

CAS' Reading List 2014



Front cover image:

Curious onlookers watch as mechanics work on two Bleriot XI aircraft at Wantage in September 1913. The aircraft were en-route to take part in the annual Army Manoeuvres. Aircraft 292 was later deployed to France on 13 August 1914, in support of the British Expeditionary Force (BEF).

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Foreword

Welcome to CAS' Reading List 2014. Last year in my foreword, I discussed the importance of prioritising our professional and intellectual development as the custodians of UK air power. This year, I am pleased to share that we are enacting this through the RAF Command Plan, which sets out my vision for the RAF to 2020 and beyond.

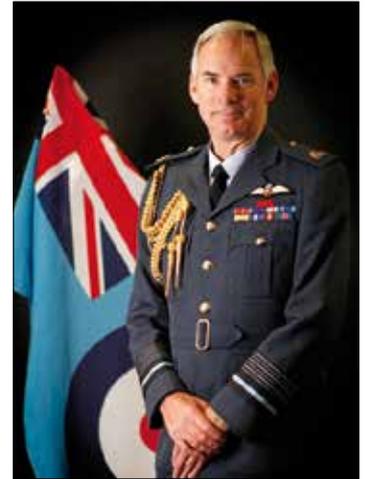
At its heart is the need to prioritise and institutionalise the conceptual component. In doing so we will take a lead in our ability to innovate, adapt and respond to the changing, complex demands placed upon us as a Service. Demands which are no longer exclusively physical, in fighting wars, but instead require us to influence and lead our international partners, for the benefit of the UK. In the coming years, the RAF can play a greater role in driving prosperity for our country through the application of soft – as well as hard – power. Air power offers political choice, freedom of action and value, and it is our task to deliver this unique set of attributes for the nation, in the most effective way possible.

The air power thinker Colonel John Boyd USAF was clear in his views on organisations and change. Forthright as an airman and military thinker, Boyd's mantra was 'People, ideas and hardware – in that order!' This reading list acts as a timely reminder that against a backdrop of new platforms, Unmanned Air Systems and the exponential development in air power technology, it is our people and their ability to think that will give us the cutting edge over our rivals and adversaries. This year's shortlist contains three titles that look at people and leadership, including Boyd, before delving into historical analysis on the First and Second World Wars. Air power is then placed within a wider, strategic and political context before examining future conflict and the cyber environment.

In building a strong, flexible force, resilient to the inevitable challenges and complexities of the 21st Century, our key attribute will remain our people. How our people understand and develop the conceptual component of air power will differentiate us from our peers. As such, it is essential that we embrace both our professional and intellectual development as air power practitioners if we are to play our full part in assuring the interests of the UK and of our partners into the future. This list has been carefully put together to be both accessible and engaging for the reader. I encourage you to make the time to read at least some of these excellent titles.



Air Chief Marshal Sir Andrew Pulford KCB CBE ADC RAF
Chief of the Air Staff



CAS' Reading List 2014

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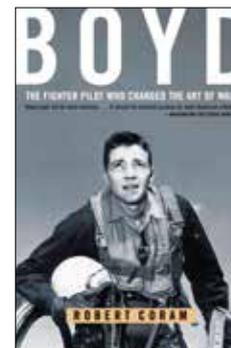
Boyd: The Fighter Pilot who Changed the Art of War

By Robert Coram

Publisher: Back Bay Books, 2004

ISBN: 978-0316796880, 504 pages

Reviewed by Group Captain Shaun Harvey



This is a biography of a fascinating officer and essential reading for all airmen. It will appeal to a wide variety of interests. Aircrew and would-be fighter pilots will enjoy the examination of the ultra-competitive '40-second Boyd,' who at the Nellis Fighter Weapons School maintained the stunning record of defeating all-comers in air-to-air combat within 40 seconds. Readers with a technical bias will enjoy Boyd, the research pilot who developed and documented the first USAF fighter tactics manual and then a theory of air manoeuvre (against the express wishes of his chain of command) and marshalled his ideas up the steep dogmatic slopes of the USAF planning staff to deliver air superiority in fighters such as the F-16. Those who study leadership will discover Boyd the officer as a zealous maverick who demanded and received unflinching loyalty and commitment from his carefully-chosen acolytes. Finally, blue-sky thinkers will appreciate Boyd the visionary, who studied strategy and warfare and advanced a theory of winning that has helped transform our view of the use of air power, driven the US Marines' theories of manoeuvre warfare and is still advancing the competitive philosophies of business gurus.

Col John Boyd is best known to us for his OODA loop, and this may be his greatest contribution to warfighting. But as this book reveals, there is far more to it than the linear, repetitive sequence of Observe, Orientate, Decide and Act that we tend to describe orbits around. Indeed, there is far more to Boyd than the OODA loop. Here, Coram presents us Boyd and his theories as a life-study in application, learning, adaptation and winning.

Readers wishing fully to understand OODA loops, fast transitions and Boyd's other theories of combat will be offered a thorough and comprehensive introduction to the Colonel's research, mindset and philosophy. However, Boyd regrettably published very little of his work, so to take the study of this man further, it will be necessary to research the material on the internet (including YouTube lecture material from Boyd himself) and the books of Frans Osinga (*Science, Strategy and War: The Strategic Theory of John Boyd*. Routledge; 2006) and Grant Hammond (*The Mind of War: John Boyd and American Security*. Smithsonian Books, 2004). Nonetheless, this biography provides the perfect preface to further study.

Coram's examination of Boyd's behaviour in and out of work also makes for fascinating reading. From his propensity for 'hosing' generals in his briefings to the way in which he encouraged his students and acolytes; Boyd's approach embodies the term 'maverick.' The 'to be or to do?' speech Boyd would give to his junior officers, is just as pertinent in today's military as it was then in the USAF and justifies the book's price tag alone. There is also the tale of the relationship Boyd had with his acolytes; those who surrounded and supported Boyd, fighting the 'Pentagon Wars.' Without this

unusual and eclectic mix of committed supporters, Boyd could not have achieved the influence he did over programmes such as the F-16 and A-10.

Robert Coram took nearly 3 years to write this book. His research is meticulous and his presentation clear, highlighting his journalistic roots. Importantly, he doesn't shy from a critical examination of Boyd's character as a maverick, obsessive genius and dreadful family man. While the story of Boyd's early days is fascinating, it sets the conditions for the more exciting adventures to follow, especially those in the Pentagon. As Boyd collects his supporters and wages his own war on those generals he sees as dogmatic and negligent, the book gathers momentum and becomes a real 'page-turner.'

Ironically, the USAF has yet to come to terms fully with the impact of John Boyd. For an officer whose theories shaped so fundamentally the tactics of air combat and the design of its platforms and weapon systems, Boyd is barely remembered by his own Service. There is a small building bearing his name at Nellis AFB, a road at Maxwell AFB called 'The OODA Loop' and during my last visit, I was surprised to find that the otherwise comprehensive bookshop at Wright-Patterson AFB stocked no copies of this biography. In contrast, the US Marines honour Boyd, base much of their combat thinking on Boyd's work and still deliver his lectures to students at Quantico.

This is a must have book for all airmen. It forces the reader to think about what it is to be a warrior, an officer, change agent, colleague and a human being. An enjoyable read - try it and make up your own mind on this fascinating fighter pilot.

Air Commanders

By John Andreas Olsen

Publisher: Potomac Books inc, 2013

ISBN: 978-1612345772, 512 pages

Reviewed by Air Vice-Marshal Tony Mason



Air Commanders is a study by different authors of twelve United States air commanders, spanning the Second World War, the Cold and post-Cold War periods. The short biographies, preceded by a thought provoking introduction by Colonel Olsen of the Royal Norwegian Air Force, place the individuals in their strategic, operational or tactical contexts, examining their background, education, training, experience, character and leadership styles with which they faced the challenges of high command.

Collectively, the studies raise important questions for all airmen. Is there an ideal career progression to prepare for high command? What personal qualities are best suited? What are the implications for modern high air command of the very different environments of the Second World War, the Cold War and those of the new, post-cold war era? The success or failure of a commander may be assessed by a comparison of objectives and outcome, but how far is that success attributable to personal qualities and how far to circumstances beyond his control? Do the demands of high command in air warfare differ from those facing army generals? All of these questions are examined in detail in this book.

Clausewitz heavily emphasized the prime importance of 'chance' in warfare. Consequently, a commander needed above all to have a powerful intellect to identify and react to the unexpected, and the determination to act on the basis of his judgment. That fundamental requirement was recently placed in the context of RAF high command in the first Gulf War by the then Director of Operations to the UK Joint Force Commander, Air Chief Marshal Sir Richard Johns:

During Operation Granby I observed at first hand that at the very highest level of command there is a step change in pressure which places greater emphasis on certain personal characteristics. While total commitment to the cause and the determination to see it through are self-evident, as is military professionalism of the very highest order, the unremitting pressure of Granby over eight months stressed the importance of stamina and resilience. A considerable reserve of mental stamina was essential to be able to master both concept and detail and to maintain concentration over long periods, no matter how many diversions there were. And one needed a similar degree of resilience to cope with these diversions, which modern communications guaranteed came thick and fast - and principally from unwelcome quarters.

That unique insight into the challenges to high air command in 1991, in a relatively short campaign fought from a headquarters 2,500 miles away, with resources but a fraction of those at the disposal of any of the commanders in this

book, illuminates the enormous scale and complexity of the tasks facing air commanders. It also, by implication suggests that the historical 'fog of war' caused by uncertainty or lack of information has been replaced by a surfeit which could prove equally impenetrable in the era of information overload.

Clausewitz confined his comments on 'chance' to a commander's ability to react to the unforeseen after war had begun. Indeed, air operations are still more vulnerable to vagaries of weather than those on land. The opponent may be superior or inferior in numbers, quality, or equipment; he may make mistakes or display unexpected brilliance. But in fact, chance affects the performance of a commander, and especially an air commander, far more widely than that. He is likely to have little or no opportunity to determine the resources made available to him. *Air Commanders* examines how General Spaatz for example was fortunate to take over a bomber force which was well equipped for the task. General Tunner on the other hand, personally drove the Berlin Airlift to literally a history defining success from an inheritance of inadequate aircraft, low morale and poor organization.

In a coalition, other factors beyond the commander's control demand more than just stamina and resilience. USAF General Charles Horner is shown to be adept in his understanding and balancing of the often divergent aims of his Desert Storm Coalition, encompassing Saudi Arabia and Israel. Similarly, General Michael Ryan was well resourced but fully understood the constraints of NATO allies operating over the Balkans in the mid-1990s. They brought a wealth of experience, powerful intellect and overwhelming superiority to their tasks but in addition, both realized that air power, like any other kind of armed force, must be subordinate to and in harmony with political sensitivities. A truly great air commander is one who in his decision making can transcend the limits of his own experience, not just benefit from it.

Conversely, air commanders in the Second World War possessed advantages often denied to their post-war successors. They drew upon virtually unlimited resources to sustain thousands of aircraft. Political constraints were minimal; disagreements were only over strategy; the general public and the media were supportive. Heavy civilian and military casualties and extensive civilian destruction were accepted, with one or two exceptions, as inevitable features of total war fought in a just cause.

No single model for the ideal air commander emerges from these studies nor can any amalgam of qualities construct one. Factors beyond their control often influenced their paths to greatness. But in preparation to meet the challenges identified by Clausewitz and Air Marshal Johns some common factors are apparent from Olsen's book: affability is no substitute for respect; relevant experience is essential, not least for credibility, but even more so the ability to think and act beyond it, including learning from other people's experience; confidence and judgment to delegate; the ability to work harmoniously with Joint Service colleagues; self-awareness to know when to be determined and when to be flexible; the need to adhere firmly to fundamental air power principles, but adapting doctrine to changing political and operational circumstances. One quality which is implicit but not expressed in the studies is that evidence of spare capacity may well be an indication of the ability to make the step-change to high command. Finally, the air commander is distinguished from his or her army or navy counterpart by his air mindedness: his mastery of the air power profession.

There is much here for the ambitious junior officer to learn and for more senior colleagues to reflect upon, including those already holding air rank. Nor would the book go amiss on the shelves of those who are responsible for identifying promising young officers and preparing them for high command. In military education, it will provide rich material for discussion of light blue leadership, as the wealth of detail is sufficient for readers to make their own assessment of the subjects. They may wish to explore the characters and campaigns in greater depth through the comprehensive foot notes and bibliography. In sum, *Air Commanders* is a highly recommended, unique addition to the air power library.

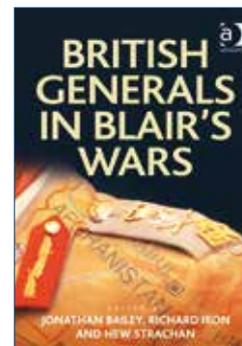
British Generals in Blair's Wars

By Jonathan Bailey, Richard Iron and Hew Strachan

Publisher: Ashgate Publishing Limited, 2013

ISBN 978-1-4094-3736-9, 404 pages

Reviewed by Air Commodore Richard Mason



British Generals in Blair's Wars is a thought-provoking and wide-ranging study of campaigning and generalship, with much broader applicability than perhaps the title suggests. Both sobering and inspirational, it should be considered a 'must read' for those who have an interest in military leadership and strategy. Based on the personal testimonies of twenty-six senior officers, officials and academics, delivered in a series of seminars at the University of Oxford, the book gives a unique and invaluable insight into the thinking of some of our most experienced and distinguished military leaders at a time of rapid change, intense political controversy and public unease surrounding the use of military force. Significantly, their thoughts are very much 'of the moment' and have not been revised with the benefit of hindsight. As such, the accounts have an immediacy and diversity to them that makes them compelling reading. Moreover, the book unquestionably fulfils its aim of allowing current and future leaders to 'develop their own educated judgement about the art of war'.

Whilst many of the book's chapters describe the operational experiences of their authors in some detail, others address directly the question of what makes a 'good' general. Specifically, in his chapter 'On Generals and Generalship' Lieutenant General (Retd) Sir Graeme Lamb extols the trinity of 'character, competence and communication'. However, in passing judgement on his fellow generals he observes, in his usual charismatic but direct style, that he would rate 'the majority as fair', that there were a few he would 'gladly join and assault hell's gate', and some that he 'wouldn't follow to the latrine'. The point he makes, as ever, is more profound, as evidenced by his subsequent explanation of how two 'very different classes of general officers share the same work space'. General (Retd) Sir Nick Parker examines the qualities he believes are needed of a military commander in the 21st Century: pragmatism, persistence, a collective approach and clarity. Similarly, Major General (Retd) Jonathan Shaw considers that generals need to be 'capable of strategic understanding, creativity and judgement'. These chapters in particular contain very personal, candid and revealing insights into the challenges faced by senior commanders engaged in modern conflict.

The accounts are refreshingly frank and are accompanied by editorial analysis, introducing each of the five distinct parts of the book. Although the scene is set with an astute analysis of political context, it is made clear that this book is not the story of the political leaders who decided to commit our nation to war. Rather, it is the story of those who played key roles in the campaigns that ensued from these political decisions. In the words of the editors, it attempts to capture the thoughts of the generals who had to play the hand they were dealt by their political leaders. Consequently, the book doesn't include an account of any attempts by senior military commanders to counter what was perceived as the

government's tendency to conflate policy and strategy; an account that would perhaps allow a more thorough examination of the UK's political military nexus of strategic thought and decision making at the time. As Sir Hew Strachan questions in his insightful conclusion, is it not the responsibility of senior commanders to 'confront unrealistic political ambitions with professional realism, given that this is how strategy is (or ought to be) made?'

However, the book appears to deliberately avoid playing the 'blame game'. Rather, it focuses on what can be learned from the experiences of the past in order to understand better and address the challenges of the future. To that end, it concludes with two provocative yet constructive chapters. In 'Adapt or Fail: The Challenge for the Armed Forces after Blair's Wars' Lieutenant General (Retd) Sir Paul Newton suggests that what is required is 'a re-examination of culture and long-established military habits', whilst acknowledging that 'voluntary re-assessment of ideas that form a proud organisation's self-image (and may even be existential) is a dubious proposition; one that brings to mind the phrase about votes, turkeys and Christmas'. He concludes on a cautionary but challenging note, arguing that simply relying on 'more of the same' but with better management will not guard against the 'gradual irrelevance that threatens the UK's armed forces'.

In the book's final chapter, Sir Hew Strachan provides real clarity of analysis on the legacy of 'Blair's Wars' through a penetrating examination of the historical and current strategic context. He observes that military failures in the early part of the 20th Century were replaced by 'narrative of success which ran in a seemingly continuous flow from El Alamein in 1942 to the first Gulf War in 1991' and argues convincingly that such 'success in the field' can be the 'enemy of educated self-examination'. He also contends that the direct consequence of the 9/11 attacks was to 'subordinate British strategy, not just British operational thought, to America'. Throughout this particularly thought-provoking chapter, he doesn't hold back from objective criticism. He suggests that in fighting 'two campaigns without being able to resource either of them properly' the Army 'paid the price for its 'can do' mentality, its reluctance to challenge political direction which contradicted strategic sense, and its institutional fear that if it were not used it would be cut'. He also makes reference to the chapter written by Air Marshal (Retd) Iain McNicoll in which he comments that 'Land-centric campaign planning which includes air power as an afterthought, rather than as an integral element, is a practice which will not serve British defence well in a more contested air environment.' However, for any readers who may be tempted to see these conclusions as singular criticism of one of our sister Services from which we may seek to distance ourselves conceptually, Sir Hew Strachan ends with sage advice for the future: 'Synergy not separation must be the path forward via a strong and coherent defence staff which is master of its own education and confident in its own strategic judgement'.

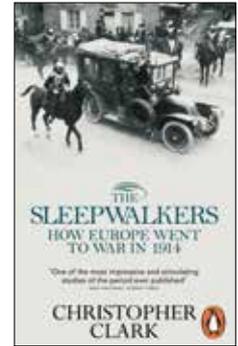
The Sleepwalkers: How Europe Went to War in 1914

By Christopher Clark

Publisher: Penguin, 2013

ISBN: 978-0141027821, 736 pages

Reviewed by Flight Lieutenant Nathaniel Christopher



In this, the centenary year of the outbreak of the First World War there is no shortage of books on the subject. These add to an already extensive body of knowledge, so what can be said to commend Christopher Clark's *The Sleepwalkers*, a mere drop in the ocean of the literature available?

Firstly, it is important to address what this book is not. For those who wish to read of the Mons retreat, the race to the sea, the horrors of Verdun, the Somme, Passchendaele and the chivalry of the 'Knights of the Air', this is not for them. The events of the war itself have been recorded in great detail and on numerous occasions elsewhere; this book concludes before the Guns of August have even begun to fire. Instead, Clark seeks to examine the 'July Crisis' that led to the war, most importantly attempting to explain *how* it occurred, rather than *why* it occurred.

The distinction in these two approaches from his perspective is that *why* is concerned with overarching issues: imperialism, nationalism, alliances and armaments. These were important pre-conditions without a doubt, but not enough on their own to explain why war broke out when it did. By asking *why*, these pre-conditions can gain the appearance of having a momentum of their own, leaving the key personalities as mere automata, with no ability to alter the course of events. Moreover, the question of guilt is irrevocably raised. On the other hand, *how* travels through the journey of events, identifying key decisions, and attempting to understand the reason and emotions behind them. From this, the *why* answers should be forthcoming.

In order to deal with the 'July Crisis', Clark splits the book into three parts. The first part, 'The Road to Sarajevo', gives an in-depth background to the relationship between Vienna and Belgrade, as well as discussing the undercurrents in Serbia that led to the formation of 'The Black Hand', responsible for assassinating Archduke Franz Ferdinand and his wife. Part Two, 'One Continent Divided', gives an overview of the tangled web of relationships, both formal and informal, between the various Great Powers as it stood in July 1914. It also attempts to explain where the power of governance actually resided in each power at the crucial juncture; no mean feat as it has to take into account the interaction of sovereigns, ministers and ambassadors. It then follows the various strands of diplomacy to the Balkans, to discover many interests intersecting there, setting up the potential trip-wire that led to war. Part Three, 'Crisis', charts the incipient catastrophe, following how events unravelled from the assassinations in Sarajevo to the actual beginning of the war.

The author is eminently qualified to lead the reader through this treacherous terrain. A Professor of Modern History at the University of Cambridge, he has already authored several books on related topics. Moreover, he has the benefit of his colleagues' insight into some of the more esoteric avenues he explores, which further enhances the strength and depth of his arguments. Without question he achieves the aims set out in the introduction. Furthermore, he highlights the shortfalls and deficiencies in some of the more well-known (but fallacious) theories concerning the causes of the First World War. This is never done in a dismissive fashion however; where he disagrees significantly with other well-respected sources, he always provides ample justification for his point of view.

The Sleepwalkers is a seminal work, and will doubtless become one of the core texts for future reference on the subject. As well as debunking many longstanding myths, it has cast new light on the motivations of the key players in the drama, as well as the impact that short-term realignments, rather than longstanding issues, had on the 'July Crisis'. Elegantly written and compelling enough to appeal to the general reader, the level of erudition means the book has a lot to offer for the academic as well. The only negative aspect to the book is the routine jumping back and forth between years, which can be a little difficult to follow at times, although this is largely unavoidable as Clark seeks to completely address each strand before weaving them into a coherent whole.

In summary anyone with a passing interest in the First World War, and who remembers from school that it was caused by the assassination of Archduke Franz Ferdinand, is strongly advised to read this book. That the Archduke doesn't expire until p.376 is some indication of the simplicity of the standard account of the causes of the war. As well as explaining how one of the most significant events of the 20th Century came to pass, it also succeeds in being a thoroughly fascinating and absorbing read.

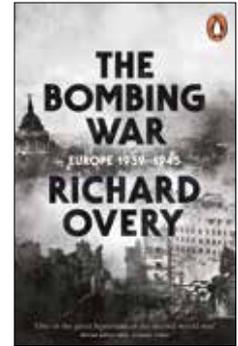
The Bombing War: Europe 1939-45

By Richard Overy

Publisher: Allen Lane, 2013

ISBN: 978-0713995619, 880 pages

Reviewed by Dr David Jordan



Three things immediately stand out about this book. It is long, brave and one of the most significant pieces of work on the Second World War in the air to have been produced, even if Professor Richard Evans's suggestion that it is the most important book on the war to appear this century is a little difficult to prove. It also presents the reviewer with the difficulty of doing the work justice in a relatively short review.

The first matter, that of the book's length, is easy to explain. Without the detail and depth of analysis, the overall significance of the book would be reduced, and not one of the pages of narrative and analysis is wasted; anyone dissuaded from reading the book simply on the grounds of length would be missing out, and the fact that Richard Overy has the happy skill of writing engaging prose means that the book does not 'feel' as long as it really is.

The book is brave, since Professor Overy engages in detail with a subject which gives rise to strong emotion, and which has seen a mixture of hyperbole, cynicism, misunderstanding and myopia confuse and constrain proper debate on the subject. Criticism of the efficacy of the bombing war against Germany, be that through the lens of strategy, the diversion of production output to sustain the bomber offensive, or on moral, legal and ethical grounds, sparks reaction. All too often, criticism of the bomber offensive is misinterpreted as criticism of the bomber crews themselves, as a slight on their dedication to duty, determination, stoicism and the frequent instances of gallantry they displayed and a deprecation of those who died in its prosecution. The refusal of the British government to give any distinct recognition to Bomber Command in the immediate post-war era has added to the sensitivity, even if the long-overdue official appreciation of the distinct conditions faced by bomber crews has ameliorated the debate. Overy's book is brave in that it pulls no punches in its rigorous analysis and thus lays itself open to the standard criticism that it is 'just another academic, who doesn't understand things, criticising bombing' (as a swift perusal of the thread discussing the book on the Professional Pilots' Rumour Network demonstrates). Yet to dismiss the book simply because reviews suggest that it falls into a standard genre of academic criticism of bombing is to miss the point entirely.

Furthermore, consideration of the bombing war between 1939-45 has tended to focus upon the air offensive against Germany, first by RAF Bomber Command, joined from 1942 by the United States Army Air Force. All too often, popular histories have taken a rather binary view – that Bomber Command, operating at night, conducted area attacks, laying waste to swathes of urban Germany, while the USAAF pursued a campaign in which precision (by the standards of the time) underpinned target choices. Furthermore, it is held that the RAF pursued the bombing role purely for reasons of

inter-service politics in an era when spending was constrained – and then, despite spending the interwar years with doctrine dominated by notions of strategic air warfare and focusing its entire effort on building a strategic bombing capability, it first proved unable to deliver attacks of any importance, with most crews failing to find their target, let alone hit it, and then – through a combination of area attack, pathfinders, and improved navigational aids, discovered that victory through bombing was a chimera, claiming the lives of thousands upon thousands of civilians using methods which, even prior to the 1949 Geneva Conventions, could be called into serious legal, ethical and moral question.

The simplicity of key elements of this viewpoint has been undermined in recent years, for example by John Ferris and Tami Davis Biddle, but *The Bombing War* does not simply go over old ground to reach familiar conclusions.

The book examines the bombing of Europe, not just that of Germany, by the British and American bomber forces. There is detailed consideration of the German approach to bombing in part one of the book (including consideration of operations against the Soviet Union, which are all too often overlooked), and the bombing of Italy by the Allies also comes in for attention, as do attacks on Bulgaria – by broadening the scope through which bombing is seen, Professor Overy takes us away from the more familiar and traditional approaches to considering the bombing war, and thus turns his work not into yet another consideration of the strategic air offensive against Germany, but into a robust, deeply analytical and impressive consideration of the use of aerial bombing generally which broadens our understanding of the way in which bombing was used, and its effectiveness. Overy also puts bombing into context – he considers the attitudes prevalent within national military and political elites regarding the merits of bombing, and brings in the wider public perceptions of air power and bombardment. This moves us away from the rather simplistic (and erroneous) approach that bombing was simply the result of persuasive air power advocates fooling politicians into believing in the efficacy of war, without ever lapsing into an apologia for the views of the air power advocates who – even in the minds of some airmen of the time (for instance, TCR Higgins, John Salmond and Claire Chennault) – pressed the case for aerial bombing with a deficit of empirical evidence to inform their vision. Overy also gives powerful consideration to the issue of casualties caused amongst the populations of occupied Europe, as well as to the political considerations which underpinned the continuation and, indeed, escalation of the bombing war. All of these aspects are supported by numerous, carefully-chosen examples to sustain the case.

It is this breadth in approach, the array of supporting detail and the concomitant depth of analysis which make this book significant. It offers a rounded, contextual history of the bombing war in Europe as a whole, and while there will undoubtedly be disagreement over some of Professor Overy's conclusions (for instance, does he perhaps underplay Lord Cherwell's influence on the British Bombing Survey Unit Report?), it is quite clear that any serious student of air power as a whole – not just the bomber offensives – needs to read this impressive book.

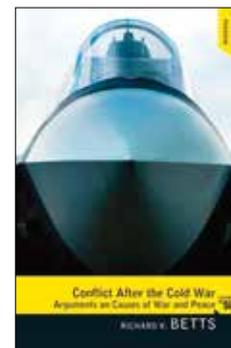
Conflict After the Cold War: Arguments and Causes of War and Peace

By Professor Richard Betts

Publisher: Pearson, 2012

ISBN-13: 978-0205851751, 688 pages

Reviewed by Air Vice-Marshal Andy Turner



Professor Richard Betts' Fourth Edition of *Conflict After the Cold War: Arguments on Causes of War and Peace* is an important collection of some of the most prescient and provocative essays on war. It is an excellent reader on the nature and causes of modern conflict, collating writings reflecting all the major schools of thought on strategy, international relations and the causes of war. Daunting in format, dense in ideas, comprehensive and yet easily readable, this would be an indispensable textbook for anyone building interest in the subject, strategists engaged in the conduct of war and scholars seeking reference material.

He is Professor of War and Peace Studies at Columbia University. He is also a Senior Fellow on the Council of Foreign Relations, a commissioner to the National Commission on Terrorism, and former staff member of the Senate Intelligence Committee. Betts has published numerous articles on foreign policy, military strategy, intelligence operations, conventional forces, nuclear weapons, arms trade, collective security, strategic issues in Asia, and other subjects.

Assembled by one of the most renowned professors in the field, this collection aims to help sort out the main debates surrounding the timing and triggers for conflict in the post-Cold War world era. This Fourth Edition updates those of 1993, 2005 and 2008 and is organised into ten Parts, containing between four and ten essays, each of which is about ten pages in length. These essays represent some of the most seminal contributions from the Who's Who of international relations theory – Thucydides, Hobbes, Mao Tse-Tung, Machiavelli, Lenin, Wilson, Lawrence, Mearsheimer, Waltz, Gilpin, Kant, Huntingdon, Fukuyama, Nye, Cohen, Nagl, Schumpeter, Crenshaw and Levy amongst many others; ducking Western-facing sycophancy, there is also a jarring but important contribution from Osama Bin Laden.

It is impossible to briefly summarise the intellectual contribution, but the following will give a feel for the width and depth of what Betts' work offers. The book starts with a section entitled 'Visions of War and Peace' and sets out Fukuyama's *End of History*, Mearsheimer's *Why we will soon miss the Cold War* and Huntingdon's *Clash of Civilisation* articles. This is followed by a short canon on 'International Realism: Anarchy and Power' with texts from Thucydides, Hobbes, Macchiavelli, Waltz and Gilpin. Part III is entitled 'International Liberalism: Institutions and Co-operation' and has essays from Kant (*Perpetual Peace*), Cohen, Wilson (*Community vs Balance of Power*) and others. Part IV 'Psychology: the Mind and Conflict' starts with an essay from Freud, entitled *Why War?* and has essays by Milgram (*How Good People do Bad Things*) and others. 'Culture: Customs, Norms and Learning' is a lighter chapter, but has important works by Lebow and Mueller. Part VI, 'Economics: Interests and Interdependence' has perhaps the greatest contemporary resonance particularly in this era of post-Arab

Spring, transition in Afghanistan and the rise of popular democracy in Europe and Africa. Here Macchiavelli, Lenin and Rosecrance shine light on what drives a state to act, intervene and observe. 'Politics: Ideology and Identity' is short but captures the key ideas of *Nations and Nationalism* by Gellner, *Democratization and War* by Mansfield and Snyder et al. Part VIII focuses on Military Technology, Strategy and Stability and is slightly disappointing, perhaps because of Sir Lawrence Freedman's recent masterclass on *Strategy*, but also for its lack of analytical collation on technology and its affect on the causes of war – cyber, space and unmanned technology are gaps. The length and strength of the penultimate Part IX, 'Revolution, Unconventional Warfare and Terrorism', is helpful and holds Lawrence's penetrating *Science of Guerrilla Warfare*, Crenshaw's excellent *Strategic Logic of Terrorism*, Juergensmeyer's *Religious Radicalism and Political Violence* and Bin Laden's *Speech to the American People*; it is an excellent foundation reader on terrorism. Counterinsurgency also features prominently here with the challenging essay by Cohen, Crane, Horvath and Nagl on *Principles, Imperatives and Paradoxes of Counterinsurgency* and Gentile's *A Strategy of Tactics: the Folly of Counterinsurgency*. Part X concludes the work and is on 'New Threats and Strategies for Peace' but is again a little disappointing, less Betts' own article on *China: Can the Next Superpower Rise Without War?*

Carefully selected, collectively these essays are ideologically balanced and draw on the most relevant schools of thought that have, and continue to shape the debate around, and on war. Taken as a whole the text examines the arguments about what political, economic, social and military factors tend to cause war and whether such causes can be made obsolete. Helpfully, it offers no bias, rather draws on contributions that represent contrasting arguments about the future of the post-Cold War world and puts them in philosophical and historical context. In doing so it takes the reader from GCSE to A Level on power, realism, idealism, sovereignty, and the role of liberal democratic society in the world.

Of course the challenge with any compilation is what to leave out, given the rich seam that is the writing on international relations, strategy and war in the last 100 years and more. However, it would have been useful to read into in more detail on Strategy and Conflict Resolution, perhaps drawing on some of Barbara Walter's essays on *Committing to Peace*, Donald Wittman in *How a War Ends*, Jon von Neumann's development of Game Theory in his *Theory of Games and Economic Behaviour* and Bernard Brodie's seminal essay on *Strategy and National Interests*. The other key area not covered is that of law and warfare. Given that Kosovo, Iraq, Afghanistan and Ukraine all offer contrasting strategic commentaries, reflection on *jus ad bellum* (just war), captured well by Thomas Nagel *War and Massacre* and Elizabeth Anscombe *War and Murder*, might have been covered. In addition, given the degree that jurisprudence and customary law so directly and increasingly shape, drive and constrain war, it might have been valuable to broaden the text with essays from, amongst others, Hugo Grotius on *De Jure Praedae*, Michael Walzer in *Just and Unjust Wars*, Brooke Goldstein in *Lawfare: Real Threat or Illusion?* and Ingrid Detter in her latest Edition of *The Law of War*.

Overall, this is an important work summarising the key debates over the future of war and the new forms that violent conflicts will take. Betts in this latest Edition has updated the text with contemporary essays on counterinsurgency and violence against ecological and resource issues. I am certain it will be popular in the academic field, but also for emerging practioners in diplomacy, the armed forces and law.

European Air Power: Challenges and Opportunities

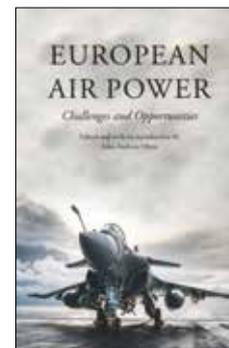
Edited and with an introduction by John Andreas Olsen

Publisher: Potomac Books (estimated publish date July 2014)

ISBN: 978-1612346816, 296 pages

Reviewed by Group Captain Sean O'Connor

'What can European states afford to acquire and sustain in terms of air power? The answer depends on each country's specific geography, history, economy, and political-military orientation.'



Professor John Andreas Olsen's edited volume aims to present an insight into the contemporary development of European air power through a combination of conceptual and operational perspectives. Although at first glance the title may lead the reader to believe this is a portrayal of European air power as some new amalgam resulting from a shared defence identity, it is in fact the opposite. The volume presents a range of perspectives that highlight the significant similarities in differing state-based approaches to addressing the contemporary development of national air power constituents. Whilst these could present a framework for developing European solutions to the common challenges faced by force structure planners in the current and likely enduring resource constrained climate, the papers presented also provide contrasting national reflections on the future of air power. This is where the real value of this book lies. It is a text of comparison and contrast; indeed, it is the gambit of unanswered questions raised that will be its true legacy as they provide rich fodder to stimulate future academic debate.

The collection of papers itself is well structured and in three parts: the first two examine the development of air power capabilities of eight European air forces and the third offers contrasting views on future trajectories. The chapters in Part One are authored by renowned air power analysts and cover four 'major' NATO nations (France, Germany, Turkey and the United Kingdom). All four have similar defence spending profiles and national defence industries to maintain but view the concepts of defence and security through differing lenses. The contributions in Part Two are by the serving air force chiefs of four Nordic countries (Norway, Denmark, Sweden and Finland) and present their respective service's history, current status, and future air power objectives. Although this group could be viewed as 'small air power nations', they constitute a sub-regional block with comparable populations and resources. Their 'backyard' is also one which will likely regain international prominence as a result of both the opening of the 'high-north' for business and the re-emergence of the Russian Bear as Putin's military transformation allows him to regain the strategic depth required to buffer NATO and EU expansion. Part Three moves on to offer two divergent concluding arguments. Professor Martin van Creveld looks back at air power's successes and failures to postulate that it has passed its zenith as traditional capabilities migrate to Space and the costs of the next generation of manned aircraft drive most to invest instead in Unmanned Air Systems (UAS). Air Vice-Marshal (Retd) Tony Mason, on the other hand, chooses to focus on the future challenges and opportunities for small and medium-sized air powers concluding that whilst there will be a continuing trend towards the

acquisition of UAS, this represents a point on a continuum where next generation systems will operate in conjunction with older but continually modernised platforms. Indeed, this is the general conclusion from most authors and is echoed by the Inspector General of the Royal Norwegian Air Force, Major General Finn Kristian Hannestad in that 'homeowners do not throw out their stoves when they buy microwave ovens'.

Whilst not offering a new European air power paradigm, the book does shed light on how European nations are positioning themselves to contribute to alliance operations. It highlights that air power not only affords political choice but also buys international influence as a state's leverage within any alliance is usually proportional to its contribution. The reasoning is that as air power allows a nation to contribute with minimal risk of entanglement, 'impermanence' once the weakness of air power is now a strength. That said, the volume does not directly address the likely challenges and opportunities arising from NATO's 'Smart Defence' initiative or the EU's complementary 'Pooling and Sharing' concept; nor does it offer much to those looking to appreciate European air power's future contribution to the joint commander at the operational level. Nonetheless, the book does provide a significant corpus of analysis of ongoing European capability needs, trends and potential shortfalls.

This publication is aimed at readers who have an interest in air power as a profession but has particular utility for those more closely involved with national resource allocation or force structure planning. Given that English is not the first language for many of the authors, this remains an easy read and there is something for anyone who seeks to improve their understanding of air power as an instrument of national and international force. As such, readers might wish to start with the introduction which outlines air power in terms of the 'shape-deter-respond' strategic construction and the corresponding relationship to the four enduring air power roles in which Olsen sets professional competence as a core constituent for any framework of analysis. Next, the RAF reader might skip to *'British Air Power: Allowing the UK to Punch above Its Weight'*, which argues that the human element and the conceptual component are key themes to develop in order to maximise air power's potential in a shrinking force structure. Alternatively, readers can read the volume cover-to-cover to tease out the common threads and distinctive strands that comprise Europe's current air power tapestry or just dip in and out of the individual national case studies to gain insight into a particular geo-strategic problem set.

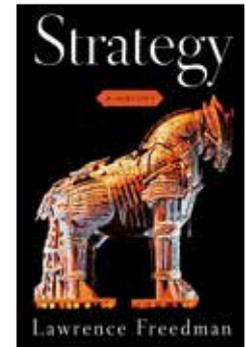
Professor John Andreas Olsen is a serving Colonel in the Royal Norwegian Air Force, currently assigned to the Norwegian Ministry of Defence, and a visiting professor of operational art and tactics at the Swedish National Defence College. He was the deputy commander and chief of the NATO Advisory Team in Sarajevo from 2009 to 2012 and has spent significant periods in both Germany and the United Kingdom. He is widely published and is thus well positioned to present this useful edited volume, one which offers any reader much food for thought.

Strategy: A History

By Sir Lawrence Freedman

Publisher: Oxford University Press, 2013
ISBN 978-0-19-932515-3, 752 pages

Reviewed by Group Captain Clive Blount



Lawrence Freedman is one of Britain's foremost experts on security issues and has been Professor of War Studies at King's College, London, since 1982. He has been Vice-Principal at King's since 2003 and is a Fellow of the British Academy. He was official historian of the Falkands Campaign, served on the official UK Inquiry into the Iraq War, and has written extensively on a number of contemporary security concerns.

Strategy: A History is an attempt to capture a vast range of strategic thought. Freedman draws on a lifetime of immersion in strategic and military history to detail the role of strategy in the vast human experience, ranging from pre-biblical times to modern business thinking and contemporary nuclear strategy. A theme running through the book is the importance of narrative and storytelling in strategic development and the interconnected nature of war, political and social theories within history. The author describes the leading schools of thought and key thinkers within an accessible and enjoyable ride through the broad sweep of history. An indispensable compendium of strategic thought, the book may be accused of sacrificing breadth for depth in some areas, and there are many better sources if detail on individuals is required, but none that provide a single reference source, such as this, of strategic thought in its entirety, and particularly one emphasizing the interconnectivity with, and influence on, the wider social and political sciences.

Contrary to the burgeoning view that 'Strategy' is an overused term that should be reclaimed by its solely military users, Freedman develops a much broader approach, describing strategy as, in essence, the creation of power – activity to create victory in situations where the initial balance of power would suggest defeat was inevitable – applicable in many areas of human endeavor. Freedman also emphasizes that strategy is much more than just planning; it is an intensely human process, against the backdrop of a changeable and essentially unknowable environment, where the 'enemy has a vote'. Indeed, his opening quote, from boxer Mike Tyson, clearly demonstrates his point... "Everyone has a plan until they are punched in the mouth."

The book is in five parts. In part one, 'Origins', Freedman introduces the earliest examples of human strategic thought and makes the assertion that there are elemental features of human strategy that exist across time and space, such as deception, coalition formation, and the instrumental use of violence. He draws examples from human evolution itself, stories in the Bible, Ancient Greek history, the pronouncements of Sun Tzu and Machiavelli, and even turns to Milton's *Paradise Lost* to examine Milton's Satan as a master of Machiavellian strategy. The second part of the book reverts to a more traditional area, that of military strategy. Entitled 'Strategies of Force', this section examines military strategy as

a science and, along with an elegant treatment of Clausewitz, discusses the development of strategic thought from its emergence as a key part of the profession of arms, through the major wars of the twentieth century, to nuclear strategy and game theory. Guerrilla warfare is not neglected with a deft treatment of emerging thought from Lawrence, to Mao and Giap, and developing modern counterinsurgency thinking. The effect of so-called 'Revolutions in Military Affairs' is also discussed, with the inclusion for air power specialists of thinkers such as Douhet and Trenchard, and John Boyd's OODA loop.

In the third section of the book, Freedman turns to revolutionary and political theories and strategies. Its title, 'Strategy from Below' is apt for a section that largely considers the 'underdog' and revolutionary activity. Starting with Marx, this section includes discussion of political discourse, narratives and theories, including non-violence, issues of race and religion, and the relationship between Bureaucracies, Elites and the Electorate. Again, the importance of narratives and ideas comes to the fore, as does the intellectual crossover between disciplines - Thomas Kuhn's seminal work on scientific revolutions is shown to be particularly relevant both to the political sphere and to wider strategy. The section finishes with the development of modern electioneering strategy, particularly in the USA with, in particular, an interesting look at the campaigns of Reagan, GW Bush and Obama. Part four of the book, 'Strategy from Above', turns to the corporate arena and business strategy, and considers the rise of management strategy and the idea of 'business as war'. Whilst probably the least interesting to a military audience, this chapter does clearly link emerging business strategic thinking with origins in the political and military world, and demonstrates the enormous importance of economics and commerce in the grand strategic arena. The final section, entitled 'Theories of Strategy', considers strategic theory in the light of modern social science and how we might think about strategy today. This section looks at the limits of rationality – again harking back to Clausewitz's 'fog, friction and enmity'- and further emphasizes the importance of stories and scripts in political endeavour; it is not just the truth that matters, but what each side considers as the truth.

This book is a *tour de force*, nothing less than a summation of the author's stellar career and a lifetime of considering strategy in its widest sense. An enjoyable read, with an eclectic cast of characters, *Strategy: A History* draws together the widest range of thinkers and ideas, and sets them in a most entertaining historical narrative. Much more than just an encyclopaedia of strategy, it is a challenging and thought-provoking work that will satisfy both experts in the field, and become an indispensable reference work for those new to strategy.

Out of the Mountains: The Coming Age of the Urban Guerrilla

By David Kilcullen

Publisher: Hirst and Company, 2013

ISBN: 978-1849043243, 368 pages

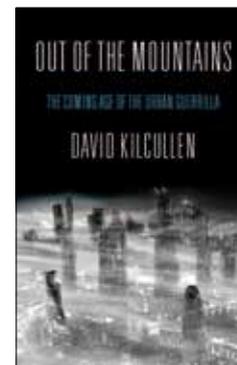
Reviewed by Flight Sergeant Wayne Lovejoy

Now that the lengthy campaign in Afghanistan is drawing down there is a requirement for military personnel, and those involved in international affairs, to identify and understand the environments where future conflicts are likely. This book attempts to do just that and focuses on the fact that conflict will take place where people are, which in the developing world is in urbanized, littoral areas. Conflict is taken in the widest possible sense and the whole spectrum of violence and social control is examined to give an insight into this complex web of activity that extends well beyond the counter-insurgency of the last decade.

Dr David Kilcullen is well versed in contemporary military operations and has a significant reputation within this area. During his time as an officer in the Australian Army he served on operational tours in Indonesia, Iraq and Afghanistan. He drew upon his experience in Indonesia as the basis of his PhD thesis, which examined the political consequences of military operations there. Since leaving the army he has advised key personnel in the US Government and was part of General David Petraeus' team that devised the 'surge' in Iraq to quell the violence there.

His study primarily focuses on the developing world and how various nations within it will interact with four megatrends; population growth, urbanization, littoralization and networked connectivity. It is acknowledged from the outset that this is not a new area of study and it actually began to receive much attention prior to the attacks on the US in 2001, after which interest was diverted to the more pressing matters of Afghanistan and Iraq. Over the years while attention has been elsewhere these trends have continued at a greater rate, and the data generated from this period is used to create a straight-line projection of the coming years. This projection therefore gives far greater credence to likely developments than other predications. The study does not stop at just identifying the complex terrain created by the population mass and urban sprawl, these megacities are explored as living entities with their own 'system flows' that generate 'toxic by-products'. These analogies are used to describe the interaction within such an environment, and lead onto the theory of competitive control which is used to examine social interaction and governance by non-state armed groups.

As conflict and unrest is examined at such a local level the secondary and tertiary effects of a government intervention or NGO aid programme can be better understood in light of the system flows. It is explained that by intervening in one group's activities or distributing aid to another, then the balance of these flows is affected, and this can have adverse effects against those who are trying to help. It is by discussing these wider issues that the book's appeal increases as it is not just centred on a military approach. In general the logical arguments are easy to follow, while the statistically backed



content that scholars require is passively written into a free-flowing tour of recent conflicts and incidents, which are informative and interesting.

These wide ranging examples really contextualise the ideas being proposed, and reinforce the fact that the overarching issues are not new. When discussing the theory of competitive control, Christopher 'Dudas' Coke's management of a garrison-district in Kingston, Jamaica, is used to demonstrate that armed non-state groups can successfully establish themselves as the local authority. It is suggested that he was successful because he applied a full range of measures from persuasive, through administrative, to coercive, which ultimately generated a normative system. This is then contrasted to Al Qaida in Iraq who only applied coercive measures, and failed to control the population, which contributed to their defeat.

Task Force Ranger's operations in Mogadishu are used to show that cities are living entities and not just a piece of complex terrain. Here the author explains how the Task Force did not understand the city, and focused purely on the tactical aspect of the mission. The population were aggrieved by US helicopters after many civilians had been killed by their fire, so when one was shot down the population, rather than an organised militia, quickly responded. This resulted in what is described as 'swarm tactics' in that there was no command and control, but simply local people responding as they saw appropriate. On the other hand, the Mumbai terrorist attacks are used to demonstrate the devastating effects that can be achieved when terrorists understand a city and its flows. The open source details that have been put together show how armed groups can disappear into congested shipping lanes before passing through smuggler routes and slums into the heart of a city completely unhindered.

The chapter entitled 'Conflict in Connected Cities' has many examples of how mobile communications and the internet can be used to generate allegiances between groups within a country, as well as to receive information and direction from outside it. This revolution in the use of communications is explored in some depth, exhibiting the almost endless amount of possibilities it creates. The Arab Spring is used to reinforce this, and as the focus remains fixed on the issues at hand, the points are clearly illustrated.

The evidence to suggest that the population expansion on the coastlines of developing countries is substantial and convincing, so too is how these megatrends converge to create network connected megacities. The diverse examples vividly illustrate how the processes and projections are prevalent, and how they will affect all future operations in these environments. The book is certainly worth buying for anyone with an interest in the type of environments that will be faced by governments and NGOs in the future, along with the trends that are affecting these. This is a very informative book on the specified subject, and it is written in manner that makes it interesting and appealing to a wide audience.

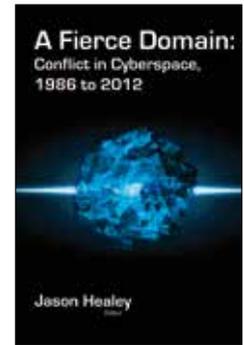
A Fierce Domain: Conflict in Cyberspace, 1986 to 2012

By Jason Healey

Publisher: Cyber Conflict Studies Association 2013

ISBN: 978-0-9893274-0-4, 352 pages

Reviewed by Squadron Leader Paul Withers



For over a decade the debate over ‘cyber war’ has been replete with hyperbole and speculation, occasionally countered by the more reasoned and nuanced argument of a few academics and cyber security experts. Jason Healey is one such expert with a career spent in intelligence and cyber security. He is the Director of the Atlantic Council’s Cyber Statecraft Initiative, lectures in Cyber Policy at Georgetown University and has served as a White House Policy Director. Perhaps more importantly for this book, he was part of the evolution of US military cyber operations during the 1990s. In this volume, he has drawn together a range of first-hand accounts of significant cyber incidents, coupled with some expert analysis, with the stated aim of addressing the history of cyber conflict - an aim that is adeptly achieved.

In recording cyber history, *A Fierce Domain* addresses some of the important legal, policy and organisational issues that have arisen as a result of the emergence of cyberspace as a domain of warfare. Healey focuses on the historical record, avoiding excessive technical detail, arguing that “history is about stories, and the history of cyber conflict is... no more about the bits and bytes of malicious Internet packets than military history is about the ballistic characteristics of weapons.”

The book charts the history of cyber conflict through three distinct phases, which Healey labels “Realization”, “Take Off” and “Militarization”. The three phases are examined through a series of ‘wake-up calls’, with first-hand accounts and expert analysis. After a brief history by the editor, the book begins with Cliff Stoll’s *Cuckoo’s Egg* investigation into a team of German hackers who aimed to steal from US defence industry research institutions, in order to sell information to the KGB. It goes on to analyse an array of other incidents and their implications including the *Morris Worm* and the alleged Chinese espionage attacks known as *Titan Rain* and *Byzantine Hades*. It also examines some of the better known cyber incidents including the attacks on Estonian Internet infrastructure in response to the moving of the Bronze Soldier of Tallinn in 2007, and the cyber-attacks synchronised with military action during the Russo-Georgian War a year later. Following through the chronology of significant cyber incidents, it ends with the much debated *Stuxnet* attack, which was “the most sophisticated piece of malicious software ever found.” Each of the incidents is viewed not just in the context of the immediate effect of an attack, but also from the perspective of the implications for policy makers. Healey expresses the hope “that policy makers will learn from the experiences of their predecessors... so that they need no longer be surprised by such jarring wake-up calls.”

The response to each successive cyber incident also charts the evolution of US military cyber units from the Joint Task Force-Computer Network Defence, with a staff of twenty four people in 1998, through to what is now US Cyber Command,

with several thousand staff under the command of a Four Star officer. It also recognises that in addition to being a military domain, cyberspace is the realm of a range of US Government departments, including the Department of Homeland Security, several Law enforcement agencies and the Information Technology Security industry. It is worth noting, that the recently published UK Defence Joint Operating Concept clarifies our taxonomy, highlighting that in UK concepts and doctrine, we define cyber – along with air, land, maritime and space – as an ‘environment’, not a ‘domain’, unlike the US.

Healey admits that this history is predominately written from a US perspective. However, it does include two other important national perspectives with a chapter on Japan’s Cyber Security history and Group Captain Shaun Harvey’s chapter, *Unglamorous Awakenings: How the UK Developed its Approach to Cyber*. These chapters enrich and add balance to the volume. Whilst the US cyberspace experience is globally significant, capturing the practical and policy responses of other nations is important in establishing the historical record of cyberspace. Group Captain Harvey’s chapter offers the reader a useful primer on the ways and means by which the UK developed its strategic position in cyberspace and how the evolution of that strategy has been implemented within the MOD. He also highlights how some of the most innocuous cyber incidents have had significant implications for Defence.

Healey concludes the book with an assessment of one of the most important, but most difficult problems in cyber defence: attribution - the strategic level means of determining who was responsible for initiating a cyber-attack. His approach is not merely to consider the attribution problem from the perspective of forensic technical analysis; rather he introduces a methodology to determine where an attack rests on “the spectrum of state responsibility.” He then applies this spectrum to three of the cyber incidents described in the book: Estonia, Georgia and *Stuxnet*.

Some of the cyberspace incidents covered in this book have had scant coverage elsewhere, beyond technical literature. Whilst relatively recent incidents such as *Stuxnet* have caught the attention of the media and academia, other earlier attacks are of equal, if not greater importance for their impact on the development of national cyber security strategies and the establishment of military cyber units in the US and elsewhere. For most states, much of the information about government activity in cyberspace remains shrouded in secrecy. Healey acknowledges that if and when more of the history comes into the public domain, some of the lessons drawn from the history of cyber conflict within the book may need to be revised.

Others will undoubtedly attempt to fill in the gaps in this history over time and add to the analysis; nonetheless *A Fierce Domain* is an important contribution to the history of the newest environment of warfare. As airmen we rightly devote time and effort to learning from the history of our profession and understanding the air environment. The same needs to be true of those attempting to exploit the new warfighting environment of cyberspace. Hence, this is essential reading for cyber specialists and policy makers, but is also highly recommended for those who aim to understand how cyber-power can complement air power in order to build upon the emerging doctrine of air-cyber Integration.

Contents of CAS' Reading List 2010

A History of Air Warfare

By Olsen (ed)
Publisher: Potomac Books Inc

Sky Wars: A History of Military Aerospace Power

By David Gates
Publisher: Cambridge: Reaktion

The Making of Strategy: Rulers, States and War

By James S Corum & Wray R Johnson
Publisher: Cambridge University Press

Immediate Response

By Mark Hammond
Publisher: Michael Joseph, London

The Battle of Britain

By Richard Overy
Publisher: Penguin

War Since 1990

By Jeremy Black
Publisher: Social Affairs Unit

The Return of History and the End of Dreams

By Robert Kagan
Publisher: April 29, 2008

The Accidental Guerrilla: Fighting Small Wars in the Midst of a Big One

By David Kilcullen
Publisher: C Hurst & Co Publishers Ltd, London

The International Politics of Space

By Michael Sheenan
Publisher: Routledge

Inside Cyber Warfare: Mapping the Cyber Underworld

By Jeffrey Carr
Publisher: O'Reilly

Contents of CAS' Reading List 2011

Strategy in the Contemporary World: An Introduction to Strategic Studies

By John Baylis, James Wirtz & Colin S. Gray (Eds)

Publisher: Oxford University Press

Cyber War: The Next Threat to National Security and What To Do About It

By Richard Clarke & Robert Knake

Publisher: ECCO Press

Just War: The Just War Tradition: Ethics in Modern Warfare

By Charles Guthrie & Michael Quinlan

Publisher: Bloomsbury, London

The Secret State: Preparing for the Worst 1945-2010

By Peter Hennessy

Publisher: Penguin Books, London

The Battle of Britain: Five Months that Changed History, May - October 1940

By James Holland

Publisher: Bantam Press

7 Deadly Scenarios: A Military Futurist Explores War in the 21st Century

By Andrew Krepinevich

Publisher: Bantam Press

Military Orientalism: Eastern War Through Western Eyes

By Patrick Porter

Publisher: Hurst & Company, London

Thinking about Nuclear Weapons

By Michael Quinlan

Publisher: Oxford University Press

Descent into Chaos

By Ahmed Rashid

Publisher: Penguin

Wired for War: The Robotics Revolution and Conflict in the 21st Century

By P W Singer

Publisher: Penguin

Contents of CAS' Reading List 2012

Afghanistan: How the West Lost its Way

By Tim Bird and Alex Marshall
Publisher: Yale University Press

A Question of Security: The British Defence Review in an Age of Austerity

By Michael Codner and Michael Clarke (Eds)
Publisher: I B Taurus

The Arab Spring: Rebellion, Revolution and a New World Order

By Toby Manhire
Publisher: Guardian Books

Conceptualising Modern Warfare

By Karl Erik Haug & Ole Jørgen Maaø
Publisher: Hurst & Company

War over the Trenches: Air Power and the Western Front Campaigns 1916-1918

By E R Hooton
Publisher: Midland Publishing

Losing Small Wars: British Military Failure in Iraq and Afghanistan

By Frank Ledwidge
Publisher: Yale University Press

Can Intervention Work? Amnesty International Global Ethics Series

By Rory Stewart and Gerald Knaus
Publisher: W W Norton and Co

Ethics, Law and Military Operations

By David Whetham
Publisher: Palgrave Macmillan

British Naval Aviation: The First 100 Years

By Tim Benbow
Publisher: Ashgate

Inside Steve's Brain: Business Lessons from Steve Jobs, The man who saved Apple

By Leander Kahney
Publisher: Atlantic Books

Arnhem Myth and Reality: Airborne Warfare, Air Power and the Failure of Operation Market Garden

By Sebastian Ritchie
Publisher: Robert Hale

Contents of CAS' Reading List 2013

Airpower for Strategic Effect

By Colin Gray
Publisher: Air University Press

Global Air Power

By John Andreas Olsen
Publisher: Potomac Books Inc

The Second World War

By Antony Beevor
Publisher: Weidenfeld and Nicholson

The RAF's Air War in Libya: New Conflicts in the Era of Austerity

By Dave Sloggett
Publisher: Pen and Sword

The Leadership, Direction and Legitimacy of the RAF Bomber Offensive from Inception to 1945

By Peter Gray
Publisher: Continuum

Behavioural Conflict: Why Understanding People and their Motivations Will Prove Decisive in Future Conflict

By Andrew MacKay and Steve Tatham
Publisher: Military Studies Press

The Art of Action: How Leaders Close the Gaps between Plans, Actions and Results

By Stephen Bungay
Publisher: Nicholas Brealey Publishing

The Changing Character of War

By Hew Strachan and Sibylle Scheipers
Publisher: Oxford University Press

The Upside of Turbulence: Seizing Opportunity in an Uncertain World

By Donald Sull
Publisher: Collins Business

The Future of Power: And Use in the Twenty-First Century

By Joseph Nye
Publisher: Public Affairs

The views expressed by the reviewers in this list are theirs and theirs alone. Inclusion of a particular book within the reading list should not be taken to mean that the Royal Air Force or the Ministry of Defence endorses the contents. Manuscripts with challenging and even contrarian views will be included in order to stimulate thinking, discussion and debate.

The Royal Air Force Centre for Air Power Studies
www.airpowerstudies.co.uk