **By Dr Alfred Price FRHistS**





he German Messerschmitt 262 jet aircraft, introduced into service during the final year of World War Two, enjoyed a substantial speed advantage over every Allied fighter type in service including the Royal Air Force's Gloster Meteor. Yet there was a wide gap between what was expected from the Me 262 and what it actually achieved. Some commentators have attributed this to ineptitude on the part of Germany's leaders. It has been said they failed to push the production of this aircraft with sufficient vigour, and compounded this failing by misemploying the aircraft as a bomber instead as a fighter. It has even been suggested that had the Me 262 been employed properly World War II might have taken a different course. Those are weighty assertions, but are they true?

### **EARLY DEVELOPMENT**

The Messerschmitt jet fighter began life in 1938, when the Company initiated studies on an aircraft powered by the new turbojet engine being developed by the BMW company. In March 1940 the Luftwaffe awarded a contract for three prototypes of an interceptor powered by two of the new engines, with the official designation Messerschmitt 262.<sup>1</sup> It was estimated that the aircraft would have a maximum speed of 485 knots.

Work on the airframe moved ahead rapidly but the development of turbojet engine, the axial flow BMW 003, proved more difficult. The turbojet ran at much higher temperatures, and at far greater rotational speeds, than previous types of aircraft engine and engineers had to overcome a host of fundamentally new problems.

By the spring of 1941 the BMW turbojet had still not been flight-cleared, so the prototype Me 262 began flight trials fitted with a piston engine in the nose. Late in 1941 the first flight-cleared BMW 003 turbojets arrived, each rated at 1,015 pounds thrust. The piston engine was retained as a back up. On 25 March 1942 test pilot Fritz Wendel took off on the power of all three engines, but soon after getting airborne both turbojets flamed out. Using the piston engine alone, Wendel took the underpowered aircraft in a wide circuit and made a safe landing. Examination of the jet engines revealed several compressor blades had broken off, due to turbulent air from the propeller entering the engines intakes. The compressor had to be redesigned and the delays incurred meant that the BMW turbojet played no part in the Me 262 story.<sup>2</sup>

Meanwhile Junkers was offering its Jumo 004 turbojet for the new aircraft, with a thrust of 1,850 pounds. Two pre-production units were fitted to the Me 262 and on 18 July 1942 Fritz Wendel took the Me 262 into the air for the first time on jet power alone, from the company's airfield at Leipheim in Bavaria. There were no serious problems during the brief 12-minute hop, and later that day Wendel made another short flight.<sup>3</sup>

During the months that followed the Me 262 slowly built up flying time. In 1942 Luftwaffe senior officers regarded the aircraft as an interesting novelty for which they saw no immediate operational use. The main battlefronts were in North Africa or deep in the Soviet Union. There was no serious threat to Germany itself from daylight air attacks. The rugged and reliable Focke Wulf 190 and Messerschmitt 109 fighters could operate from primitive forward airfields and had the performance to deal with any

enemy opposition. Moreover, the German aircraft industry was severely stretched as it tried to build sufficient aircraft to replace those lost in normal attrition. There was little slack in the system to push jet fighter development. A capricious short-range jet fighter, which required long smooth runways and constant attention from maintenance crews, was of little use in the type of war then being fought. To keep abreast of the new technology, however, the Luftwaffe placed an order for fifteen pre-production Me 262s. In October 1942 that order was increased to thirty.

### **ENGINE TROUBLES**

By the end of May 1943 there were three Me 262s flying and these aircraft regularly exceeded 430 knots in level flight. When the Jumo 004 functioned properly the aircraft had a fine turn of

The rugged and reliable Focke Wulf 190 and Messerschmitt 109 fighters could operate from primitive forward airfields and had the performance to deal with any enemy opposition



speed. The turbojets were temperamental, however, and liable to flameout or catch fire if the pilot was over rough with the throttles or if he allowed the aircraft to enter a sideslip.<sup>4</sup>



Quite apart from the problems to be expected with an entirely new production item, the German jet engine designers were limited in the materials they could employ. The Allied economic blockade had left them critically short of several metallic elements, notably nickel and chromium that were essential ingredients for high-temperature-resistant steel alloys.<sup>5</sup>

The turbine blades for the Jumo 004 were manufactured from a steel-based alloy containing some nickel and chromium, though the material used was insufficiently resilient to withstand the very high temperatures and high tensile stresses encountered in that part of the engine. The blades developed "creep", gradually deforming and increasing in length, and when this exceeded a laid-down limit the engine had to be changed.

The flame tubes of the Jumo 004 were formed from mild steel sheet, with an oven-baked spray coating of aluminium to prevent oxidation.<sup>6</sup> This inelegant material did not survive long at the extreme temperatures generated in the hottest part of the 004, and as the engine ran the flame tubes slowly buckled out of shape.

Limited by turbine blade "creep", flame tube buckling and other problems, the pre-production Jumo 004 engines rarely ran for more than ten hours. Then the Me 262 had to be grounded for new engines to be fitted.

### **THE WAR SITUATION CHANGES**

During the first half of 1943 Germany's military situation deteriorated dramatically. On each battlefront in turn, the Luftwaffe had been forced on the defensive. The US Army Air Force had begun mounting daylight attacks on targets in Germany and these had fighter escorts for part of the way. The Me 262, with its powerful armament of four 30-mm cannon, was seen as a strong counter to the US heavy bombers.

With a major development effort now in progress to eradicate the failings of the Jumo 004, the Luftwaffe optimistically anticipated that these problems would soon be solved or at least eased. Accordingly the Me 262 was ordered into large-scale production, aiming for delivery of the first batch in January 1944 and for production to reach 60 aircraft per month by the end of May.<sup>7</sup>

In the spring of 1944 the first pre-production Me 262s were delivered to a service test unit formed at Lechfeld in Bavaria to introduce the Me 262 into service. Still the Jumo 004 had a running life of less than twenty hours, and still the engines required skilful handling. Once the pilot had throttled back on the landing approach he was usually committed to landing. If he advanced the throttles in an attempt to go round again, the slow acceleration of Jumo 004s meant there was a risk of the aircraft hitting the ground before it gained sufficient speed to climb away.<sup>8</sup> During this period the jet engine underwent a number of



<sup>56</sup> incremental changes aimed at curing the various problems. Until that process was complete and shown to effective, the design could not be "frozen" to allow mass production to begin.

### **HITLER'S EDICT**

The Me 262 was still in the service test stage in May 1944, when Adolf Hitler issued his much-publicised order that initially the aircraft was to be employed as a high-speed bomber. To assess the validity of that decision it is necessary to examine the reasons behind it.

Since the previous autumn Hitler had been increasingly worried at the prospect of an Anglo-American invasion of northwest Europe some time in 1944. If the landings succeeded, the German army would be committed to a two-front war against numerically superior enemy forces. Hitler believed, correctly, that if such an invasion was to be defeated it would have to be during the very early stages, before Allied troops could establish defensive positions ashore. If there were fifty or so Me 262s to deliver repeated bombing and strafing attacks on the troops coming ashore, that would add to the inevitable confusion and delay the process of consolidating the beachheads. If the German *Panzer* divisions could then mount counter-attacks before the Allied troops were ready to meet them, it might be possible to hurl the invaders into the sea with heavy losses.

Given the scale of the Allied fighter cover to be expected over the beachhead, only a jet aircraft had the performance to reach the lodgement area and deliver such attacks. The *Fuehrer* had been assured that the Me 262 could carry a couple of 550pound bombs if required, and consequently the aircraft had come to feature prominently in his anti-invasion plans. With its high speed the Me 262 would have been difficult to intercept, and there can be little doubt that it could have performed the task. At Omaha Beach on D-Day, as portrayed dramatically in the film "The Saving of Private Ryan", the landing operation did run into severe difficulties. The additional harassment from jet fighter-bombers strafing the troops coming ashore might well have caused that landing to fail.

The alternative would have been to employ the Me 262 in the air-to-air role over the beachhead. That might have led to lots of exciting but inconclusive fighter-versus-fighter combats. Given

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the overwhelming strength of the Allied Air Forces, however, that fifty or so jet fighters would not have had a decisive impact if used in that way.

Generalfeldmarschall Erhard Milch, the Luftwaffe officer responsible for aircraft production, acknowledged the importance of the Me 262 as a fighter-bomber. Yet he had concentrated his efforts to getting the fighter version into service as quickly as possible. As far as he was concerned, the fighter-bomber version could come later.

On 23 May 1944 Goering, Milch and other senior Luftwaffe officers attended a conference on aircraft production at Hitler's headquarters at Berchtesgaden. When the Me 262 was mentioned the Fuehrer asked, "I thought the 262 was coming as a high-speed bomber? How many of the 262s already manufactured can carry bombs?" Milch replied that to date none had been modified for this purpose, the aircraft was being manufactured exclusively as a fighter. There was an awkward silence, then Milch dug himself further into the pit when he said the new aircraft could not carry bombs unless there were some design changes.<sup>9</sup>

On hearing that Hitler lost his composure and excitedly interrupted his Generalfeldmarschall: "Never mind! I wanted only one 250 kilo [550 pound] bomb." As he considered the implications of what he had been told the Fuehrer became increasingly agitated. Although he had been assured that the Me 262 could carry bombs, none of the early production aircraft could do so. The Allied invasion might be launched in a few weeks and the weapon on which he had pinned his hopes had failed to materialise. Hitler savagely denounced the Luftwaffe officers present, then made Goering personally responsible for ensuring that Me 262 was introduced into service in the fighter-bomber role as rapidly as possible.<sup>10</sup>

The reader should note, however, that at this time the Jumo 004 engine was still not yet ready for mass production. No Me 262s were yet ready to go into action with front-line units in any combat role.

Two weeks after the stormy meeting at Berchtesgaden, on 6 June, Allied troops fought their way ashore at points along the coast of Normandy. By the mid-morning they had established four firm bridgeheads. The opportunity for Me 262 fighter-bombers to play a part in defeating the landings, if it had ever existed, was past.

### THE ME 262 GOES INTO ACTION

Hitler still expected the main Allied invasion to fall in the Pas de Calais area, and he demanded that an Me 262 fighter-bomber unit be made available for combat as soon as possible. At the end of June a nine-plane Staffel with these aircraft formed at Lechfeld. On 20 July the unit was declared operational and it transferred to Chateaudun in France. These Me 262s had two of their 30 mm cannon removed, and had racks fitted under the nose to carry two 550-pound bombs.<sup>11</sup> The aircraft were fitted with pre-production engines, however, and poor serviceability kept most of them on the ground for much of the time. To reduce the risk of the new plane being shot down over Allied territory and its secret engines being captured, pilots were ordered not to descend below 4,000 metres (13,000 feet) while over hostile territory.<sup>12</sup> The aircraft attacked in shallow dives from above that altitude, but this inaccurate form of attack achieved little against battlefield targets such as troop positions, bridges or vehicles.

Also at this time the fighter ace Major Walter Nowotny took command of Me 262 test unit at Lechfeld. Re-named *Kommando Nowotny*, the unit possessed fifteen early-production fighters unsuitable for modification for the fighterbomber role. Here, too, serviceability was poor and rarely would it have more than four of the jet fighters available to fly. *Kommando Nowotny* carried out test interceptions against Allied reconnaissance aircraft and others flying singly. In the course of August the jet fighter achieved its first kills – two Mosquitoes, a Spitfire, a Lightning and a B-17.<sup>13</sup>

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In June 1944, following a series of incremental improvements, the nominal running life of the Jumo 004 at last reached 25 hours. Although the engine's life was still painfully short, given the desperate war situation that was considered sufficient to allow the design to be frozen so mass production could begin. During August and September production engines began to come off the assembly lines in reasonable numbers.<sup>14</sup>

By September 1944 German troops had been evicted from most of France, and it was clear there would be no second invasion. Hitler then rescinded his order that new Me 262s were to be issued only to fighter-bomber units. By then there were more than a hundred Me 262 fighter airframes standing idle awaiting engines, and as the latter became available these aircraft were completed. During that month ninety-one Me 262 fighters and fighter-bombers were delivered to the Luftwaffe, more than in the previous two months put together.<sup>15</sup>

Following the change of policy, *Kommando Nowotny* re-equipped with Me 262 fighters fitted with production engines, and reached a strength of 23 aircraft at the end of September. The unit was declared ready for operations and moved to Achmer



**USAAF P-51 Mustang. Shortly after the** 

German fighter was shot down.

and Hesepe in northwest Germany to operate in the interceptor role.<sup>16</sup> Some published accounts have said that the *Fuehrer's* edict had kept the Me 262 out of the German fighter force for several months, but this was not so. In fact, his decree delayed the operational introduction of the Me 262 in the first fighter unit, *Kommando Nowotny*, by less than three weeks.

In the event the initial operational fighter deployment of the Me 262 with *Kommando Nowotny* proved a failure, but Hitler's edict had nothing to do with that. Although the production Jumo 004s were somewhat more reliable than their predecessors, they still gave a lot of trouble. Also, the Me 262's airframe had its share of "bugs" to be ironed out. One serious problem stemmed from the use of synthetic and reclaimed rubber, all that was available, in the tyres fitted to the aircraft. The jet fighter touched down at around 100 knots, much faster than other combat types. A heavy landing would cause a tyre to blowout, followed by a departure from the runway which often led to undercarriage damage.<sup>17</sup>

Allied fighter pilots soon discovered the Achilles' heel of the German jet fighter: its vulnerability

while flying at low speed immediately after take-off or when committed to the landing approach. The Allies mounted standing patrols over the airfields used by jet fighters, causing almost continual harassment. Moreover, Me 262s climbing to engage Allied bombers were vulnerable to attack from piston-engined fighters diving from above.<sup>18</sup>

...Me 262s climbing to engage Allied bombers were vulnerable to attack from piston-engined fighters diving from above

On 7 October 1944 *Kommando Nowotny* scrambled five Me 262s – the largest number it had yet sent into combat – to engage American bomber formations making for targets in central Germany. Cruising over Achmer at 15,000 feet in a P-51 Mustang, Lieutenant Urban Drew of the 361st Fighter Group watched a pair of jet fighters commence their take-off runs. He waited until the enemy planes were airborne, then rolled his fighter on its back and went down in a high-speed dive. With his wingman following, Drew rapidly caught up with the Me 262s and shot down both before they reached fighting speed. Another jet fighter was lost during a separate action with escort fighters. Thus the first multi-aircraft action by *Kommando Nowotny* cost three Me 262s destroyed and one pilot killed, in return for three American bombers shot down.<sup>19</sup>

In the course of its first full month of operations on the western front *Kommando Nowotny* claimed the destruction of four American heavy bombers, twelve fighters and three reconnaissance aircraft. To achieve this the unit lost six Me 262s in combat plus a further seven destroyed and nine damaged in accidents or following technical failures. It was not an auspicious start for the jet fighter's combat career.

Worse followed. On 8 November Walter Nowotny was caught up in a low level dogfight with Mustangs and for reasons that are unclear his Me 262 dived into the ground. The famous pilot was killed.<sup>20</sup> Generalmajor Adolf Galland happened to be on an inspection visit to Achmer that day, to determine why the Me 262s had not achieved more. The fighter commander saw enough to realise that Nowotny had been given an impossible task. The latter was expected to introduce a completely new and revolutionary fighter type into combat, in an area where the enemy held almost total air superiority. In the unit the level of training was low, serviceability of the jet fighters was poor and rarely could more than five sorties be flown in a day.<sup>21</sup>

Galland ordered the *Kommando Nowotny* to withdraw to Lechfeld for further training, and for the aircraft to be modified to overcome many of their defects. Galland saw that it had been a mistake to send the new fighter into combat prematurely and in such small numbers. To achieve the required impact, a far larger force was necessary.<sup>22</sup> The first full *Geschwader*, with an establishment of ninety Me 262 fighters, had started to form but it was far from ready for operations.

Meanwhile, what of the Me 262 fighter-bomber units? By the close of 1944 two *Gruppen* with a total of about fifty jets were operational. The 4,000-metre altitude restriction had been lifted, and flying in ones and twos the Me 262s delivered nuisance attacks on Allied airfields and troop positions in France, Holland and Belgium. Due to the small number of aircraft involved and the small tonnage of bombs carried, however, these attacks achieved little.<sup>23</sup>

### **DELAYS IN DEPLOYMENT**

By the beginning of 1945 there was no shortage of Me 262s. Deliveries to the Luftwaffe had topped the 500 mark and new aircraft, most of them fighters, were leaving the assembly lines at a rate of about 36 per week.<sup>24</sup> Yet the Luftwaffe Quartermaster General's records for 10 January 1945 show only about sixty Me 262s serving with operational units: 52 fighter-bombers, four used as night fighters and five employed for tactical reconnaissance.<sup>25</sup> No Me 262s were then operational in the day fighter role, some four months since Adolf Hitler had rescinded his edict that the Me 262 be employed only in the fighter-bomber role. What had gone wrong?



By the beginning of 1945 there was no shortage of Me 262s. Deliveries to the Luftwaffe had topped the 500 mark and new aircraft, most of them fighters, were leaving the assembly lines at a rate of about 36 per week In fact three Me 262 day fighter *Gruppen*, each established at thirty aircraft, were being prepared for action. The weather that winter was often poor, and each major US incursion into Germany brought conversion training to a halt. As a result the process of pilot training took much longer than expected. One *Gruppe* had its full complement of aircraft and was working up at airfields in the Berlin area. Two more had also started to form in that area.

Leutnant Walther Hagenah, who converted to the Me 262 early in 1945, described the paucity of the training he received:

"Our 'ground school' lasted one afternoon. We were told of the peculiarities of the jet engine, the danger of flaming out at high altitude, and their poor acceleration at low speeds. The vital importance of handling the throttles carefully was impressed on us, lest the engines caught fire. Yet we were not permitted to look inside the cowling at the jet engine itself – we were told they were very secret and we did not need to know about them!"<sup>26</sup>

During February, Me 262 fighter-bombers went into action several times against Allied troops advancing into Germany. The largest such attack, against British troops near Cleve on the 14th. involved 55 jet fighter-bomber sorties spread throughout the day. Three of the jets were shot down by RAF fighters.<sup>27</sup> The total bomb load carried by the fighter-bombers, about 27 tonnes, inflicted little damage on military targets and the day's attacks received scant mention in British army records.

Early in 1945 the pilots of a bomber unit, *Kampfgeschwader 54*, began converting to the Me 262 to

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operate the aircraft in the fighter role. The unit was redesignated Kampfgeschwader (Jaeger) 54 and some accounts have linked this diversion of Me 262s from "pure" fighter units to Hitler's earlier insistence that initially the type be used as a fighter-bomber. The issues now were quite different, however. To shorten training time and save resources, trainee pilots earmarked for Luftwaffe single-engined day fighter units did not receive formal training in blind flying. Bomber pilots received blind flying training as a matter of course. Following the heavy losses suffered during the previous year, the fighter force was

desperately short of trained pilots. At the same time most conventional bomber units had disbanded, leaving the bomber force with a surplus of pilots. The role of *KG (J) 54* was bad weather interception, for which an ability to fly blind on instruments was essential. The ex-bomber pilots received only a sketchy training in air-to-air combat however, and they would suffer accordingly.<sup>28</sup>

On 9 February *KG (J) 54* scrambled several aircraft to counter a multi-pronged attack by American heavy bombers against targets in central Germany. Escorting Mustangs shot down six Me 262s and killed five of their pilots including the Geschwader commander.<sup>29</sup> For their part the jet fighters inflicted damage on just one B-17. Two weeks later, on the 25th, *KG (J) 54* had another bad day. All told it lost twelve Me 262s: six in air combat, four during an Allied strafing attack on the airfield and two in flying accidents.<sup>30</sup> Thereafter the unit was withdrawn from operations for its pilots to receive further training.

It was late in February before first fully trained Me 262 day fighter *Gruppe* was ready to go into action. On the 21st some fifteen Me 262s fought an inconclusive action with Mustangs over Berlin, without loss to either side.<sup>31</sup>

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### THE FINAL BATTLES

Only in March 1945 did the Me 262 day fighter units start to launch large-scale attacks on American bomber formations. On the 3rd of the month there were twenty-six Me 262 sorties in response to the US attacks on Magdeburg, Brunswick, Hannover and Chemnitz. The jet pilots claimed the destruction of seven bombers and two fighters in return for one Me 262 lost. American records list 9 bombers and 8 fighters lost on that day.<sup>32</sup>

During the next few weeks the US heavy bombers confined their activities against targets in western Germany, beyond the reach of Me 262 units based around Berlin. Walther Hagenah described the problems facing his jet fighter unit when he joined it:

"By the time I reached [the Gruppe] there were insufficient spare parts and insufficient spare engines; there were even occasional shortages of J-2 fuel. I am sure all of these existed and production was sufficient, but by that stage of the war the transport system was so chaotic that things often failed to arrive at front line units".<sup>33</sup>

An experienced fighter pilot with training in instrument flying, Hagenah had converted to the Me 262 with little difficulty. The same could not be said for other, less experienced pilots who arrived at the jet fighter unit:

"In our unit, flying the Me 262, we had some pilots with only about a hundred hours total flying time. They were able to take-off and land the aircraft, but I had the definite impression that they were little use in combat. It was almost a crime to send them into action with so little training. These young men did their best, but they had to pay a heavy price for their lack of experience."<sup>34</sup>

The Me 262 fighter units were next in action in force on 18 March, when a large American force made for Berlin. Thirty-seven jet fighters took off to engage the raiders, and 28 went into action.<sup>35</sup> The Me 262s claimed 12 US bombers and one fighter destroyed; from examination of American records it appears that only eight heavy bombers fell to the Me 262s. Two jet fighters were lost during the action. During each of

On 31 March, a force of 460 Lancasters and Halifaxes set out to strike at the U-boat assembly yards at Hamburg. As the bombers neared the target Me 262s delivered a sharp attack which knocked down three Halifaxes and four Lancasters...





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the following seven days there were pitched battles between Me 262s and American formations, with a similar ratio of losses between the two sides.

The US heavy bombers were the main targets for the Me 262 attacks but they were not the only ones. By this stage of the war the Royal Air Force also mounted frequent daylight attacks on Germany. On 31 March, a force of 460 Lancasters and Halifaxes set out to strike at the U-boat assembly yards at Hamburg. As the bombers neared the target Me 262s delivered a sharp attack which knocked down three Halifaxes and four Lancasters in rapid succession, before the escorts drove off the assailants.<sup>36</sup> Also that day, more than a thousand US heavy bombers attacked Zeitz, Brandenburg, Brunswick and Halle, and these were also engaged by jet fighters.

Me 262s flew 58 sorties that day, the greatest number ever. On the available evidence it appears they shot down 14 bombers and 2 fighters, for a loss of four of their number.<sup>37</sup> That victory score would mark the high-water-mark of achievement for the Me 262 fighter units, and it would never be surpassed. Yet, even on this most successful of days, the losses they inflicted amounted to less than one percent of the huge Allied forces over Germany. The effect was no more than a pinprick.

Also during this period a few Me 262s served in the night fighter role. Based near Madgeburg, the unit's main targets were the previously invulnerable Mosquitoes delivering almost nightly attacks on the German capital. At first single-seat Me 262s were employed, guided on to their prey by searchlights. Later a few Me 262 two-seat trainers became available, hastily fitted with airborne interception radar. Most, perhaps all, of the thirteen Mosquitoes lost at night in the Berlin area during the first three months of 1945 fell to Me 262s.

Early in April a further Me 262 day fighter unit, *Jagdverband 44* commanded by Generalmajor Adolf Galland in person, became operational near Munich. By now large parts of the Luftwaffe piston-engined day fighter force were confined to the ground for want of fuel. As a result Galland could transfer into his unit several of the "big name" fighter aces.<sup>38</sup>

On 5 April *JV* 44 flew its first interception mission, when five fighters took off and claimed the destruction of two enemy bombers.<sup>39</sup> By now Allied ground forces were thrusting deep into Germany and had overrun much of the Luftwaffe fighter control organisation. Harassed from take-off to landing, even the uniquely talented pilots of *JV* 44 could achieve little. Rarely did the unit fly more than half a dozen sorties, or shoot down more than a couple of Allied aircraft. *JV* 44 made little impact on the rapidly deteriorating war situation.

On 9 April, the last date for which a detailed Orbat is available, Luftwaffe operational units declared 180 Me 262s on the strength. Of these 143 served in four day fighter *Gruppen*, twenty-one served in two fighter-bomber *Gruppen*, nine served with a night-fighter *Staffel* and seven with a tactical reconnaissance unit.<sup>40</sup>

The final large-scale air action to involve Me 262s took place on 10 April 1945, when 55 jets took off to engage more than two thousand US heavy bombers and escorts attacking targets in the Berlin area. The Me 262s claimed the destruction of ten B-17s and seven escorts and these find general support in US records. In achieving this unimpressive score the jet fighter units suffered a fearful drubbing, however. Twenty-seven Me 262s were destroyed, almost half of those committed, with 19 pilots killed and five wounded. Many of the jet fighters were caught as they returned to their airfields short of fuel, after had they slowed down to begin the landing approach. That was a black day for the Me 262 units, and one from which they would never recover.<sup>41</sup>

By now Allied troops were well inside Germany and moving ahead rapidly. One by one the jet fighter bases had to be abandoned. The Me 262 operations underwent a rapid decline and by the end of the month they had virtually ceased.

### THE ME 262 SUMMED UP

By the end of April 1945 more than 1,200 Me 262s had been accepted by the Luftwaffe. Many of these were destroyed on the ground.

A few cold statistics will serve to highlight just what this huge industrial effort on the part of the Germans achieved:

Greatest number of Me 262s with front-line units (9 April 1945):	about 180
Greatest number of Me 262 fighter sorties in a single day (31 March 1945):	58
Greatest number of Me 262 victories in a single day (31 March 1945):	16
Greatest number of Me 262 fighter-bomber sorties in a single day (14 Feb 1945):	55

The figures are not particularly impressive, yet in each case they mark the best days in the Me 262's combat career. For the rest of the time the figures for aircraft deployed, sorties flown and victories achieved were even lower. The fighting power of an air force is governed not by the number of planes it has, but by the number of planes it can support effectively in action.

The most important single factor constraining the employment of the Me 262 in operational service was the short running life of the Jumo 004 turbojet. Despite the valiant efforts by Junkers engineers, even by the spring of 1945 the Jumo 004 was not a fully reliable unit.

Some post-war writers have criticised Luftwaffe leaders for failing to get the Me 262 into production early enough. Yet if anything, they initiated production of the aircraft rather too early. In the spring of 1944 Me 262 airframes were coming off the assembly lines before the engine to power them was ready for release for mass production.

Modern readers might care to marvel at the pace at which the Germans pushed ahead with their programme to bring the revolutionary new aircraft type into action:

First flight of Me 262 using jet power (a failure)

First successful flight of Me 262 on jet power alone

Me 262 ordered into large scale production

First Me 262 unit operational

First large-scale (50 plus sortie) operation by Me 262s

Thousandth Me 262 delivered

Even today we might find it difficult to match such a time scale!

As a weapon that might have changed the course of the war the Messerschmitt 262 was not a missed opportunity, it was an impossible dream.

NC	DTES	20	Ring
1	Green, William, "Warplanes of the Third Reich", Macdonald and Co London, 1970, p 619	21	Ibid
		22	Wegmann
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March 1942 July 1942 August 1943 July 1944 February 1945

March 1945

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Sukhoi's Su-27 family represents the most potent fighter/attack aircraft in the Russian inventory, equipping several branches of the Russian military. This Su-27 'Flanker-B' and Su-27UB 'Flanker-C' belong to the Russki Vityazi (Russian Knights) aerobatic team.





# Myths of the Air War over Serbia:

Some "Lessons" Not to Learn

#### By Grant T Hammond

When blows are planned, whoever contrives them with the greatest appreciation of their consequences will have great advantage.

- Frederick the Great



his article is a sequel to my earlier piece "Myths of the Gulf War: Some 'Lessons' Not to Learn" (*Airpower Journal*, Fall 1998), which caused some consternation and discomfited many, for it seemed that I was criticizing airpower. I was not. I was criticizing those who do not understand its strengths and its limitations and who ask it to substitute for strategy. This article takes largely the same myths and tests those propositions against the backdrop of the air war over Serbia and the 78-day bombing campaign that the United States and its NATO allies engaged in, regarding the fate of Kosovar Albanians and the province of Kosovo.

A representative dictionary definition of *myth* is "a traditional story of unknown authorship, ostensibly with a historical basis, but serving usually to explain some phenomenon of nature, the origin of man, or the customs, institutions or religious rites, etc. of a people; myths usually involve the exploits of gods or heroes; cf. LEGEND." It is also defined as "any fictitious



The propositions that follow represent commonly accepted assertions by, if not all, at least a large segment of both the American public and sectors of the American military. Once again, this is a cautionary note about the public's unfounded faith in the ability of the American military in general – and the US Air Force in particular. It is not a question of the military's ability to demonstrate its prowess in high technology as well as great tactical and operational skill – and to do so while sustaining low casualties. This it can do exceptionally well. But it is unrealistic to ask the military to do everything we ask simultaneously with other ongoing operations, poorly formulated strategies, and nonexistent visions of conflict termination and a better peace. Military capability is no substitute for viable strategy. The frequent use of military capabilities degrades them over time without reinvestment on a substantial scale.

There was much good that flowed from the air war over Serbia. Ethnic cleansing was eventually halted, the Kosovars returned to what was left of their homes, and a modicum of order was restored. In that, NATO did not fail. But the whole operation was made up as we went along and left much to be desired.

#### It Was a War

This was not, strictly speaking, a war.

– Gen Wesley K. Clark Supreme Allied Commander, Europe NATO briefing, 16 September 1999

It was murder, ethnic cleansing, rampant looting and destruction, rape and pillage, guerrilla attacks, random firefights, and an air campaign. It was almost ritualized war, a demonstration effect that would lead to negotiations in three to five days. It began as "a drive-by shooting with cruise missiles," as one analyst called it.<sup>1</sup> It was a contest between a 19-member coalition and the rump of Yugoslavia over the sovereign territory of one of its provinces, which remains a part of Yugoslavia (Serbia) but is occupied by NATO's Kosovo Force (KFOR) troops and is neither independent nor autonomous. It became a serious matter when it was clear that NATO's capability and existence were at stake. These then became the real objectives in the application of force.

NATO's actions in the air war over Serbia and Kosovo were a series of extended raids, an air campaign, or an "air siege," as Gen John Jumper, USAF, described it. But the ethnic cleansing by the Serbs in their Operation Horseshoe was wanton murder and terrorism, and NATO's destruction of Serb infrastructure was undertaken with great care regarding collateral damage. Although both sides tried to kill the forces of their adversary, the contest had little of the fierce, large-scale, random death that we have come to associate with war. We need a better term to describe what happened there. As Anthony Cordesman has commented, "One of the lessons of modern war is that war can no longer be called war."<sup>2</sup>

#### It's Over

Now they have ... a job to keep the peace in the Balkans. It is quite possible that this job will last half a century too.

- Tim Judah, Kosovo: War and Revenge

Whatever "it" was, it's not over. The cycle of revenge killings, the animosity and hatred, the migration of refugees, and the military occupation of Kosovo continue, albeit with over 30,000 troops of a different military in place. What's more, KFOR forces are likely to be there for an extended period of time. Indeed, there is no "exit strategy," no end of military occupation, no conviction that if KFOR left, the bloodbaths would not immediately erupt again – just with different majorities and minorities. Indeed, it has spilled over into neighboring provinces and countries. One can hardly say it is "over," whatever that might mean.

The violence associated with the problems of Yugoslav secession and succession will likely continue. Some people go so far as to argue that actually a wider war will likely occur in the future – or at least larger issues will evolve out of the ones that remain unsettled.<sup>3</sup> Albania, Montenegro, and Macedonia have all been destabilized to different degrees as a result of NATO's action in Kosovo. Italy, Greece, and Turkey have strong feelings about issues raised in the area and the treatment of various refugees. Bulgaria's support for overflights was a welcome addition to NATO's air campaign. The entire area will be affected for some time to come, and – given a history of divergent goals and aspirations – stability does not seem to be a hallmark of the region.

...there is no "exit strategy," no end of military occupation, no conviction that if KFOR left, the bloodbaths would not immediately erupt again...

"One of the lessons of modern war is that war can no longer be called war".







#### 72 We Won

Winning means what we said it means: Serbs out, NATO in, and Albanians back.

- National Security Advisor Sandy Berger, 2 June 1999

But was that the test of winning? Those things have been accomplished – but to what end? If by "winning" we mean we stopped ethnic cleansing in Kosovo, we did not. It increased during the air campaign but eventually ended as the Serbs departed. If by this we mean we established an independent Kosovo, free of the clutches of Slobodan Milosevic and the Serb state, we did not. The ill-fated and wrongly named Rambouillet Accords did not contain even the promise of a future referendum on Kosovar independence. If by this we mean that we changed the Serbian regime and dispatched Milosevic, we obviously did not. Thus, there are no guarantees that the current situation can be sustained indefinitely. NATO is occupying the sovereign territory of another country. For how long?

Just what did we accomplish? We got the Serbian army and national police to leave Kosovo. We have NATO's KFOR troops in the province performing largely constabulary duties to try to prevent arson, rape, murder, looting, and smuggling. As the Albanians have returned, the Serbs have fled, and ethnic cleansing now runs in reverse. Some two hundred thousand Serbs have left the area, and feuding has increased among the factions representing the Kosovar Albanians. Does that mean we won? Protecting the Kosovar Albanians seems to be a problem, even with the Serb military gone, and protecting the Serbs who remain in the area is a more difficult problem still.

#### We Accomplished Our Objectives

Operation Allied Force was an overwhelming success. We forced Slobodan Milosevic to withdraw his forces from Kosovo, degraded his ability to wage military operations, and rescued over one million refugees.

– Secretary of Defense William S. Cohen and Chairman of the Joint Chiefs of Staff Henry H. Shelton

As above, just what was our objective? If it was only driving the Serb military out of Kosovo, we did so. But nearly every public pronouncement on the air campaign and its objectives listed other goals critical to our success – or, more correctly perhaps, to Milosevic's defeat. According to the Kosovo/Allied Force after-action report to Congress, "From the onset of the operation, the United States and its NATO allies had three primary interests: *Ensuring the stability of Eastern Europe …Thwarting Ethnic Cleansing . . . [and] Ensuring NATO's credibility*" (emphasis in original).<sup>4</sup> The first cannot be determined little more than a year

out from the conflict, the second increased as we went to war, and the third is true if one believes that the test is NATO's making good on its threats. The aftermath of the encounter, however, remains to be seen.

We can't say we "won" because we did not accomplish the established goals. As stated by President Bill Clinton, these were "to demonstrate the seriousness of NATO's purpose so that Serbian leaders understand the imperative of reversing course, to deter an even bloodier offensive against

innocent civilians in Kosovo and, if necessary, to seriously damage the Serbian military's capacity to harm the people of Kosovo."<sup>5</sup> It is not clear that NATO military action caused Milosevic to withdraw; the ethnic cleansing began in earnest after the air campaign began; and the degree to which Yugoslav fielded forces were degraded is hotly debated but seems far less than initial claims. No territory has officially changed hands. No war was declared, and no peace treaty has been signed. Hostilities continue although the Serb military and paramilitaries have left Kosovo.

#### Technology (PGMs) Won the War

Overall, the pinpoint accuracy of the NATO air forces' delivery of precisionguided munitions against fixed targets in the Serbian theater was very impressive.

> – Headquarters USAF, Initial Report, The Air War over Serbia

We used a significant number of precisionguided munitions (PGM) in this war – indeed, 35 percent of all the munitions used were Hostilities continue although the Serb military and paramilitaries have left Kosovo

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PGMs.<sup>6</sup> And we exhausted much of our stocks of certain kinds of PGMs. The planes delivering the ordnance; the intelligence, surveillance, and reconnaissance capabilities of unmanned aerial vehicles; the prevalence of laser-guided bombs; the use of ordnance guided by the Global Positioning System; and our ability to utilize PGMs more effectively were all greatly enhanced since the Gulf War. So too were the far less costly, simple, and reasonably effective acts of deception used by the Serbs. But in a distressing preview of potential information operations by future adversaries, incidents of collateral damage – only 20 out of 23,000 strikes – had a major impact on both NATO and world opinion.<sup>7</sup> It may well be that media superiority is more important than air superiority and that the PGMs which matter most are precision-guided messages.

## It may well be that media superiority is more important than air superiority and that the PGMs which matter most are precision-guided messages

Definitive "effects and effectiveness" studies of the aerial munitions used during the 78-day air campaign have yet to be released, but it seems that the reality of the original claims will have to be discounted – by exactly how much remains to be determined. We did well against civilian infrastructure – less well against a dispersed enemy already in place, not on the move, and well camouflaged among the civilian population of Kosovo. The precise reasons for the ultimate Serbian withdrawal remain unclear; one cannot assert that PGMs won the war. Coalition perseverance, Russian arm-twisting, internal Serbian political disagreements, failure to crack NATO's political cohesion – all may have played an important role in that decision. We just don't know.

#### The "Vietnam Syndrome" Is Over: US Military Might and Prestige Are Restored

NATO wanted to use military power as a bargaining lever, and you know what? It worked – and we didn't lose a single airman in the process. . . . [Milosevic] ran out of options. None of that would have happened without airpower.

- Gen Wesley K. Clark

Depending on what one's test of this proposition is, it may or may not be true. If we judge success on the basis of loss of American lives in combat, it was an unparalleled success. If, however, we judge success on the basis of accomplishing political and military objectives, some doubts are raised. Moreover, taking the land-combat forces off the table at the outset does not bode well for future conflicts. It is right to prefer to fight from technological advantage. It is wrong to preclude any option at our disposal from the outset. The ghost of Vietnam lingers in the leadership's not wanting to risk casualties. This is particularly true when it is not clear in the minds of the American public that the application of force is clearly in America's self-interest.

...it is not clear in the minds of the American public that the application of force is clearly in America's self-interest

But the "base instinct" of force protection, represented not only by the concern for US and NATO losses in the air war over Serbia but also by the unseemly building of Camp Bondsteel - a little Fortress America in the middle of Kosovo for US troops based there gives lie to the notion of escaping casualty phobia. As Jeffrey Record has declared, "Minimizing risk – force protection – has become more important than military effectiveness. The Vietnam syndrome thrives, and Allied Force's spectacular 78-day run without a single American or allied airman killed in action will stand as a beacon to future Presidents who want

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to use force without apparent risk."<sup>8</sup> Another analyst points out that if future adversaries see the reaction to casualties as a vulnerable center of gravity for the United States, then they will exploit it.<sup>9</sup>

#### We Can Do It Again If Necessary

Is NATO to be the home for a whole series of Balkan protectorates?

- Henry Kissinger

Even attempting to do so would be highly unlikely. But fear exists that NATO may well have to deal with the "spillover" from Kosovo into Montenegro, Macedonia, or Albania and that conflicts in the region are not yet over. Because NATO has put out a

## <sup>76</sup> ...Kosovo has become a ward of NATO – it is not formally a protectorate, is technically still part of Yugoslavia, and has no promise of either autonomy or independence

marker once and declared itself concerned to the point of military action over stability on its periphery, "having another go" – as the Brits say – is a definite possibility. In effect, Kosovo has become a ward of NATO – it is not formally a protectorate, is technically still part of Yugoslavia, and has no promise of either autonomy or independence. How long will that be acceptable? It is almost a foregone conclusion that future conflict in the region will erupt. What NATO does about it is another matter.

Adding the thrust of NATO's new "strategic concept" unveiled at the 50th anniversary celebration in Washington to its commitment to "crisis management" and the possibility of a new command for the Balkans seems virtually to guarantee further disruption and a NATO response. The problem is that the alliance may not hold together, China and Russia may be even more hostile to such action than before, and the rest of the world may not sit idly by while another instance of a "new imperialism" is conducted on the world's televisions. Applying force in the southern Balkans again may be a very risky proposition, both militarily and politically. One may also see it as another test of NATO's existence, if not its credibility. As an article in US Naval Institute Proceedings suggested, it may only be "halftime in Kosovo."<sup>10</sup>

#### Others Paid for the Cost of the War

[The Center for Strategy and Budgetary Assessment] estimates that the deployment of seven thousand US peacekeeping troops to Kosovo would cost about <u>\$2–3.5 billion a year</u>. This figure reflects the incremental costs of the operation (i.e., the additional costs that would be incurred by the US military, above normal peacetime costs, as a result of conducting the operation).

It does not include all of the costs associated with providing humanitarian assistance to Kosovar refugees or rebuilding homes, factories, and other facilities damaged or destroyed during the NATO air campaign.

 Center for Strategy and Budgetary Assessment, July 1999

Like buying a horse, the cost is ongoing. Even with European members of NATO agreeing to assume most of the cost of the rehabilitation of Kosovo after the war and with United Nations Resolution 1244 for the UN to assist in doing the same, it will cost the United States a minimum of \$2 billion a year for a US contingent of seven thousand peacekeepers in the region. That is on top of an estimated \$3 billion for the US share of Operation Allied Force. Thus, despite getting a pretty good deal – we pay for the war, you pay for the aftermath – US costs for Kosovo will approach \$9 billion by the end of the current fiscal year. As long as we stay there, the costs will mount, and staying there may become the next test of NATO's credibility and existence, as unintended in the aftermath as they were in the conflict itself.

The implicit deal was that if we would do the bulk of the air campaign, the Europeans would provide the postwar funding for reconstruction and development. Little in the way of such funds has been received more than a year after the end of the conflict. Few people, if any, think that significant progress can be made in less than five to 10 years. Pessimists say 50 years is more likely. At a clip of \$2 billion a year plus the cost of the war, the cost to the United States is on the order of \$13 billion (low end) and \$28 billion (high end). Splitting the difference, something on the order of \$20 billion would be required, and that does not count foreign aid for refugee resettlement, rebuilding of infrastructure, housing, training of police, establishing a criminal justice system, and so forth. NATO's humanitarian impulse will be a very expensive proposition, and the US share – however small compared to the total – is not chicken feed.

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#### Unlike Our Past Wars, the Air War over Serbia Represents an Almost Unblemished Record of Success,

The Air Force is good – very good – at what it does. But it is simply not that good, claims to the contrary notwithstanding

#### Superior Military Performance, and Accomplishment

[Reporter, repeating General Wald's assertion incredulously]

Q: Of all the bombs we've dropped, 99.6 percent have actually hit the target out of the 20,000 bombs. What percentage?

A: Maj Gen Charles F. Wald: 99.6 percent.

– Pentagon briefing, 2 June 1999

One is reminded of the old saying that there are lies, damn lies, and statistics. The Air Force is good – very good – at what it does. But it is simply not that good, claims to the contrary notwithstanding. First of all, what is the definition of a target? A

factory is different from a desired mean point of impact, and a target set is different from a target. A lot of targeted SA-6s and Serb vehicles were not hit. There are always blemishes and failures – things that can be done better and results that are less than satisfactory. We had trouble with deception and decoys. We expended a lot of ordnance on mythical targets or radar sites that weren't there. We certainly did not have the success rate that General Wald claimed unless one wants to work backward and say that if there were only 20 errant bombs or missiles out of 23,000 launched, one can assume that all the others that didn't miss egregiously must have hit. Then we might get such a figure. But it is overreaching in the extreme to argue in this manner.

The operational performance of the air forces involved in the air war over Serbia – US Navy and allied as well as US Air Force – was exceptionally good. But those forces attempted to prevent something that airpower cannot do. An F-15E pilot cannot – unless he is very lucky, not just skillful – prevent a man with a Zippo lighter from burning his neighbor's barn or house or prevent another man with a knife from slitting a neighbor's throat. Doing so indirectly by attacking targets in Serbia was slow. Meanwhile, the terror in Kosovo continued. We should celebrate their skill in attempting to prevent what airpower could not ultimately prevent. But we should not overreach.

#### The Promise of Airpower Was Finally Fulfilled

Now there is a new turning point to fix on the calendar: June 3, 1999, when the capitulation of President Milosevic proved that a war can be won by airpower alone.

– John Keegan London *Daily Telegraph*, 6 June 1999

What promise of airpower? If by this we mean Giulio Douhet's claim that airpower is both necessary and sufficient to win a war, it appears it may have occurred – but we can't yet be sure. Stating that this is so is a case of *post hoc, ergo propter hoc*. There is no guarantee that this is the case. It appears that it *may* have at last been true. The application of airpower for 78 days over 37,000 sorties without loss of life in combat and only the loss of two planes (not counting the pilots and helicopters lost in the ill-fated Task Force Hawk) was truly remarkable. But we failed to destroy much of the fielded forces in Kosovo and instead destroyed civilian infrastructure in Serbia.

A host of other reasons could have entered Milosevic's strategic calculus and caused him to cave in to NATO demands. Even then, he got better than he would have gotten at Rambouillet. But we don't know why he did what he did. Did questionable targeting play a role? Did Russian envoy Viktor Chernomyrdin's visit do the trick? Did the absence of Russian support carry the day? Was he getting tired of getting his country bloodied for no real gain? Was there no chance to inflict casualties on NATO – his only real hope to crack the coalition? We don't know and may never know with certainty. Claiming it was due to airpower,

although possibly true, may be overreaching. In any event, I would argue that the promise of airpower had been fulfilled long before the air war over Serbia. It was certainly demonstrated in the Gulf War, and one can make a solid case that it was demonstrated much earlier, in World War II.

Here I add a myth to those addressed in my earlier article. It is the most important one for us to ponder.

# The United States and NATO Accomplished Their Strategic Purpose through the Use of Military Force

Our objective in Kosovo remains clear: to stop the killing and achieve a durable peace that restores Kosovars to self-government.

- President Clinton, 22 March 1999

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This is an important point. There was both a strategic failure in the disconnect between political and military objectives and a military failure in focusing on outputs rather than outcomes. The strategy adopted by NATO could reasonably guarantee neither the halt of ethnic cleansing nor self-governance for the Kosovars and a stable peace. Operation Horseshoe, the Serbs' ethnic-cleansing campaign, began in earnest after the bombing began, not before. Indeed, the agreement ending the 78-day bombing campaign places the future of Kosovo under UN auspices, where both China and Russia – opponents of NATO action to begin with – have vetoes in the Security Council. So, although some basis may exist for claiming another military triumph, it has not resulted in political victory. The purpose of going to war is to achieve a better state of peace, hopefully a durable one.

As Ivo Daalder and Michael O'Hanlon put it, "The stated goals of the bombing campaign were the three Ds: demonstrating NATO resolve, deterring attacks on the Kosovar civilians, and failing that, degrading the Serb capacity to inflict harm on the Kosovars. But the military objectives of the bombing campaign were only indirectly related to the overriding political objective of achieving 'a durable peace.' "<sup>11</sup> The military objectives were perhaps achievable through the means applied, but the political ones were not. Taking the ground option off the table was poor strategy intended more to assuage Congress amid political crisis at home than to deliver a message to an international adversary. Having the military focus on its military objectives, however

The United States possesses the world's only full-service, "24/7" air force. That's a priceless advantage...





80 divorced from political requirements, is not a good precedent. The civilian political leadership and the military must jointly fashion strategy and specific goals. To allow a circumstance by which every successful "hit" against a Serbian military asset could be claimed as a degradation of Serb military capability may have been accurate semantically for the "spin doctors" of public relations. But unless this directly led to a durable peace, it was irrelevant to the political purpose.<sup>12</sup>

#### Epilogue

The air war over Serbia was a masterful demonstration of airpower skill in terms of its military operational employment. The inherent advantages of airpower – perspective, speed, range, flexibility, maneuver, mass, and precision lethality – have both good and bad attributes. They make airpower too easy to use. The United States possesses the world's only full-service, "24/7" air force. That's a priceless advantage. It also makes airpower a ready military tool that can be deployed and employed quickly; relatively cheaply, at least in terms of lives placed at risk; and often, as testimony to policy convictions. It exists simultaneously – or so we think – as deterrent, offense, and defense. But that is just the problem. As Eliot Cohen has suggested, airpower is like modern courtship. It gives the appearance of commitment without necessarily the substance.<sup>13</sup> But if it is unhinged from strategy and political consequence, if it is merely used to punish and not coerce, if more is asked of it than the nation is willing to contribute, then airpower is squandered.

There is a double-edged sword in the apparent success of airpower. Able to be deployed and employed far from America's shores in support of US policy, it is often first to the fight. However imperfect an instrument to effect specific policy change on the ground, it is better able to apply force as testament to will than most of the other forms of military force – naval and land. That said, although it can readily be used, that may be its damning sin as well as its saving grace. Unless tethered appropriately to strategic intent and policy ends, it may be misapplied. Moreover, it is a finite resource. The people, platforms, and munitions are all perishable assets with both quantitative and qualitative limitations. And as forces get smaller, the ability to do several different types of air missions simultaneously over a long period of time becomes more and more difficult.

Airpower is a precious asset. Merely because it *can* be used does not necessarily mean it *should* be used. When it is used, it should be used appropriately to maximize its inherent capabilities. A nearly flawless operational application of airpower cannot substitute for a flawed strategy. Similarly, a less than desirable end state cannot be laid at the door of airpower alone. Most importantly, if airpower is to be the preferred tool of American force in service of statecraft, then it must be properly resourced in order to accomplish the task. At the moment, it is not. The US Air Force cannot be the principal custodian of airpower, responsible for the control and exploitation of space as well as air, *and* the custodian of information superiority and defense for the US military against cyber attack – with a budget share once dedicated to air superiority alone.

If the UN, NATO, and the United States seek to rely on airpower to address future problems in the international arena, then it needs to be better supported with investments in physical, financial, and human capital. This is even truer of our allies than

ourselves. Coalition war may soon become a fiction as fewer and fewer current or would-be allies are able to acquire and utilize the technology involved in future air campaigns. If these are not forthcoming, then the capabilities will become hollow, and airpower will become incapable of fulfilling the tasks asked of it. It matters less whether these are of a lethal nature (as in the Gulf War and Operations Deliberate Force and Allied Force) or nonlethal nature (as in military operations other than war or humanitarian relief operations). Airpower is finite and ultimately limited.

In a curious sort of way, the myths of the air war over Serbia are part of the problem, not part of the solution in sustaining our investment in airpower. Claiming more than is its due is to be avoided. As the joint force air component commander himself – Lt Gen Mike Short, USAF, Retired – has commented about the air war over Serbia, "This was little more than random bombing of military targets that achieved victory by happenstance."<sup>14</sup> That is, luck may have had as much to do with our success as skill. Next time out, more attention to strategy and strategic effect and less on application of force to "demonstrate resolve" without regard to second- and third-order consequences would serve us all well.

#### NOTES

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- 3. See the essays contained in NATO's *Empty Victory: A Postmortem on the Balkan War*, ed. Ted Galen Carpenter (Washington, D.C.: Cato Institute, 2000), particularly those by Radu, Mearsheimer, Dempsey, and Rizopoulos.
- 4. Message from Secretary of Defense William S. Cohen and Chairman of the Joint Chiefs of Staff Henry H. Shelton that accompanied their *Kosovo/Operation Allied Force After-Action Report: Report to Congress* (Washington, D.C.: Department of Defense, 31 January 2000), 1.
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- 7. Ibid., 34.

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- 9. Earl H. Tilford Jr., "Operation Allied Force and the Role of Air Power," *Parameters* 29, no. 4 (Winter 1999–2000): 37.
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- 11. Ivo H. Daalder and Michael E. O'Hanlon, *Winning Ugly: NATO's War to Save Kosovo* (Washington, D.C.: Brookings Institution, 2000), 210.

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- 14. Comments made in an address to the Air War College, Maxwell AFB, Ala., 23 August 2000. Used with permission.

#### CONTRIBUTOR

Dr. Grant T. Hammond (AB, Harvard University; MA, PhD, Johns Hopkins University) is professor of International relations and director of the Center for Strategy and Technology at the Air War College (AWC), Air University, Maxwell AFB, Alabama. He was the first civilian chair of the Department of National Security Studies at AWC and the first holder of a rotating Chair of National Security Strategy. Prior to joining AWC, he held positions at Rhodes College and the Center for International Affairs at Harvard. He is the author of several books and a number of journal articles. Dr. Hammond's forthcoming book, *The Mind of War: John Boyd and American Security*, will be published by the Smithsonian Institution Press next spring (2001).

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# The Implications of European Security

and Defence Identity for

Future Air Force Structure 2015-2030

#### By Wing Commander R W Jones



he emerging and maturing European Security and Defence Identity (ESDI) concept has gathered significant pace over the last 5 years, to the extent that its growth could well shape the future of our Armed Forces, especially within the period 2015 to 2030. The principle of collaborative European defence has been mooted since the years following the end of the Second World War but the formation of the NATO Alliance has meant that any such moves to promote a European Force was relegated to the 'back-burner'. However, since the demise of the Warsaw Pact and the resultant drawdown of force levels in Europe (particularly by US forces), the European Union (EU) has been forced to examine its own defence and security posture. The establishment of the Franco-German Eurocorps in 1992 spurred the EU into accelerating the ESDI concept. The Helsinki headline goal signed in Dec 1999, in which agreement was reached to form a 60,000 strong land force, has added to the speculation that future ESDI developments could have significant ramifications on the size and structure of European National forces. Recent proposals for greater European defence collaboration forwarded by the British Government during the last 3 years would lend significant weight to the prospect of the UK playing a major role in the ESDI's future expansion.







As defence expenditure in real terms will probably continue to fall, an emerging ESDI within the NATO framework may offer future Governments an alternative course of action so that it can match its defence requirement and capability within a diminishing budget

Each single-Service vision paper' assumes that the UK will continue to seek its defence through NATO, but none seriously addresses the implications of ESDI in the 2015 – 2030 timeframe. As defence expenditure in real terms will probably continue to fall, although not at the rate seen over recent years, an emerging ESDI within the NATO framework may offer future Governments an alternative course of action so that it can match its defence requirement and capability within a diminishing budget. When the ESDI matures in to a credible defence and security platform for Europe, the collaborative nature of its combined forces and equipment will provide NATO with a 'European pillar' of military capability that up to now has been lacking. The effects of ESDI could, therefore, result in a number of significant changes to the way that the RAF conducts its operational business. By identifying the likely outcomes of ESDI, the RAF can play a key role in Europe's ability to deliver air power. But what will this mean for the RAF's force structure? If Europe adopts the golf-bag approach to equipment and air power roles, as I will argue, then the RAF needs to identify its expertise areas sufficiently early to ensure that it plays a leading role in the planning, contribution and execution of EU sponsored air campaigns and operations.

This article will fall in to two parts. Part One will examine the ESDI concept, look at the historical background to a Common Foreign and Security Policy (CFSP) within Europe, explore the current trends within ESDI and highlight those treaties and agreements signed over the last 3 years that point towards the future of the ESDI. The paper will not address the 'special relationship' that the Government currently enjoys with our transatlantic allies, nor will it debate the arguments surrounding the

level of support that the US might or might not offer an EU sponsored and led operation. Part Two will identify some 85 fundamental assumptions based on the future prospects for ESDI and use those assumptions to examine the implications for the RAF's force structure in the timeframe 2015 to 2030. By forecasting the ESDI's military policy, the article will develop the concept of mutualisation, where European Nations will individually contribute specialist air power roles rather than the current role sharing required by the Helsinki Headline Goal Task Force. In doing so, it will examine those capabilities that the RAF could contribute towards a potential European Air Force (Euroairfor) and highlight the challenges that the RAF could face.

#### **PART ONE - EUROPEAN SECURITY AND DEFENCE IDENTITY**

#### **Evolution of the Western European Union**

The debate over the nature, size and structure of the 'European pillar' of NATO has been driven by two primary concerns: the degree to which Europe can and should rely on the US to guarantee European security (and by doing so accept US) leadership), or whether that burden should be divided amongst European Nations at the risk of US disengagement from Europe. Attempts to make Europe more self-sufficiently secure saw a select number of European nations establish the European Defence Council<sup>2</sup> (EDC) in May 1952, although French reservations over national sovereignty and a re-armed Germany led to rejection of the Treaty in 1954. The Brussels Treaty Organisation<sup>3</sup> first established in 1948, was enhanced in 1954, following the failure of the EDC, with the signing of the Paris Protocol which brought West Germany and Italy into the newly-formed Western European Union (WEU). However, the accession of West Germany into the NATO Alliance in 1955 and the UK's accession to the EC in 1973 saw much of the WEU's raison d'être evaporate over the following decade.

In October 1984, the WEU was revitalised by the Rome Declaration in which Ministers: 'underlined their determination to make better use of the WEU framework in order to increase cooperation between member states in the field of security policy'.<sup>4</sup> Also in October 1987, the WEU Ministerial Council adopted the 'Hague Platform' on European security interests declaring that: 'an integrated Europe will remain incomplete as long as it does not include security and defence {and the need to} strengthen the European pillar of the {North Atlantic} Alliance'.<sup>5</sup>

The Gulf War, which followed closely on the heels of the post-Cold War shift in European security focused on the contribution of the European Allies to the potency of the Alliance in more specific terms. Having noted that the Gulf crisis highlighted how modest the European contribution was, Manfred Worner, former Secretary General of NATO, stated: 'the Gulf War proved that the US needed Allied support and multinational cooperation...what is essential, however, is that a European Security and Defence Identity evolve into more than a political concept. A pillar must carry something, which implies that all its members should be available for essential security tasks and willing to share roles, risks and responsibilities equitably, including the military domain'.6

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#### **A Common Foreign and Security Policy for Europe**

The Maastricht Treaty, signed in December 1991, was a milestone in establishing a Common Foreign and Security Policy for the EU. The WEU assumed responsibility for the defence component of the EU and, in doing so, went some way to address the political rhetoric of previous years by providing a concrete structure to ESDI. However, the Franco-German formation of Eurocorps, independent of the WEU/NATO framework in 1992, provided the spur for the WEU to articulate a formal agreement on those military tasks that they could conduct. At a Ministerial meeting in Bonn, in June 1992, the 'Petersberg Tasks' provided the WEU with the authority to conduct humanitarian and rescue tasks, peacekeeping, peacemaking and crisis management. NATO endorsed the Petersberg Tasks and offered the Combined Joint Task Force (CJTF) concept as a means 'to allow limited autonomy to some European forces... {but which}...will facilitate the mounting of NATO contingency operations, the use of separable but not separate military capabilities in operations led by the WEU'.<sup>7</sup> At the NATO Summit held in Brussels in 1994, the Alliance Heads of State sanctioned the use of NATO assets for use by the WEU in pursuit of their CFSP goals.

More recently, the thrust of the Brussels Summit was further expanded at the Berlin Summit in June 1996. Taking full advantage of the approved CJTF ideals, the ESDI concept was founded 'on sound military principles... supported by appropriate military planning {which} permits the creation of militarily coherent and effective forces capable of operating under the political control and strategic direction of the WEU'.<sup>8</sup> Again, the theme of 'separable but not separate forces' was reiterated, although it was



evident that the ESDI was evolving as an extension of the NATO Alliance and not an independent military force. Indeed, the Berlin Summit provided the guidelines for the coordination between NATO and the WEU by outlining the scope, objectives, planning and command of forces for illustrative WEUled operations, which were submitted through the Military Committee and North Atlantic Council to the WEU for review and approval.

#### **Current Trends**

The Treaty of Amsterdam signed in October 1997, effectively began the process whereby the EU could assume responsibility for the military tasks undertaken by the WEU, if so directed by the European Council. In doing so, the Council would be able to take decisions on the whole range of political, economic and military instruments at its disposal when responding to a crisis situation. The 1998 St Malo bilateral agreement, signed between the UK and France, provided further proof of the resolve amongst leading European countries to pursue the establishment of a European force capable of complementing the NATO Alliance. Further still, at a later Franco-British summit held in London, attention was focussed on EU plans to create its own reaction force. The proposal for 'some 50,000 troops (12 – 15 brigades) to be capable of deploying within 60 days for a commitment of up to 2 years, on or around the European landmass' was a pre-cursor to the 1999 Helsinki agreement. However, France's vision was more ambitious: 'a force of up to 60,000, growing to 100,000, with 300 – 500 aircraft and a dozen warships. Whatever its shape, the force should be up and running by 2003'.<sup>9</sup> The St Malo bilateral gained widespread support within both Europe and the NATO Alliance and resulted in the WEU ministerial in May 1999 and the EU's Cologne summit in June 1999 during which it was agreed to the general absorption of the WEU within the EU. Thus the Union would finally be able to unite its CFSP with the military means to support the management of crises beyond its own territory.

The Helsinki proposals, signed in December 1999, provided the formal foundation to the Common European Security and Defence Policy (CESDP). EU Ministers agreed to adopt the Headline Goal as its fundamental policy. It states: 'by the year 2003, cooperating together voluntarily they {the member states} will be able to deploy rapidly and then sustain forces of the full range of Petersberg tasks as set out in the Amsterdam Treaty...up to corps level (50,000 to 60,000 persons). These forces should be self-sustaining with the necessary command, control and intelligence capabilities...and additionally, as appropriate, with air and naval elements. They should be able to deploy within 60 days...and must be able to sustain operations for at least one year'.<sup>10</sup> The UK's initial response to this proposal has been the production of a catalogue, in parallel with similar responses from the other 14 EU partners, detailing the single Service contribution to the Headline Goal Task Force.<sup>11</sup>

ESDI has received widespread support amongst most European nations and, as a concept, the ideals first declared over 50 years ago are now fast becoming a reality. Events over the past 10 years, from the Gulf War to more recent events in Bosnia and Kosovo have forced European leaders to examine closely the contribution and capability of the European effort to coalition and allied operations. ESDI will not replace NATO, that has never been in question, but the foundation of a European pillar of NATO, with greater emphasis on EU sponsored military actions within the European theatre, will mean less reliance on the US to provide the major contribution to European security and defence matters. So will the momentum, signalled by a number of significant treaties and agreements over the last 3 years continue, or will it simply fade into obscurity? There is another major factor that I believe will drive ESDI to fruition: money.

#### 88 Money, Money, Money

Defence expenditure throughout Europe has been on the decline since the demise of the Warsaw Pact. To use the UK as an example, expenditure peaked at 4.52% of Gross Domestic Product (GDP) in the 1980-84 period. During the 1990-94 period it dropped to 3.56% and over the last 5 years has progressively fallen each year to its 1999 level of 2.63% of GDP. The US in the same period has seen defence expenditure drop from 6.01% of GDP to 3.18%. Defence expenditure across Europe has shown progressive decline over the last 10 years and, apart from Greece (4.9%) and Turkey (5.7%), France has the highest level of expenditure at 2.9%.<sup>12</sup> The general trend of defence expenditure has been on decline over recent years, but there is nothing to suggest when the decline will stop or at what level:  $2^{1}/_{2}$ %, 2%,  $1^{3}/_{4}$ %? However, one conclusion can be drawn from these statistics, that the increasing cost of new systems coupled with a shrinking 'pot of gold' may lead the Government to seek a collaborative spending effort with its European defence partners. European defence expenditure has, in the past, been completely disparate with the result that 'value for money' has not been achieved. European NATO countries collectively contribute the equivalent of 60% of the overall NATO budget but do not get close to the value in terms of equipment capability when compared to the US. 'In the post-Cold War context, 60% should be more than enough to deal with contingencies inside and along the periphery of Europe...conversely, the Europeans do not get anything like 60% of the US capabilities from their defence spending. This is what the Kosovo campaign so starkly highlighted. Most of the European allies have defence budget structures, which are out of sync with the requirements of the post Cold-War era. Collectively, NATO's European members field standing forces of 2.4 million...but spending on equipment and firepower is at US \$11,000 per soldier in Europe compared to US \$36,000 per US soldier'.<sup>13</sup> Clearly, if



...the increasing cost of new systems coupled with a shrinking 'pot of gold' may lead the Govt to seek a collaborative spending effort with its European defence partners

Europe can harmonise its defence spending, then the European pillar of NATO will become an extremely well funded and capable military force. However, progress in the immediate future will not be swift and the reluctance of some countries to accede to a common European currency will stall budgetary union. Until this particular hurdle can be overcome, then common defence structures will take some time to come to fruition, although given the time frame of this paper, it is not unrealistic to assume that by 2015 even Britain will have subscribed to a single European currency. However, collaborative effort relies on more than just financial unity, *'if the EU countries as a whole moved to best European practice (currently in the UK), the money available each year for research and development and equipment would jump from 34bn euros to 48bn euros, without any increase in overall defence spending.'<sup>14</sup>* 

The coordinated effort required to bring ESDI to realisation is not insurmountable. The solution, however, is clear: 'The 89 Europeans need to improve the efficiency of their defence spending through a combination of approaches: defining force goals (this was done...at the Helsinki summit); improving budget structures (so called 'input criteria'); and pooling of key capabilities (what the French call 'mutualisation') such as air transport assets, in order to reduce the overhead costs and inefficiencies associated with having individual national armed forces'.<sup>15</sup> More generally, 'the difficulties...will be about overcoming the tremendous changes the {ESDI} will mean for each military establishment in each EU country. As a matter of analogy, the adoption of the Euro has radically altered the traditional role of national Central Banks becoming an adjunct to the European Central Bank. The full fruition of any relevant ESDI within the present budgetary constraints will probably call for *functional specialisation in defence matters.*<sup>16</sup> Options for the EU are clear: ESDI must come to the fore as the European pillar of NATO if it is to overcome the shortfalls in its collaborative defensive efforts evident over the past decade. The lack of a focussed military capability, able to contribute fully to coalition or allied operations must be overcome if NATO is to survive simply because Europe cannot rely wholly on the US to provide the majority effort each time a crisis occurs within, or on the peripherals of, Europe. The 'second pillar' can be achieved but it will require a radical approach: it must embrace 'mutualisation' to achieve economy of effort and, therefore, realise its true military potential. In other words, European Nations will need to evolve from the role sharing required by the Helsinki Headline Goal Task Force to specialise their contributions to Euroairfor so that Nations will be individually responsible for providing specified aspects of air power.

#### PART TWO - CHALLENGES FOR THE ROYAL AIR FORCE

#### Assumptions

Based on the arguments contained in the first part of this article, and within the timeframe of 2015 to 2030, it is assumed that:

- The NATO Alliance will remain as the authoritative body for European collective defence.<sup>17</sup>
- Future UK Governments will remain heavily involved with, and be instrumental in, the evolution of ESDI through to its culmination as the European pillar of NATO.
- The UK's defence spending will not fall below 2% of the GDP and so opportunities to fund new systems may be limited.
- UK Armed Forces will be required to support two concurrent medium scale operations, one warfighting and the other non-warfighting.
- Mutualisation', and the formation of a Euroairfor, will be endorsed by the UK Government as a method of matching its air power requirement against its military tasks.
- As a function of 'mutualisation', the RAF's force structure will be subject to fundamental change.



#### 90 Mutualisation

To enable a future Government to achieve value for money, the attraction of mutualisation within the European pillar will, I believe, become too great an incentive to ignore. The contribution that the UK has identified under the Helsinki Headline Goal Catalogue is now based on role-sharing but the next progressive step will be to coordinate the collaborative effort of each Nation within the EU and so offer those EU Nations the opportunity to embrace mutualisation. Furthermore, the potential for coordinated collaborative defence spending amongst EU nations will help counter any reduction in 'real term' national defence spending over the next two decades. What needs to be examined is what the Government will be able to afford and what it will be willing to offer towards the establishment of a Europairfor. However, one thing is certain, attempting to determine our future shape will require a breakaway from traditional thinking about force structure and within the timeframe of 2015 to 2030 some fundamental questions need to be addressed. What happens when the RAF can no longer afford what we consider to be the full range of air power roles that we achieve today? Will the RAF still need a manned aerial reconnaissance force? Do we need to pursue an offensive Suppression of Enemy Air Defences capability? Should we aspire towards establishing the best Intelligence, Surveillance and Reconnaissance force in Europe? Should we provide the European pillar with the majority of its strategic and tactical airlift capability?

Assuming that mutualisation will become UK policy, we must attempt to harmonise now what we contribute to ESDI through Euroairfor and what air power roles the RAF will need for future UK contingency operations. In doing so, this article will attempt to highlight the force structure needed in the 2015 – 2030 era.

#### **Command and Control**

Future operations within or on the periphery of Europe will be characterised by the multi-national cooperation of EU member states, and a successful European crisis response will only be achieved through effective force packaging. The ability to lead multi-national operations within a collaborative framework will remain vital and those key capabilities that support C4ISR should be developed further, such as the UK TACCS/TJF.<sup>18</sup> The ability to contribute command and leadership of the scale and quality needed to fill key appointments within Euroairfor, with trained and experienced commanders and staff, must be maintained. If these requirements are not met, then the RAF could lose the ability to lead a Euroairfor operation which, as one of the primary contributors, would prove unpalatable.

#### Airlift

To support the 60,000 strong Eurocorps, the EU will require a collaborative European airlift capability. The German Government, as a stepping stone towards the establishment of greater cooperation between European Air Forces, has already identified this requirement: 'German proposals...centre on developing a European strategic airlift reserve from the present Franco-British Euro

#### None of the current EU nations individually possess the quantity of airlift capability that the RAF can offer

Air Group. '19 None of the current EU nations individually possess the quantity of airlift capability that the RAF can offer. The Government's future investment in strategic airlift, with leased C-17 until procurement of the Future Transport Aircraft (FTA) and, potentially SkyCat,<sup>20</sup> will provide the RAF with both a strategic and tactical airlift capability that will see the RAF take the lead in Euroairfor's transport capability.



From a national perspective, the RAF's airlift capability will dovetail neatly into the Future Army concept of Rapid Effect, as the military component of Early Effect.<sup>21</sup> The ability to deploy forces early in to any spectrum of operations from a low-level Noncombatant Evacuation Operation, to large-scale warfighting is a principal requirement of Early Effect, which applies force with reaction through Rapid Effect. An extension of the Rapid Reaction concept already employed within NATO's ARRC, Rapid Effect will rely heavily on strategic and tactical airlift to ensure that appropriate level of response, at up to Divisional level, is deployed speedily and efficiently. To balance National requirements with European aspirations, the RAF will need to pursue the full implementation of its present and future airlift capability.





#### Intelligence, Surveillance and Reconnaissance

The UK's Intelligence, Surveillance and Reconnaissance (ISR) triad<sup>22</sup> will be essential to any EU-led operation. NATO's current reliance on organic US systems creates an ISR void that must be addressed. The issue of releasability of US derived intelligence information will always dictate the quality of information made available to EU nations and, therefore, it will continue to be a major constraint in any EU-led military effort. To provide an ISR force that possesses credibility, the RAF should aspire to supplement its current ISR force with an offensive EW capability as well as supplementary intelligence gathering roles, such as Elint. Space-based systems will also need to be explored; whether that is achieved through close cooperation with the US or with independent European systems is an area that will require military guidance and political direction. Certainly, the Spanish can contribute much with their existing Satellite Intelligence Centre at Torrejon and the recent 3-way venture between Germany, Italy and France 'could give Europe a strong and independent military space capability by mid-decade'.<sup>23</sup> But to overcome the ISR void will require a continued and significant collaborative EU effort to resource space-based intelligence systems capable of providing comparable levels of information currently obtained from the US.

However, if Euroairfor's ISR capability is to achieve any credibility within NATO, then it must pursue a joint venture to ensure that it matures within the 2015 – 2030 timescale. In the meantime, the RAF can and should take the lead for all ISR matters, but key drivers in this area will remain the availability of US originated information and, currently, the EU's determination to provide their own comprehensive ISR matrix. Tactical reconnaissance does not strictly fit within the ISR triad capability but, nonetheless, it requires comment because it raises a fundamental question. While the



To provide an ISR force that possesses credibility, the RAF should aspire to supplement its current ISR force with an offensive EW capability as well as supplementary intelligence gathering roles, such as Elint and Imint



function of tactical reconnaissance will continue to be required, will manned or unmanned air vehicles better achieve it? 93 With the advances in, and availability of technology – especially within the UAV/satellite field – then manned tactical reconnaissance could be made obsolete within the next two decades. However, the principle of providing the man-in-theloop decision-maker will remain paramount but I believe that the tactical reconnaissance man-in-the-loop will be sited on the ground and not in the air. By surrendering the manned tactical reconnaissance role – currently three flying squadrons – then the RAF could cycle a greater degree of funding towards the UK's ISR matrix and contribute towards closing the information void that might be left by the US.

#### **Suppression of Enemy Air Defences**

But perhaps a more fundamental area needs to be examined: does the RAF need to pursue an offensive Suppression of Enemy Air Defences (SEAD) capability? Do we really need to invest in the capability or can the UK afford to leave this particular field to another EU nation or nations to provide the assets required? The question hinges on the need of UK forces to use offensive SEAD during unilateral operations. I believe that none of the envisaged UK unilateral operations of the future will require an offensive SEAD capability. Although predicting where the UK is likely to operate autonomously is extremely difficult, likely unilateral operations will be at the lowest level, at the NEO or peacekeeping levels, and any other scenario ascending to higher levels of conflict will generate an allied or coalition response. The potential for future unilateral warfighting scenarios, such as on the scale of the Falklands, are an extremely low risk, and any such prospect needs to be weighed up against the investment needed to replace Air Launched Anti-Radiation Missile (ALARM) and acquire and sustain a complete offensive SEAD capability. Furthermore, a number of European Countries have already invested in offensive SEAD and some have already expressed interest in the US LEWK concept system<sup>24</sup> to provide a cheap, effective alternative to a manned aircraft offensive SEAD capability.

Employing Uninhabited Combat Air Vehicles (UCAVs), however, will bring with it its own problems, particularly the legal and moral implications of introducing a UCAV in to warfighting. The 'man-in-the-loop' decision-maker and C2 will, by implication, take on a much greater significance. However, the concept of using UCAVs has enormous benefits. Not only will UCAVs be cheaper and more economical to operate than manned aircraft, but also the risk to aircrew is nullified – a factor which, in the politically sensitive climate of today (and certainly that of the future), will become a major issue in determining the use of UCAVs.

Much has been made of the RAF's current lack of a robust offensive SEAD capability. However, the prospect of the UK undertaking unilateral warfighting operations is, I believe, an extremely low risk and any risk assessment must be weighed against the investment required to establish and maintain a credible offensive SEAD capability. Within Euroairfor, other EU countries could take on the SEAD role for the European pillar, investing in both manned or unmanned air vehicles and which would, therefore, present realistic economies for the RAF and where funds could be re-directed into improving its defensive



94 SEAD capability. Conversely, if the concept of relinquishing an offensive SEAD capability proves unacceptable, then consideration should be given to investing in UCAV technology to provide a weapon system capable of Destruction of Enemy Air Defences or DEAD.<sup>25</sup>



#### **Offensive/Defensive Air Capability**

The RAF's current and future offensive and defensive capability can provide Euroairfor with a level of technology that should enable the RAF to have a major influence over the employment of Offensive Air in the European theatre. Eurofighter and its associated array of air-to-air and air-to-ground weaponry, coupled with the Joint Strike Fighter (JSF) and the Future Offensive Air System (FOAS) programme, could provide the strategic effect capability needed to attack an adversary's military-strategic and operational centre of gravity. But to lead such a role the RAF must demonstrate that it possesses the C2 required for such systems. Interoperability features, such as digital data-link and fully secure communications technology, must be available to support the sensor (E-3D/ASTOR/Ground radar/Space Based IR Systems) to decisionmaker (ground or airborne C2) to shooter (Eurofighter/FOAS/JSF/UCAV) concept,<sup>26</sup> so that full system architecture is achieved.

...JSF and the Future Offensive Air System (FOAS) programme, could provide the strategic effect capability needed to attack an adversary's military-strategic and operational centre of gravity

#### And Finally,

The implications of ESDI on the RAF's force structure need further analysis but if the 'mutualisation' of Euroairfor, driven by Government spending limits, becomes a reality then I believe that the RAF needs to take stock of its position now and to assess what it can offer in the future. As a major contributor, the RAF must offer the preponderance of C2, strategic airlift, ISR and both an offensive and defensive air capability to Euroairfor but, I believe, can only do so at the expense of tactical air reconnaissance and an offensive SEAD system. Nor can UAV/UCAV technology be overlooked and its growth potential is enormous. Such is its significance that it could quite easily provide the basis of a separate paper, but I highlight it here because their utility could well have a major influence on the RAF inventory of the future, especially in the ISR and offensive air power roles.

The accelerated progress of ESDI over the last 5 years has indicated to NATO that Europe has the desire to contribute more towards its own Defence and Security. Within Europe, there has never been a more cooperative approach to EDSI and its future, more than ever, will continue to develop to achieve its goal as the 'second pillar' of European Defence. The CJTF concept adopted by the EU for its Petersberg Tasks has provided the backbone for the command and control of collaborative European forces. The Helsinki headline goal will come to fruition in 2003, with a

60 000 strong land force under command of European officers. The next logical step will be to establish equivalent maritime and air forces. Furthermore, as the level of defence spending across Europe will continue to decrease in real terms over the next generation, I believe that successive Governments will look more towards ESDI to provide a collaborative European response to any crisis that may develop in, or on the peripherals of Europe.

Such options may prove tempting for the Government, especially where collaborative effort within ESDI may provide an achievable and cheaper solution. The establishment of Euroairfor will have force structure implications for the RAF. While we are investing heavily in a number of systems that will provide our capability throughout the timescale of 2015 to 2030, competition for the decreasing 'pot of gold' will force the RAF to review its force structure. That is not to say that the quality of systems will be affected, but the way we do our business will come under much closer scrutiny. Therefore, I feel it is important for the RAF to put its 'markers in the sand', to pre-empt an examination of how we employ our forces, identify where our capability gaps exist and how we can best attack perceived shortfalls. Should future Governments endorse the Euroairfor concept, as I believe they will, what can the RAF 'bring to the party' in terms of mutualisation so that we retain a major role in the planning and execution of EU-led operations or campaigns.

Should future Govt's endorse the Euroairfor concept, as I believe they will, what can the RAF 'bring to the party' in terms of mutualisation so that we retain a major role in the planning and execution of EU-led operations or campaigns

The RAF must maintain its core leadership skills so that it retains control over the forces assigned to Euroairfor and provides the leadership required for a collaborative force. I believe that we could provide leading roles in both airlift capability and ISR functions. Our strategic airlift capability, with C-17, FTA and potentially SkyCat, will be extensive and cannot be matched by any other European country. The information void that could be left by the US would provide Euroairfor with a significant problem that can only be overcome by a collaborative effort. The RAF's planned investment in an ISR triad capability will provide the majority of information needed by European 'CJTF' C2 elements. However, by allowing other European countries to invest in space-based equipments (such as France, Germany, Italy and Spain) will enable the RAF to concentrate on the development of air-based sensors. Indeed, through our special ties with the US, releasability becomes a lesser problem should we need access to space-based technology for national operations. With the technology available, tactical air reconnaissance could be conducted by next generation UAVs, which could provide the opportunity to make significant savings from maintaining three manned flying squadrons.

With the UK unlikely to become involved in anything above national lower end-PSOs from a unilateral perspective, then we should question the need to pursue a SEAD capability. The capability gap currently identified could take many years and considerable investment to overcome, where I believe that this is a capability that could be provided by other EU nations within ESDI. A number of European Nations have already expressed interest in emerging US SEAD technology and should they continue, then I would question the need for the RAF to pursue an offensive SEAD system replacement. The UK will acquire an impressive offensive and defensive air capability but we must ensure that we have the correct system architecture in place to ensure that the sensor-decision maker-shooter concept can be used to its maximum capability in the European theatre.

#### NOTES

- 1. Maritime Contribution to Joint Operations, Future Army Concept Paper and Future Air Capabilities.
- 2. EDC formed by Belgium, France, Luxembourg, Italy, the Netherlands and West Germany.
- 3. Comprising Belgium, France, Luxembourg, the Netherlands and the UK.
- 4. Extracts from the WEU Council of Ministers' Rome Declaration, Rome 27 October 1984.
- 5. Hague Declaration of WEU Ministerial Council, 1987.
- 6. Foreword to Jane's NATO Handbook, 1992.
- 7. Extracts from the WEU Council of Ministers' Petersberg Declaration, Bonn 19 June 1992.
- 8. Extracts from the Final Communiqué of the NATO Berlin Summit, 3/4 June 1996.
- 9. European Defence: Momentum Regained. Edward Foster. RUSI Newsbrief Vol19 No 12 Dec 1999, Page 89.
- 10. Select Committee on Defence Eighth Report, 11 May 2000, Opinion, Para 50.
- 11. European Union Headline Goal Initial UK Response to the Helsinki Headline Goal Catalogue. NEPG/E/4/4 dated 6 Sep 00.
- 12. Select Committee on Defence Eighth Report, 11 May 2000. History of the ESDI, Para 29.
- European defence takes a leap forward. Francios Heisbourg. Chairman, Geneva Centre for Security Policy. NATO Review Spring/Summer 2000 Page 8 – 10
- 14. ibid. Page 9.
- 15. Ibid. Page 9.
- 16. ESDI: from stalemate to fruition? Yves Boyer, Deputy Director Foundation for Strategic Research, Paris. RUSI Newsbrief 2000 Page 116.
- 17. It is not the intention of this paper to argue the case for or against the survival of NATO post-ESDI. It is assumed that the NATO Alliance will remain in tact and that the NAC will determine whether operations within, or on the peripherals of Europe will be led by the EU.
- 18. The Tactical Air Command and Control System equipped with Tactical JTIDS (Link 16) Facility will be able to support a regional CAOC and provide C2 facilities as well as an essential airspace surveillance and control capability.
- 19. European Defence: Momentum Regained. Edward Foster. RUSI Newsbrief Vol 19 No 12, Dec 1999, Page 90.
- 20. JDW, Vol 34, Issue 2 12 Jul 00 page 12. SkyCat is a strategic airlift concept based on an airship design. Demonstrators have already flown and the proposals include an airlift capacity increased to, potentially, 1000 tonnes (12 –16 MBTs plus supporting elements) at transit speeds of up to 110kts.
- Rapid Effect was first highlighted in the Future Army Concept Paper, ECAB/P(99)21 dated 22 Nov 99. Early Effect is defined in the 1st Draft – An Early Effect Capability for the Future Army: D/DG&D/FD/08 (under development).

- 22. E-3D, Nimrod-R and Airborne Stand-Off Radar (ASTOR).
- 23. Article 'France, Germany and Italy set to make space pact' JDW, Vol 33 Issue No 25, 21 June 2000, Page 4.
- 24. Loitering Electronic Warfare Killer System, brief provided by US Advanced Concept Demonstrator Team to Air Warfare Centre 1 Jun 00. LEWK aims to use current UAV technology to provide role-flexible employment, ranging from SEAD/DEAD using GPS guided munition systems, to real-time armed recce of the battlefield.
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CHALLENGES FOR THE NEW CENTURY



**Review Essay** 

# AIR POWER 21:

#### Challenges for the New Century by Peter W. Gray

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Group Captain Peter W. Gray, the Director of Defence Studies in the Royal Air Force, is the editor of *Air Power 21*, where distinguished analysts examine air power challenges for the new century. This review essay will identify the recurring themes, discuss the contributions and provide a brief assessment of the book as a whole.<sup>1</sup>

#### he Icarus Syndrome

In seeking to understand the present state of air power thought, and the related question of where it comes from, there are a number of problems that confound ready explanation. According to Carl Builder, air power theory was a pertinent factor in the establishment of the USAF as an independent military service, but the subsequent abandonment of air power theory in the face of competitive *means*, such as missiles and nuclear devices, and *ends*, such as deterrence and a tactical orientation to warfare, separated the USAF from those commitments that had ensured its creation in the first place.<sup>2</sup> In the 1950s and 1960s the USAF apparently shifted its focus from the conceptual thinking of winning wars to the business of procuring bigger and faster aircraft on the one hand and merely supporting the ground commander's scheme of manoeuvre on the other.

Those decades produced some of the same problems for the RAF. One hypothesis is that the British adherence to the concepts of deterrence, gradual escalation and flexible response weakened the position of the RAF as a *war-winning* service, and when it chose to abandon combat helicopters following such limited engagements as the Malayan Insurgency it also weakened its position as a *war-fighting* service.<sup>3</sup> When the RAF lost its nuclear capability to the Royal Navy's submarine force, because of technological imperatives, it next fell out of the first-team category and found itself in a doctrinal and theoretical void. Although this explanation is too simplistic, the fact is that the military threat was changing rapidly and on a large scale, and both the RAF and the USAF had to keep pace with the changes, but in the process a conceptual understanding of air power was undermined.



I am tempted indeed to declare dogmatically that whatever doctrine the armed forces are working on now, they have got 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.<sup>4</sup>

Doctrine is a good servant but a bad master, and should be no more than a common basis for change.<sup>5</sup> It is important to continue the quest for a holistic and comprehensive air power theory, and to formalise a concept for war-fighting doctrine, but it is a long, ambitious and cumbersome process. The prerequisite is to have reasonable insight into the environment in which air power is applied, and therein lies the foundation for flexibility, creativity and improvisation, even though it does not amount to a holistic theory in its own right. One approach to enhancing such understanding is to establish workshops where academia and military experts meet to discuss and write about current and future challenges.

The Director of Defence Studies (RAF) is such an attempt where a series of air power workshops have been held since 1994. The first book deriving from this process, *The Dynamics of Air Power*, discussed the evolving theory and air power's role in peace support operations, and the second publication, *Perspectives on Air Power*, focused on air power in a political, technological and military context.<sup>6</sup> The latest contribution in the series is *Air Power 21*, where professors Michael Clarke, Tony Mason and Philip Sabin contribute for the third time. Together with David Gates they provide a broad and cross-cutting context, while the others contribute to the current debate on air power by exploring specific topics in some depth.<sup>7</sup> The analytical standard of the essays makes them worthy of consideration, as the peacetime airman's principle task is to prepare effectively for the next conflict.

#### A Synopsis of Air Power 21

There are several recurring themes in this collection of essays, and the most profound are the importance of being able to operate both jointly and combined, acknowledging that political considerations will always prevail in the making of strategy, be there a revolution in military affairs or not, and that one still does not know how to translate military success into the desired political endstate.

Michael Clarke discusses the greater political volatility in which modern high-technological air power operates. He argues convincingly that one is increasingly witnessing military conflicts in which national survival is not directly at stake, as one enters conflicts for indirect national interests, such as humanitarian operations, and consequently the political objectives of any given

coalition will be multiple. The perceptions, values and cost-benefit analysis will depend on the vast numbers of nongovernmental institutions, public opinion, local actors with economic and political agendas and each government's international and domestic interests in any specific situation. Clarke warns that in the process of policy-making the decisions for engagement become *intuitive* rather than *analytical*, and whenever operational and political considerations do not coincide the latter will prevail. Clarke argues that modern air power can be applied as a coercive tool on both the operational and grand strategic level of peace enforcement and war, but again it must be within the political framework, which is "dominated by instinctive political imperatives that render other carefully calibrated cost/benefit projections essentially irrelevant".<sup>8</sup> While air power often has been a military instrument of the last resort, the instinctive calculus by political leaders in the future might suggest that air power should be used in situations that do not amount to war. There is a huge dilemma herein that air power becomes an *ordinary* extension of politics by other means rather than an *extraordinary* instrument that is only applied within strictly defined legitimate cases. Moreover, in that process of opportunism there is the danger of air power being misapplied.

David Gates takes this aspect further from a different perspective and argues that now that air power appears to be the instrument of choice it can easily become a weakness, since it undermines the synergy of joint operations that might be required to defeat future adversaries. He warns against airmen's enthusiasm for seeking the panacea, because for "all its technical sophistication" there remain "insurmountable constraints on its application".<sup>9</sup> Thus, air power must collaborate more closely with surface forces on the one hand and aircraft, helicopters and missile options must be integrated on the other, in order to provide politicians with optimal military leverage. Gates observes that the USAF is moving in the right direction as far as harmonisation of air power doctrine is concerned, as it stresses generic capabilities and competencies such as power projection, air and space control, precision engagement and the exploitation of information, rather than roles, missions and organisations.<sup>10</sup> One point that receives surprisingly little attention in the current debate on air power is whether NATO members should specialise in order to complement each other. Gates touches upon these issues, and warns that although some air forces might be tempted to develop a niche capacity there are larger problems associated with such developments that have to be looked into. He further makes a case for missiles, as they do not put airmen's lives in danger and are politically attractive instruments for showing determination in low-intensity crises. Moreover, he agrees with Philip Sabin that aerodynamic missiles may be the preferred choice for inferior powers challenging the West. Air power is importantly presented first and foremost as a "force enabler", rather than an instrument capable of solving such a complex phenomenon as war on its own. It is immensely difficult to translate even precise targeting into the desired political objective, and in this process it is pivotal to realise that air power is an enabler for surface operations and diplomacy.

David Caddick offers some sceptical perspectives on the role of air power in the RMA, by examining the concept from a historical perspective, and exploring how air power fits into that notion. He argues that technological improvements witnessed

in the last decade do not amount to a revolution in military affairs, as such an achievement requires doctrinal and 102 organisational changes of huge proportions that have not yet materialised. Caddick argues that although air power is an essential component of the technological developments in speed, precision and lethality, it is only the USAF that has partly managed to implement the larger conceptual aspects. However, to believe that technological improvements will ever result in an orderly war would be an illusion. While one might prefer to bridge the gap between the USAF and the rest of the world,<sup>11</sup> he warns that "an over-emphasis on technology can unreasonably raise expectations about the tragic but inevitable destructive impact of military force".<sup>12</sup> The thesis has interesting implications, as one tends to focus on the uniqueness of each service, in order to sell one's own product, and technology is a facilitator therein, but one also tends to forget the overarching factor of how "power" in the form of "violence" can be used to achieve the political endstate. There is indeed much to explore on the linkage between technological improvements such as stealth, precision and stand-off weapons in their relationship to information warfare and the whole significance of battlespace awareness therein. Although the ending of the Cold War has created opportunities for air power as a "force enabler" there arise, nevertheless, just as many restraints and constraints, and air power remains the art of what is politically possible rather than technologically achievable. Finally, one should acknowledge that every want is a weakness, and an adversary may well take advantage of the asymmetric warfare that the technological superiority of information-age forces lends.

Philip Sabin identifies how underdogs have challenged their opponents in the past, examines whether these "techniques" can be synthesised into a coherent counter-strategy and discusses the implications for Western planners. The techniques to counter the effects of enemy air superiority are categorised into "limiting vulnerability", "fostering restraint", "striking back" and "contesting information dominance". In examining the ultimate challenge, namely to translate tactical and operational advantages into an integrated overall strategy that can secure victory, he assesses asymmetry versus flexibility in the structuring of forces, deterrence versus provocation in devising a coercive strategy and activity versus endurance in the underdog's conduct of military operations. Based on a range of historical examples Sabin warns that although these paradoxes often prevent tactical triumph from amounting into strategic relevance, it would be dangerous for the Western powers to continue mirror-imaging the enemy as a passive opponent. It is rare to find western analysts attempting to go beyond mere "red-team" hypotheses and his structured and well-articulated essay is an excellent starting point for an exhaustive study. It would be interesting to study, for example, Norwegian or other small Western nations' thinking concerning the classic potential threat from the East, and in that process acknowledge that an underdog can be technologically advanced. Finally, Sabin mutually supports Gates' argument that integrated air defence systems are likely responses to superior air power in the future.

Timothy Garden provides some interesting thoughts on air power in a European perspective. He argues that although Europe has roughly the same resources as the United States it spends only half as much on defence, but more importantly, it is "currently trying to support far too large a number of regular forces, conscripts and reserves on too few funds".<sup>13</sup> Garden argues
that European nations must work together at reorganising their military force from the present Cold War structure, where air power assets are designated for defensive and supportive roles in a short high-intensity conflict, in order to match and complement the United States. Using Operation Allied Force as a benchmark for likely future scenarios, where humanitarian aspects are at the centre, Garden suggests that each nation should specialise rather than generalise their air forces, and next generate these assets into a European "pooling system". The NATO AWACS force is one such example, and high dividends may be paid if one extends that model to include airlift, air transport, air-to-air refuelling, reconnaissance and search and rescue operations. These are roles that are expensive in terms of equipment and training, but since they do not involve combat aircraft one's sovereignty is not compromised and thus it would to a larger degree be politically acceptable. The operational problems to such an integration are manageable, and by accounting for a European Union defence capability and suggesting near, medium and long term approaches to meet the new political challenges, Garden emphasises that these steps are not only politically feasible but necessary. The thesis is plausible as the 1990s bore witness to the fact that every nation found a niche within which it could contribute something important to the air campaigns in which it chose to participate. Moreover, the size of force contribution is only one factor in coalition operations, and not necessarily as important as the mere commitment of the participating nations.<sup>14</sup> The Europeans do not have the advantage of single-nation purchasing, and none of the Europeans can afford proper ECM investment, but an arrangement whereby each of the European nations contributed a number of ECM aircraft would mean that real capability was attained. There is, nevertheless, a danger that some European countries choose not to fight in certain coalitions, and those countries may well have niche capabilities on which the overall alliance depends.

Stuart Peach, in providing a brief overview of air power history from the perspective of command and control, is not convinced that there will be a smooth transition in meeting future challenges. He questions contemporary understanding of command and control, arguing that although doctrines emphasise "centralised command and decentralised execution", the air commanders of Operations Deliberate Force and Allied Force found themselves at tactical levels, facing the danger of focusing on target-lists and process rather than strategy, which is the true realm of generalship. Allied Force was not in accordance with the principles of "manoeuvre warfare", as the campaign was rigorously controlled and highly scripted.<sup>15</sup> Peach warns that the current concern with providing definition labels is at the expense of the true profession of arms that is so critical to enabling successful air operations. Moreover, as one deals with wars of "choice", rather than wars of "necessity", with all the historical, ethnical and religious complexities that often characterise a multinational operation, Peach argues that it will be increasingly difficult to allow other nations to accept either command or control of own forces on all levels of war. This might be the biggest challenge to Garden's thesis of an integrated European force, and when one adds Clarke's argument of multiple political objectives in future conflicts the consequence of not contemplating a wider understanding of operational decision-making becomes immense. Furthermore, in order to ensure optimal decision-making at the strategic level one has to think jointly, where cultural differences



apply, and finally the wrap-time nature of information age warfare requires ever better situational awareness and judgement from the operational commanders. Such a focus requires insight into the nature of command in which the human function cannot be substituted by computers and procedures, and Peach suggests "air forward" commanders who deal with day-to-day targeting and tasking, while the strategic command function would be carried out in a remote multinational headquarters.

While Garden looks at combined air power challenges, Mungo Melvin looks at the first part of the joint perspective, by considering underlying institutional, parochial and cultural problems that have limited air-land co-operation in the past. On the operational level he argues that there is an inherent lack of common approach to the planning and conduct of war, particularly because of conceptual differences in the command and control of the respective forces, that next serve as a source of discord at the strategic level. Melvin argues that air power has become the preferred military instrument, as politicians are reluctant to commit ground forces to the battlefield, and since the modern battlefield is a mixture of combatants and non-combatants, villages and cities. Thus, it becomes difficult to argue the case for ground forces when vital national interests are not at stake. Consequently, close air support takes second place to distinct air operations, but in accordance with the Gates-thesis, Melvin suggests that it would be a profound mistake to neglect air-land co-operation, because one must be prepared to "mount all types of air operations in a given 'threat' environment".<sup>16</sup> In the quest for force synergy, one must move beyond the narrow notion of tactical air support to land forces and approach the challenge at an operational and strategic level where it is about support for each other in facilitating tempo. In this context the airmen's task would actually be to convince their army and navy counterparts that they need air power in order to do a better job: it is about joint training and mutual understanding with an emphasis on how air power can shape the battlespace environment.

In accounting for the air-sea component of joint operations, Christina Goulter argues that there is a general failure to fully appreciate the role of air power in naval expeditionary warfare, by which she defines operations launched from the sea. She demonstrates through a number of historical examples the problems and advantages in each of the main phases of expeditionary warfare: "Transit to the littoral; fighting from the sea; and breakout from the beach-head".<sup>17</sup> She emphasises the versatility of air power's contribution to shaping operations and argues that potential adversaries, such as India, Russia and China, will have a major advantage over an expeditionary force through their dedication to anti-shipping squadrons. Goulter warns that Britain's decision to rely heavily on stand-off anti-surface warfare may prove to be a serious mistake, because such a capacity is just as important in the future as it was in the Cold War. While air power is but one element of an expeditionary operation, it plays a critical role in all three phases and thus, in order not to compromise the effect of the operations, one cannot afford to cut specific capabilities such as anti-surface warfare and anti-submarine warfare. She warns that the cost-reduction often associated with expeditionary forces, as an alternative to massive ground forces, is highly questionable as preparation requirements have increased. It would be interesting to combine some of these observations with Sabin's

underdog-thesis, because expeditionary forces by nature are extremely vulnerable, within the enemy's reach and even old low-technology diesel submarines can cause substantial damage. While airmen often associate the third dimension with space, an adversary might find great opportunities in exploring under-water weaponry, and it would be worthwhile to consider expeditionary warfare beyond the naval framework.

In the final chapter Tony Mason suggests that the 20th Century ended, militarily, with the Gulf War, and as the 1990s witnessed new international circumstances in which air power operated, he argues convincingly that the differences and similarities in previous wars require a re-evaluation of underlying air power concepts and ideas. He offers interesting reflections on the experience from Iraq, Bosnia and Kosovo, and on the latter he considers both the strategy and the political sensitivities. He argues that "gradualism" should be reconsidered as part of a coherent strategy, as it provides diplomatic leverage towards the ends for which the campaign is waged. Moreover, it strengthens the flexibility of air power options that are required to meet expectations of the complex political environment likely to dominate future conflicts. Thus, overwhelming force "will not always be possible, desirable or acceptable" because of the larger political considerations that must be allowed to dominate the choice of strategy.<sup>18</sup> Mason argues that air power contributes to the resolution of conflict through shaping the environment, distinct operations and supporting surface forces, and as one should emphasise effects rather than roles, he questions the functionality of distinguishing between tactical and strategic air power. To some extent the last paragraph summarises air power's challenges for the new century:

There can be no single template for the successful application of air power. The versatility of air power application is as wide as the spectrum of conflict itself and the range of political objectives being pursued. There is now the need and opportunity to revisit some well worn ideas and construct a conceptual paradigm appropriate to many different scenarios, in which air power can sustain coercive diplomacy and become a primary instrument reinforcing the ongoing political dialogue. Thereby, it may sometimes act distinctly and directly, with overwhelming strength or more gradually, against an opponent's will to resist. On other occasions it may shape an environment for others to exploit. Elsewhere, it may protect and enhance other forces.<sup>19</sup>

#### **Overall Assessment**

To summarise the messages in *Air Power 21*: It is about re-evaluating air power strategy, accepting that overwhelming force is not the only viable option; it is about realising that air forces must collaborate more intimately with surface forces and strengthen the combined arm; it is about moving beyond military "mirror-imaging" and accounting for the enemy deceptions and perceptions; and it is about developing a profound understanding of the political sensitivities that are always associated with air operations, and the command and control challenges therein. The book is about political and military acumen, accepting that things have changed and a restructuring is required since the days of the Cold War, where unity of purpose and effort could be taken for granted.

The essays offer apparently little contradiction and provocation, but rather reinforce each other's conclusion. Although 106 some "professional disagreement" would have been welcome – accepting that "truth has many faces" – the book provides genuine and perceptive air power insight, and as such encourages further studies of the consequences associated with air power as an instrument of choice. For example, air forces might suggest a substantial restructuring in order to become "leaner and meaner" within any given budget, but the consequence would be closing existing air bases and other infrastructure throughout the country. Regional and local politicians would next find their income base substantially reduced and again the political agenda, intuitive or analytical, would dominate at the expense of operational cost-effectiveness. Short-term expedients would prevail over any long-term or abstract consideration, and as air power is viewed as an instrument that can be used in "low-intensity-conflicts" it becomes the airmen's task to convince the politicians what air power cannot do. Airmen may complain that they were not allowed to exercise the preferred air strategy in Operation Allied Force for political reasons, but it is partly a self-inflicted wound, as airmen have traditionally oversold their case.<sup>20</sup> After all, air power has limited influence on ground activities, as witnessed in Somalia and Kosovo; limited operational sustainability in the crisis area; limited night/all weather capability; and air power is vulnerable to enemy fire. Indeed, technological superiority does not win wars, as witnessed in Vietnam, and air power has an inherent lack of stamina, which has hardly been touched upon in these essays. Although missiles and integrated defence systems are mentioned as future problem areas for Western powers in several essays, none of the authors pay lengthy attention to them, and estimates are that twenty-one countries will possess the most advanced "double digit" SAMs, such as the SA-10/12 and -20, by 2005.<sup>21</sup> Non-western countries may not bother with the traditional manned air power platform approach, but concentrate fully on defensive and offensive missile systems. Small western states should also seriously examine such an option, and its consequences for air power force structuring, as missiles are becoming increasingly more capable.

Some chapters are inevitably more skilfully developed and clearly articulated than others, but overall the analytical standard is impressive, and collectively *Air Power 21* is worthy of attention. The book is useful in the process of developing a comprehensive military theory, as the fallacy of suggesting one-dimensional solutions to all future challenges has been avoided. If Icarus is to be fully saved, however, one might suggest an increased focus on the social mechanisms related to the use and nature of force, violence and power. As one moves into a new century, where low-intensity crisis may dominate and the United States may reduce its commitment to Europe, one can only hope that exploring the underlying nature of air power becomes the focal point in strategic thought, and not the aircraft, be it manned or not. In that process it is imperative to contextualise air power, which is to consider it in its proper political realm with all the economic, social, psychological, public and diplomatic aspects that follow. As many air forces witness current institutional problems, the challenge is to enhance air power understanding at the strategic level, by focusing on vision and commitment to the true profession of arms.

#### NOTES

- 1 The author would like to thank Dr. H. P. Willmott, Dr. Alan Stephens, Nils E. Naastad and Patricia Aresvik for comments on this essay.
- 2 Carl H. Builder, *The Icarus Syndrome: The Role of Air Power Theory in the Evolution and Fate of the U.S. Air Force*, 4th ed., (London: Transaction Publishers, 1998).
- 3 Philip Anthony Towle, Pilots and Rebels: The Use of Aircraft in Unconventional Warfare 1918-1988, (London: Brassey's, 1989).
- 4 Sir Michael Howard, cited in Lt. Col. William F. Andrews, *Airpower Against an Army: Challenge and Response in CENTAF's Duel with the Republican Guard*, (Maxwell Air Force Base, Alabama: Air University Press, 1998), p. 3.
- 5 H.P. Willmott, "When Men Lost Faith in Reason: Reflections on Warfare in the Twentieth Century", (work in progress).
- 6 Andrew Lambert and Arthur C. Williamson (eds.), *The Dynamics of Air Power*, (Bracknell, Berkshire: HMSO, 1996); and Stuart Peach (ed.), *Perspectives On Air Power: Air Power In Its Wider Context*, (London: HMSO, 1998).
- 7 Peter W. Gray (ed.), *Air Power 21: Challenges for the New Century*, (London, HMSO: 2000).
- 8 Michael Clarke in Peter W. Gray (ed.), Air Power 21: Challenges for the New Century, p. 8.
- 9 David Gates in Peter W. Gray (ed.), Air Power 21: Challenges for the New Century, p. 23.
- 10 United States Air Force, Air Force Basic Doctrine: Air Force Doctrine Document, September 1997.
- 11 Note that precision strike, stealth and stand-off weapons are in many ways the three capabilities that have driven the RMA, and they are more or less solely resident in US aerospace forces.
- 12 David Caddick in Peter W. Gray (ed.), Air Power 21: Challenges for the New Century, p. 66.
- 13 Timothy Garden in Peter W. Gray (ed.), *Air Power 21: Challenges for the New Century*, p. 103.
- 14 Richard P. Hallion, "Critical Aerospace Capabilities for Coalition Operations", paper presented at the Royal Norwegian Air Force Academy, Trondheim, 7 February 2001.
- 15 William S. Lind, "The Origins of Maneuver Warfare and its Implications for Air Power"ß, paper presented at the Royal Norwegian Air Force Academy, Trondheim, 22 September 2000.
- 16 Mungo Melvin in Peter W. Gray (ed.), Air Power 21: Challenges for the New Century, p. 181.
- 17 Christina Goulter in Peter W. Gray (ed.), *Air Power 21: Challenges for the New Century*, p. 183.
- 18 Tony Mason in Peter W. Gray (ed.), Air Power 21: Challenges for the New Century, p. 222.
- 19 Tony Mason in Peter W. Gray (ed.), Air Power 21: Challenges for the New Century, p. 236.
- 20 Lieutenant General Michael C. Short, "An Airman's Lessons from Kosovo", paper presented at the Royal Norwegian Air Force Academy, Trondheim, 28 February 2001.
- 21 Richard P. Hallion, "Critical Aerospace Capabilities for Coalition Operations", paper presented at the Royal Norwegian Air Force Academy, Trondheim, 7 February 2001.

AIM-7 AMRAAM air-to-air missile being attached to a Royal Naval Sea Harrier. 07

EW READING NEW READING

# BOOK REVIEW BY GROUP CAPTAIN PETER W GRAY

### **OVER LORD**

#### GENERAL PETE QUESADA AND THE TRIUMPH OF TACTICAL AIR POWER IN WORLD WAR II Thomas Alexander Hughes Free Press, New York 1995

The main part of the title of this book is, at first sight, somewhat confusing. The cover picture shows an excellent painting of Royal Air Force Typhoons roaring overhead an enemy armoured convoy that had obviously been recently destroyed. The reader is therefore expecting an exposition on the use of tactical air power in the Allied invasion of Normandy – Operation OVERLORD. The use of the upper case, but with a gap between the two syllables then implies that Quesada had been in charge of all tactical air power over Normandy – which he was not. He was actually the US Army Air Force two star general in charge of the Ninth Tactical Air Command. His British opposite number was Air Vice-Marshal Arthur 'Mary' Coningham who was in charge of the Second Tactical Air Force. Given that egos were a major factor in the complicated inter-command relationships during the invasion of France, the distinction is worth making.

This book is actually well worth reading for its treatment of a number of these relationships, especially those centred around Quesada himself. He was often considered to be immature, brash and impetuous in his actions and in his dealings with people. He spent most of the inter-war years in personal staff appointments rather than gradually accumulating command and leadership skills. His contacts proved invaluable with the onset of war seeing him rise from Major to Brigadier General in very short order. According to his subordinates this showed at first. The other side of this coin, however, was that Quesada was very broad minded when it came to what he saw as the real priorities of war fighting – he was far less indoctrinated with strategic bombing theory than were many of his compatriots. This book is at its best in its treatment of the special relationship that developed between Quesada and General Omar Bradley, the US Army land force commander, and the tactical employment of air power.

Hughes covers three broad generic areas in this work. It is obviously based specifically on Quesada and provides a very useful biography of a talented and energetic US airman. As with many such works, there is a tendency towards hagiography leaving the reader wondering how the war could possibly have been won without Quesada. Hughes provides some useful insights into the high level command relationships and the doctrinal issues that desperately needed voicing if the debate was to rise above the sterile attachment to strategic bombing alone. Even while the War was still far from won, many senior US airmen were pursuing a hidden agenda – an independent Air Force and their own likely role therein; this is also well covered. The third element is the narrative story of the significant events in which Quesada played a part. Much of this is at the tactical level and makes very entertaining reading. Overall, the balance between these themes is well handled and Over Lord is recommended.

book reviews

READING NEW READIN

### THE TRENCHARD TOUCH

#### CYRIL HAVARD Countrywise Press, Chichester, 2000 ISBN 1 902681 13 4

In his Trenchard Memorial Lecture to the Royal United Services Institute in September 2000, the Chief of the Air Staff invited historians to consider a renewed look at the life of Trenchard. The only substantial biography, by Andrew Boyle, is now somewhat dated and such an influential figure would benefit closer analysis – in particular his relationship with Sir Frederick Sykes who has almost been 'air brushed' from history. This book by Cyril Havard is not what CAS had in mind and is barely worthy of the title chosen. Havard is a retired surgeon, 'a successful novelist' and has recently published a book of medical eponyms. Would that he had stuck to these areas.

Havard sets himself the exam question of looking at whether Bomber Command's losses could be justified, with follow-on query as to whether their 'young lives were sacrificed as the result of bigoted beliefs held by honest but misguided personalities...'. Emotive stuff. The efficacy of the Bomber Command strategic campaign has long been a popular topic, with some good analysis and a lot of background noise. Professor Richard Overy's *Air War 1939 –1945 and Why the Allies Won* are prime examples of the detailed analysis that is needed if anything approaching full justice is to done to the subject. Regrettably neither of these works are cited in the bibliography and nor are the many learned journal articles available. (Annoyingly, Harris's Despatch on War Operations is cited twice suggesting sloppy proof reading.) The treatment of both Trenchard and his so-called strategic bombing legacy are, likewise, extremely superficial with the inevitable quotations taken out of context.

Regrettably this book does justice neither to the men of Bomber Command to whom it is dedicated nor to Trenchard. It is most definitely not recommended.

ook review

EW READING NEW READING

# **BOOK REVIEW BY WING COMMANDER DAVID CADDICK**

### THE FALL OF CRETE

#### ALAN CLARK Published by Cassell ISBN: 0 304 35226 8

The Fall of Crete by the late Alan Clark was first published in 1962 and was republished last year. It tells the story of the battle for the strategically important Mediterranean Island of Crete. It is written in an engaging style that covers the strategic context of the battle, the tactical conduct of the battle and many individual recollections and interpretations of events in the fierce and bloody fighting that took place.

The island was considered to be strategically important by both the Allies and the Axis powers as it could be used as a base from which the Mediterranean and Aegean seas could be dominated by air and naval forces based on the island. Its size means that numerous airfields, in addition to the 3 already in existence, could be constructed to host any number of aircraft. Its main port, Suda Bay, was considered to be one of the finest anchorages in the Mediterranean that could be readily defended by land base artillery from both air and naval attack. Thus whichever side controlled Crete would have a great strategic advantage in the Mediterranean theatre of operations with all that this implied for the campaigns in North Africa and the Balkans. The Axis forces enjoyed air superiority whilst the Allied powers were dominant at sea and were able to garrison the island with almost 30,000 troops. The German forces eventually took the island in May 1941 using parachute and glider troops to seize the 3 airfields with follow on forces being airlanded on the captured aerodromes.

The battle for Crete is worthy of study by students of air power for several reasons. First there is the lack of joint campaign planning on the part of the Allies that led to a less than coherent defence being prepared. Second, although the vital ground and centres of gravity, in particular the island's airfields, were correctly identified they were not afforded the priority for defence that they merited. Indeed, once their importance was confirmed by the actions of the attacking forces they were not effectively reinforced. It is interesting to note that the German forces, ultimately the victors, reinforced their limited success whilst the Allies did not reinforce their quite considerable successes in the early stages. Third, the campaign illustrates the point that in modern war there are no rear areas. The RAF personnel on the island were considered non-combatant, and indeed they were not trained or equipped to carry defensive operations. Had they been the outcome of the battle might have been very different. Fourth, the importance of air superiority is driven home, as well as the ability to counter air superiority which the allies were able to do by operating at night and by using their ground based air defence to good effect. Finally the pivotal role that a robust C4I system plays in the success or failure of battle is exposed.

The book is somewhat disappointing in relating events after the fall of Crete as it concentrates on the exploits of individuals. It would have benefited from a more strategic analysis of the conduct of the war now that the Germans held Crete. It is also somewhat anti-German in sentiment in some parts of the book, which could call into question its objectivity, but this can be excused by the fact that it was originally written only 17 years after the war had ended.

Overall the Fall of Crete provides a serious study in joint operations for all students of the military art. In particular, almost 60 years exactly since the battle was fought, the terrible cost for all sides and the gallantry displayed by so many is a vivid reminder of the human price of military operations.

book reviews

READING NEW READING NEW

## **BOMBER HARRIS - HIS LIFE AND TIMES**

### A preview by the author, Air Commodore Henry Probert.

'Bomber Harris', among the most controversial military commanders of the Second World War, remains the target of criticism – even vilification – by many. By others he and his men's contributions to victory are seen as grossly undervalued. Yet while countless authors have written about the campaign he led and his role in it, so far Dudley Saward is his only biographer. In my view there is much more to the Harris story. Not only is there considerable recent research to draw upon, but Harris's own extensive papers, some in the RAF Museum and others still held by his family, have hitherto remained largely unexplored. Based largely but not exclusively on these sources I try to paint a broader picture of Bomber Commander's wartime C-in-C, to answer some of the unexplained questions about him, and in the process point out important lessons that this most remarkable commander can still teach later generations.

My book is not another history of Bomber Command's war, which I describe only briefly so as to provide a framework for Harris's own role. Instead I have largely concentrated on what I regard as key themes. How, for example, did he do his job and cope with all the stresses? How was he portrayed by the media and how did he try to influence them? To what did he owe his success in leading his men in face of their appalling casualties? How serious were his various disagreements with higher authority. What were the nature and significance of his dealings with Churchill? How close and important were his relationships with the Americans? And what of his role in certain specific raids, most notably Dresden for which he himself so often – and unfairly – carries the blame?

In a 92-year life there is much more. Schooldays, Rhodesia, Passchendaele, the inter-war years, Harris's first and second families, his command of 5 Group all feature. After the war there are controversial questions. Why did Churchill ignore Bomber Command in his VE Speech? Why did Harris receive no peerage and his groundcrews no campaign medal? Why did he exile himself to South Africa? How did he react to the widespread and continuing criticisms of Bomber Command and its achievements? What of his later life at Goring-on-Thames and his activities on behalf of his 'old lags'?

Throughout I have tried to provide insights into the life and character of a remarkable man about whom it is almost impossible to remain neutral. Obstinacy, inability to see others' points of view, a propensity for exaggeration, faulty judgement, remoteness: all are charges that have been levelled at him, and with elements of truth. Counterbalancing these are his leadership, his professionalism, his determination and his decisiveness, coupled with kindness, compassion, generosity and humour. My own view is firm. I regard him as one of the great high commanders of modern history. Not all will agree, but I hope the critics will at least accept that I have tried to present a full and considered picture of a man who will always feature large in the history of air power in the Second World War.

to be published by Greenhill Press, London, in September 2001

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# THE HISTORY OF US ELECTRONIC WARFARE

## **VOLUME III**

## **Alfred Price**

Volume I in this series, "The Years of Innovation," told the story of US electronic warfare from its beginnings until the end of the Second World War in 1945. Volume II, "The Renaissance Years," opened in 1946. It covered developments during and after the war in Korea and ended in 1964 with the Gulf of Tonkin Incident, which drew the US into its full-scale military commitment in Vietnam.

This work, Volume III in the series, carries the sub-title "Rolling" Thunder Through Allied Force." It opens in 1964 with the start of the bombing of North Vietnam later code-named "Rolling Thunder." The US air campaign suffered a major reverse in the summer of 1965, when the North Vietnamese began using Soviet-built surface-to-air missiles against the raiders. Initially, US fighter pilots were guite unprepared to meet the new challenge. They guickly learned that bravery and flying skill, alone, were not enough to ensure survival in the face of the new menace. Losses soared. Then, with a series of countermeasures with varying levels of effectiveness, the missile threat was gradually tamed. By the fall of 1966, US attack fighters could operate over North Vietnam without risk of serious losses. For the B-52 heavy bombers it was another matter, however. The LINEBACKER II attacks on Hanoi and other defended targets at the end of 1972, in which huge fleets of the heavy bombers were committed, are described in unprecedented

detail using information from the participants and from recently declassified official documents.

Volume III provides new insights into the use of electronic warfare by the US fighting services during Operation Desert Storm against Irag in 1991, and during Operation Allied Force against the Former Republic of Yugoslavia in 1999. Separate chapters cover the Intelligence battle, the evolution to stealth techniques and the effects of the burgeoning new electronic technologies on countermeasures systems. There is coverage of the shift towards Information Warfare, and a review of likely future developments in

electronic warfare. Funded by and with assistance from the Association of Old Crows, the author was able to conduct lengthy and detailed interviews with key players in each of these areas.

For much of its sixty-odd vear history, US electronic warfare has remained hidden beneath a cloak of security. Volumes I and II in this series cast shafts of new light on its progression during the time periods they covered. Volume III does the same for the period leading to the present day.



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## Work begins on RAF Museum Restoration Centre

Work has started on a major development at the Royal Air Force Museum at Cosford which will centralise restoration of historic aircraft for the two arms of the RAF Museum – at Cosford and Hendon.

The first turf of the £2.8m project was ceremonially cut by His Excellency Air Marshal Ian Macfadyen, Lieutenant Governor of the Isle of Man, Trustee and a former Chairman of the Trustees of the RAF Museum. He described the new venture as "a most important development for the RAF Museum."

The building will be known as the Michael Beetham Conservation Centre, Cosford, after Marshal of the Royal Air Force Sir Michael Beetham, who was Chairman of the Museum Trustees from 1983 until early last year.

The contract, let to John Sisk and Son Limited, of Solihul Parkway, Birmingham, is due to be completed in November and an official opening by Sir Michael is planned for the spring of next year.

The new Cosford facility was approved following the decision to close the RAF Restoration Centre and Reserve Collection unit at Cardington, where it was located for more than 20 years. The role of the two centres at Cardington will be shared between Cosford and RAF Stafford, where a storage building is being converted to house the Reserve Collection.

The Cosford centre will have a high roofed assembly hall, wood and metal workshops, component bays, a large paint/spray bay, storage areas, offices, a technical records library, crew room and a public viewing gallery from which visitors will be able to see conservation work in progress.

The building will house Cosford's Curatorial Department and technical staff and it is expected that a number of new jobs will be created, but the exact number will not be known until any relocation decisions are made.

John Francis, General Manager of the RAF Museum at Cosford, said: The new centre will become an integral part of the Museum and is expected to enhance the interest in the Museum which has more than eight aircraft on display. The incorporation of a public viewing gallery in the new building will, we are sure, be welcomed by visitors."

The Aerospace Museum Society, the support group for the RAF Museum Cosford, has recruited a number of new members in recent weeks. More are expected to join when the new centre is completed – volunteers to work alongside the technical staff.

"We would welcome anyone but particularly those who may have had past experience in working with fabric and dope – skills that are hard to find these days," says Mr. Francis.

The Museum has been given the go-ahead to remain open during the current foot and mouth disease outbreak.

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## The Coastal Command and 18 Group Officers' Reunion

Each year the Coastal Command and 18 Group Officers' Reunion is held in the Northwood Headquarter Officers' Mess. This year's event will be held on Saturday 3 November 2001. Past and Present Members of Coastal Command, 18 Group, 11/18 Group (Maritime) and 3 Group (Maritime) are invited to attend.

For further details contact Sqn Ldr Bob Hall at Northwood, Tel 01923 846312 (BT) or 9360 46312 (GPTN).

## TURNING POINTS IN AIR POWER HISTORY

### "From Kitty Hawk to Kosovo"

An analysis of air power doctrine and air warfare in the 20th Century

> To be held at the Royal Air Force Museum Hendon Grahame Park Way, Hendon, London, NW9 5LL, UK

### 10 July & 11 July 2001

Speakers from the United Kingdom United States of America Australia & Canada

For further information and registration, please contact:

Defence Studies (Royal Air Force) Joint Doctrine and Concepts Centre Shrivenham Swindon SN6 8RF United Kingdom

> Telephone: 01793 787271 Fax: 01793 787265

e-mail: defs-raf@netcomuk.co.uk

## ROYAL AIR FORCE HISTORICAL SOCIETY

- Formed in July 1986
- Studies the history of Air Power
- Examines the creation of Military Air Power and studies various topics including:
  - The strategic bomber offensive
  - Berlin Air Lift
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  - The RAF in the Far Eastern War
  - Falklands
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- Lectures, Seminars, Discussions and Journal
- Self Financing, £15 membership per annum
- Information and Application Form from: Dr Jack Dunham, Silverhill House, Coombe, Wotton-u-Edge, Glos. GL12 7ND Tel: 01453 843362
- The central objective of the Society is to bring together those involved in Royal Air Force activities in the past and those concerned today so that we can learn more about its history.

# notices/reunions