CAS’ Reading List 2016

75th Anniversary of the First Flight of a British Jet Powered Aircraft
Front cover image:
Group Captain Frank Whittle seated at his desk at the Ministry of Aircraft Production, Thames House, Millbank, London.
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Foreword

Welcome to my third and final Reading List as CAS. This year’s list is issued at a time of unprecedented change both in technology and the global strategic landscape which makes for a complicated and uncertain context in which to deliver air power. When set against a backdrop of the country’s requirement for its air power to be permanently engaged in operations, the challenges for the RAF are many and diverse. A key element to addressing this challenge, perhaps the biggest cultural change programme that our Service has seen since the end of the Second World War, is Thinking to Win.

In my Foreword to last year’s list I talked about the RAF’s agility and readiness and how we have successfully dealt with post-Cold War challenges and the ongoing demands on UK air power. As a Service and as air power professionals, we pride ourselves in offering choice and flexibility to government, but to continue to do so effectively and intelligently we need to think about how we will ensure our outstanding track record of the past will be maintained and enhanced in the future. At the heart of the successful delivery of air power are three vital pillars – our people, our equipment and our ideas. It is time to re-ignite the latter and embrace the Conceptual Component of Fighting Power to drive a culture of innovation across our Whole Force.

It is well known that large organisations are prone to stymieing innovation – often due to their size, ingrained processes or structural nuances that have developed over time. We see this in organisations both new and old, across all sectors. Isolating the problem and setting out a strategy for breaking the paradigm is the first step that many organisations never actually get to, but as a Service we are now at this point. We need to think more robustly about how we will apply air, space and cyber power in the future, developing new ways of thinking and harnessing the diversity of thought and talent that we have from the grass-roots level up. We all need to embrace our role as air power practitioners – leading our sister Services - in our chosen professional environment. If we are to remain thought-leaders and custodians of air power, we need to take this initiative seriously and get to work quickly on making it a reality. I recommend this Reading List to you in order to enhance your Thinking to Win journey.

This year’s List starts with two books that will help to lay a foundation on how to think and provide a useful toolbox for your professional development. The New Tsar looks at the leadership of a key adversary before taking a deep dive into the very essence of our trade with Air Warfare: History, Theory and Practice. Accessible – though robustly written – historical case studies are then covered in The Mediterranean Air War and Jail Busters before moving into an examination of contemporary strategy and an honest reflection on the last 16 years of global conflict with David Killcullen’s Blood Year. As ever, we conclude with two titles that look to the future operating and strategic
environments; the first looking at the ethical aspects of cyber warfare before rounding off with *Ghost Fleet* and its deeply convincing - though fictional – representation of what future warfare may look like. I implore you to at least take the time to look at some of these books and to take your place at the centre of the *Thinking to Win* programme.

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

Image opposite:
In the 75th Anniversary year of the award of a Royal Warrant to the Air Cadet Organisation, the photo opposite captures an Air Cadet at No 1 Gliding Centre, Swanton Morley, Norfolk in March 1962.
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In highly competitive commercial environments poorly conceived strategies, weak security measures or inadequately resourced campaigns can result in financial and reputational damage. In a national security context the results could – and have been – disastrous in terms of lives lost, unforeseen consequences and shattered reputations. Yet in most cases, according to Micah Zenko, the chances of achieving more favourable outcomes could be improved through the use of 3 core practices: simulations, vulnerability probes and alternative analyses. Those aware of the dangers inherent in marking one’s own homework can draft in a ‘red team’ of skilled facilitators who use these practices to encourage critical thinking, group think mitigation, cultural empathy and self-awareness to improve understanding of the motivations, intentions and capabilities of an organisation or actor.

To illustrate his theory, Zenko immersed himself in the world of red teaming, attending military courses at the US Army’s University of Foreign Military and Cultural Studies (UFMCS, known as ‘Red Team University’) and commercial courses at the Fuld Gilad Herring Academy of Competitive Intelligence in Boston, USA. He also draws heavily on hundreds of interviews and case studies to bring his work to life, as well as relevant books, journals and military doctrine. Zenko is currently a senior fellow at the Council on Foreign Relations in America, having previously held positions at Harvard University’s Kennedy School of Government, the Brookings Institution, Congressional Research Service and the US State Department. He is widely published in the fields of national and international security and conflict prevention.

Late in the book Zenko states that “An adept red team will inform decision-makers by challenging conventional wisdom, identifying blind spots, revealing vulnerabilities, presenting alternative futures, and considering worst-case scenarios” (p.226). Many military readers will self-identify with that statement, pointing to numerous training courses and exercises (academic and practical) and their operational experience to show how they fit the mould of the critical thinker. The success of Zenko’s book is in convincing the reader that is not the case, and that without significant investment – particularly in ‘thinking about thinking’, or learning how to think – most people in hierarchical organisations will be shaped more by their institution than vice versa.

The book is logically structured, beginning with the origins of red teaming in the Vatican’s ‘devils advocacy’ approach to testing applications for sainthood, then working through best practices, red teaming in modern military, intelligence community and homeland security contexts, and private sector red teaming before summarising and suggesting the role that artificial intelligence might play in the discipline in future. Zenko uses contemporary examples throughout to show the benefits of red teaming as well as where its absence, or wilful ignorance of its
results, has led to disastrous consequences. One theme is obvious throughout the book, directly related to the number one best practice: the boss must buy in. Where this is not the case, it tends to be due to cognitive biases (such as mirror imaging and confirmation bias) or organisational biases (of which institutional capture and adoption of hierarchical preferences are key to the military); without that high-level support, the red team’s work is likely to be nugatory.

Several of Zenko’s case studies are worth highlighting, for differing reasons. In one he explains how a lack of independent review and critical thought in the Israeli intelligence community ahead of the 1973 Yom Kippur War left Israel dangerously exposed. Learning from this experience, the Israeli Defence Force subsequently established a dedicated red team – the Mahleket Bakara – to prevent similar failures. The intelligence profession is highlighted as a narrow, deep specialisation where biases such as the ‘tyranny of expertise’ and ‘coordination problems’ (the ‘blanding’ effect of consensus) are particularly common. This point seems to have been recognised by the Obama administration in its use of three separate red teams to verify Osama bin Laden’s likely presence in a compound in Pakistan ahead of the mission to capture him which resulted in his death. This example also shows how the use of simulations or table top exercises were useful in identifying, and planning responses to, ‘what if?’ situations such as the loss of a helicopter, which actually occurred.

Perhaps the most invidious example Zenko cites is the use of penetration testing and vulnerability probes by the US Federal Aviation Administration (FAA) during the 1990s to test airport and airline security. Despite repeatedly exposing the sort of shortcomings which would lead to the catastrophe of 9/11, the FAA red team’s findings were consistently ignored by the airlines and FAA leadership; failings which remain evident around the world today, as evidenced by the recent Brussels airport bombing. Zenko’s exploration of red teaming in the private sector is no less revealing, highlighting how cost-benefit analysis and commercial secrecy combine to leave a feeling that the customer’s best interests are frequently not a central consideration for big business.

Red Team is aimed at a wide audience, and some readers might feel that the ‘how to’ of military red teaming is somewhat overlooked. Zenko covers for this by liberally signposting other resources to which the reader can turn, including the Red Team University’s Applied Critical Thinking Handbook and the UK Development, Concepts and Doctrine Centre’s own Red Teaming Guide (Second Edition). For those seeking detail on some of the other concepts explored by Zenko (such as biases, thinking about thinking and unconventional approaches), the works of Daniel Kahneman, Malcolm Gladwell, Matthew Syed and Nassim Nicholas Taleb should provide excellent further reading.

Micah Zenko proves the wide applicability of his fascinating and convincing work time and again throughout Red Team. Seasoned practitioners will find it a valuable source of material, particularly on avoiding the identified pitfalls, and budding red teamers will find a wealth of resources to get them started. But the key target audience will be those in a position of high leadership and responsibility who can influence how (or even if) red team concepts are employed in their areas of responsibility. The real challenge – especially in a military environment where ego can often block alternative perspectives – will be overcoming those senior leaders’ biases and opening their eyes to the possibilities of red teaming.
Black Box Thinking: Marginal Gains and the Secrets of High Performance

By Matthew Syed

Publisher: John Murray Publishers Ltd, 2016
ISBN: 978-1473613805, 352 pages

Reviewed by Air Commodore Harry Atkinson CBE

Matthew Syed – Times columnist and best-selling author of Bounce – immediately grips and challenges the reader – in Black Box Thinking – to be better – much better than ever before. He explains how to do this and explores compelling cases of success by globally familiar names including: Mercedes Formula One, Google, James Dyson and David Beckham. He also considers a number of tragic failures, both famous and intimate, and the varying degree of learning that ensued.

No one wants to fail, but everyone does to some extent. This book is all about individually and institutionally embracing failure as part of the essential journey to success, rather than chastising it, as the opposite. Failure is nothing to be ashamed of or to be stigmatised by; it can be invigorating and illuminating. Together with Daniel Kahneman’s Thinking Fast, And Slow (CAS’ Reading List 2015), Black Box Thinking provides the inspiration, motivation and methodology to fundamentally up-skill ourselves for the future – to change gear and ‘step-up’ in our new era of ‘Thinking to Win’. By richly embracing this new thinking we can lift the game of Defence and be more successful for our Service, our Government and for the Nation.

In the Battle of Britain, the skill and daring of the fighter pilots was matched by the innovation and inspiration of our scientists, code breakers, engineers and communicators amongst others. Again, we must now change the way we reason and embrace new ways of thinking, create a culture where it is safe to fail, and thereby we can succeed. Matthew Syed gives clear examples of how failure-denial, self-justification and a cultural allergy towards failure can actually deny the very success that is essential to our future.

This book positions time-sensitive ‘black box thinking’ as a central tenet of effective innovation. This is vital to our conceptual innovation and thus to an effective Conceptual Component, one which can match the quality of our Moral and Physical components. If we are to have an effective Conceptual Component fit for the next 100 years of UK Air Power; if the RAF is to avoid becoming less and less effective in the face of the global pace of change; if we are to follow the CAS’ leadership of the cultural transformation programme ‘Thinking to Win’, Black Box Thinking is a great place to start.

Our previous reading lists have been peppered with reflections of military failures in recent campaigns – Black Box Thinking gives us choices about how to confront the challenges we shall face in the future by exploring, rather than denying, our mistakes and so learning and better informing the decisions ahead. To do this, a whole new culture of transparency rather than evasion is required. This book shows the need to understand the potential perils of time-perceptions. Also, that we should work hard to clarify ambiguity and strive to flatten unnecessary
hierarchies; these are all parts of the process of truly successful people and organisations – this is what the CAS has challenged us to do.

Matthew Syed explains that if we are to grow we must embrace and face up to our mistakes. In our Whole Force we should have the courage and integrity to honestly share our mistakes and allow the detailed exploration from which we must learn. This is essential if we are to successfully promote and preserve the National interest – our security, our freedom and our prosperity – nothing less.

This fascinating book tells us how failures can have multiple causes, and that some of those causes can be buried in organisational structures. In our case, learning from this is especially crucial at the operational and strategic levels where effective teamwork must not be crushed by the power of hierarchy. Black Box Thinking gives many great examples that we can learn from so that we can choose to lead differently in the future.

In his case studies, Matthew Syed tells engaging and enthralling stories which entice in the same way as a page-turning thriller. From facing the problems of Unilever to David Beckham’s 59 game captaincy of England, Black Box Thinking explains how by respecting and exploring mistakes – by seeing them as opportunities not obstacles – we can unlock a positive attitude towards learning and create a culture of innovation and success. This requires a willingness and tenacity to truly examine and exploit our failures. We have often asked ourselves – ‘can we afford the time to investigate failure?’ Black Box Thinking asks us – ‘can we afford not to?’ The book goes on to explain how errors – in their different forms – are indispensable to discovery.

In his summary, Matthew Syed, gives us a choice – to break out from old-mindsets and welcome those that challenge the status quo. This will guide us to better understanding and new ideas. The book gives the example of the Judeo-Christian ‘truth’ that women had one less rib than men - reinforcing the notion that Eve was created from Adam’s rib – this was generally accepted until 1543 when it was innovatively contested by using the exploratory technique - counting. So, let’s take a refreshed approach to our thinking – let’s examine the evidence, learn from our mistakes, challenge convention and really start to embrace success. Black Box Thinking is an essential read for anyone who may have ever made, or may have suffered from, a mistake.
The New Tsar: The Rise and Reign of Vladimir Putin

By Steve Lee Myers

Publisher: Simon & Schuster, 2015
ISBN: 978-1471130625, 592 pages

Reviewed by Dr Vladimir Rauta

US President, Barack Obama, once described Russian President Vladimir Putin as the “bored schoolboy in the back of the classroom”. Yet, as a schoolboy, Putin was “highly disruptive in and out of class, more inclined to hang out with boys, […] considered a bad influence” (p. 15). One is tempted to wonder if this is still the case just by looking at Putin’s political and personal friendships with Syrian President Bashar al-Assad and Iranian Supreme Leader Ali Khamenei and President Hassan Rouhani. Steven Lee Myers’ recently published book, The New Tsar – The Rise and Reign of Vladimir Putin, achieves this exact, rare feat: it engages the reader in a comparison of present and past history. What makes this an intellectually refreshing exercise is that the reader ends up comparing contemporary events as ‘history’ with the personal history of the people shaping them. How much does indirect Russian support to Transnistria owe to Putin’s trips to Moldova attending judo competitions? Is Abkhazia still the place of Putin’s summer camps? And, more importantly, does Crimea hold both historical relevance to the Russian state and personal significance to Putin as his honeymoon retreat?

Of course, the conjectures are far-fetched when translated into policy-making concerns and considerations. Nevertheless this is the purpose of a biography: to build context – personal context actually – around moments in and of history. The New Tsar – The Rise and Fall of Vladimir Putin is the most compelling, extensive and complex biography of Vladimir Putin to date, in the English language. It is a remarkable account of Putin’s life and how it has influenced the Russian leader’s quest to bring the Russian state to its former glory. The book walks the reader step by step through Putin’s childhood, adolescence, and university experience. It observes at length his KGB career and the transitioning into politics. With minute patience, Myers describes and analyses Putin’s formative experience in the 1990s and then his transformation from an unknown politician to the tsar who brought Russians pride in their country.

The reader gets to see a star gazing Putin: “the stars seemed to just hang there, […] sailors might have been used to that, but for me it was a wondrous discovery” (p. 21); a fitness-obsessed Putin; one listening to the Beatles, reading banned literature circulated in carbon copies and emotionally reticent, “even stunted” (p. 29) in the presence of women. What is extraordinary is that, almost like a novel, the book captivates through its ability to bring, parallel to Putin’s personal narrative, a view of the Russian state in and out of communism. It is a splendid account of Soviet life and society with the KGB in centre stage: “it was a state within a state ever in search of enemies within and without” (p. 24). The cruel realities of day-to-day life were nothing short of those portrayed by American propaganda: shared housing, food ratios, state surveillance. But, most importantly, the reader gets to see a confused, disappointed and furious Putin. Directed at the
inability of the Russian state to further face the West, Putin is shown vowing never to allow Moscow to be silent. The collapse of the Soviet Union caught Putin alone in East Germany in rioting Dresden with no support from the centre. Democracy, thus, challenged Putin’s beliefs in the strength of institutionalised communism in a brash, unexpected personal encounter.

Myers argues that 21st Century Vladimir Putin is the construct of an order-disorder binary. Putin encapsulates the former and repels the latter. His core objective, both personal and political – though in Russian politics the two are found overlapping – is strength. For Putin, order and strength are mutually constitutive, often used interchangeably both as means and ends. This explains Putin’s pursuit of domestic and international policies. Looking inwardly, Putin carved a personalised type of democracy with no political parties and a farcical representation of popular will. Looking outwardly, Putin has built an assertive state legitimised and reinforced by the consolidated domestic control. At the international level, Putin epitomises a dying breed of politician: a Cold War warrior with 19th Century imperial ambition who employs a hard geopolitical language at odds with the post-modern political discourse. Military intervention, proxy wars and defiance of international law are marks of Putin’s engagement with the international community, as well as a sign of a troubled relationship. Myers’ account stands out for its ability to project the future of Putin’s plan for Russia as a victim of the order-disorder binary it stems from, on grounds of the uncertainty it is shrouded in. As such, Myers’ book is a welcomed and valuable addition to an emerging cluster of research, Putinology.
If there is a contemporary British academic suitably qualified to write a new textbook on air warfare, it would have to be Air Cdre (Retd) Dr Peter Gray. A former Director of Defence Studies for the RAF, the Royal Aeronautical Society’s Senior Research Fellow in Air Power Studies and the convenor and primary lecturer in a Master’s programme in Air Power Studies at the University of Birmingham, the author is eminently well-qualified to write such a book. And it is the tour de force that one would have hoped for. It is, in its intent and its delivery, unashamedly an academic textbook, and is not a lightweight read, but given the complexity and the seriousness of the subject material, it is all the richer for this.

One of the book’s many strengths is that it tackles, head-on, many, if not all, the core debates surrounding air warfare today. The book starts by setting the scene with a thorough examination of the study of air warfare and its place against the wider sweep of military history, before examining the historiography of air warfare, considering the value of different sources and evaluating how our thinking about the subject has evolved. Although a slightly dry subject, these early chapters are vital in setting the scene for what is to follow, and in particular the succeeding chapter that traces the development of air power thinking. This development, with its themes of over-optimism and misplaced faith (largely driven by ignorance and too little understanding of the technical limitations of the time) continues to shape the debate today, as is clear in the next two chapters that delve into the practice of air warfare and its leadership. Here, the value of the earlier chapters becomes ever clearer, for without first examining its academic origins, the mistakes and the odd triumph of air warfare in its delivery would have not been so easily, and so well, explained. But for this reviewer, it is the chapters on legality, legitimacy and ethics, and on strategy, operations and tactics, that make this book such a compelling read. Of all the issues facing proponents of air warfare today, the ethical dimension and the correct level at which air power can and should be employed are the most pressing. In commendable detail but with telling clarity, Peter Gray dissects these most complex of issues to expose the real questions. Equally impressively, he avoids the Siren’s call and does not offer answers or opinions, sticking rigidly to his aim of delivering a true textbook.

While this book offers little that is new, drawing as it does on well-used and well-documented sources, the clarity of the thought throughout this book marks it out as a future classic. While many American authors have attempted similar feats, this rare offering from a British author, tackling the issues from the perspective of a British academic and through the twin lenses of the RAF and wider British military experiences, offers a new and valuable, not to say well-targeted, analysis. It is not, in all honesty, a light read, but again it is a textbook, designed for students studying British military power in the third dimension. Nor is it a long book: the substantive chapters run to just
some 120 pages, albeit of dense text. But this will no doubt become a staple of air power studies, and deserves the time and effort to be read thoroughly; contemplation of its messages will be well rewarded. This book should be a well-thumbed addition to the bookshelves of all air power thinkers and practitioners.
The Mediterranean Air War – Airpower and Allied Victory in World War II

By Robert S Ehlers

Publisher: University Press of Kansas, 2015
ISBN 978-0700620753, 520 pages

Reviewed by Mr Sebastian Cox

There have been previous histories of the role of air power in the Mediterranean theatre but no previous work approaches this one in its scope, covering the whole Mediterranean war right up to the end in Italy and the Balkans. Robert Ehlers combines a deep understanding of air power, its weaknesses as well as its strengths, with a much broader understanding of the strategic and grand strategic context in which it operated as well as the oft-neglected but fundamental aspects of logistics, organisation, and command and control. Ehlers highlights both the crucial importance of the Mediterranean to British survival and the failure of the German High Command to recognise the opportunities it offered the Axis, not only to inflict serious, possibly crippling, blows to the British Empire war effort, but also to seize Middle East oil and open a back door to the oil of the Caucasus. One of the great strengths of this book is its analysis of the Axis war effort in the theatre.

Ehlers argues that, despite some obvious conflicts of interest within the Axis alliance, effective German diplomatic and military efforts could have given them victory and control of the Mediterranean and the Middle East “without committing a large number of additional assets. Better use of the ones they had could well have done the trick” [emphasis in the original]. Ehlers points out that the Germans had poor C2 organisation; lacked radar in North Africa until the spring of 1942, meaning they relied on ground observers and Sigint; and failed to co-operate properly with their allies, all of which hamstrung their efforts to achieve sustained air superiority and provide proper protection for ground forces even when they deployed fighters which outclassed their opponents; as was the case for much of the period 1941-42. The Luftwaffe’s fighters dedicated their efforts largely to “free hunting” sweeps or close escort, which often inflicted heavy casualties on the RAF but, through neglect of a planned and sustained air effort, never achieved lasting air superiority.

Rommel was a great admirer of air power but, as Ehlers shows, his understanding of how it worked at the operational level was limited – he understood close air support and the value of air reconnaissance but neither the method for attaining the air superiority which underpinned these roles nor the detailed combined armed planning that would have made the air effort very much more effective. “If the Luftwaffe was not overhead, it was not, in Rommel’s view, doing its job...” Thus, despite often spectacular local success, German air-ground co-operation was frequently largely reactive and overly focussed on CAS, not least because Rommel often failed to advise the Luftwaffe of his plans in advance and then disappeared into the desert with his tactical HQ leaving the airmen in the dark as to his movements and intentions. Rommel also hamstrung the Luftwaffe’s mobility by stealing its motor transport for the army, and failed to prioritise Luftwaffe logistics which, when combined with poor engineering
practice, saw aircraft serviceability rates hover around 50 per cent or less. These weaknesses were exacerbated by the clumsy and ill-defined organisational structures for the Luftwaffe in the Mediterranean with C2 divided between different parts of the theatre. In contrast the RAF quickly placed all assets in the theatre, including East Africa, under one command. The divided German C2 chain led to dispersion of effort, compounded by “penny-packeting” of assets, and a failure to identify and concentrate against the enemy’s centre of gravity, notably the sea lines of communication with the key nodes of Malta and the Suez Canal neglected. Both were only spasmodically assaulted, to the long term detriment of the German effort. The Axis had more aircraft in the Mediterranean theatre than RAF Middle East until the summer of 1942 – their weakness was not an overall lack of resources but a failure to apply them sensibly. This was the folly of de-centralised execution largely lacking centralised control.

Whereas the Luftwaffe’s shortcomings are not well known, the story of Allied air power in the theatre is more familiar. The excellent leadership of Tedder, Coningham, Eaker and Slessor is recounted and dissected in detail but due attention is paid to the logistical and organisational triumphs which underpinned their operational successes, and the early struggles of their under-resourced predecessors, Arthur Longmore and Raymond Collishaw are given proper acknowledgement. Though these leaders were far more competent than their opponents at planning and executing combined arms warfare within the full range of air power roles, the contributions of the engineers and logisticians and crucially the RAF signals officers, are highlighted in the book. It is not always appreciated that it was improvements in communications and organisation as much as improvements in doctrine and understanding, which laid the foundations for the successful employment of air power in the combined arms campaigns in the theatre.

Ehlers also covers the later campaigns in Tunisia, Italy and the Balkans with the same thoughtful analytical eye. As befits an ex-USAF officer turned academic he covers the increasing USAAF presence in some detail but is unafraid to criticise the airmen when they overreached themselves, as for example in the unrealistic expectations some, though not all, harboured for the interdiction effort in Italy dubbed Operation Strangle. His conclusion on the campaign in Italy is a fair one: “The fact that many more German troops than Allied ones died, were wounded, or went into POW camps in a campaign suited ideally to a defensive effort waged by excellent troops underscores the role airpower played....”. He also rightly highlights the oft underestimated impact of the strategic bombers of the USAAF Fifteenth Air Force and the RAF’s 205 Group, both in opening a second front over the southern borders of the Third Reich and in their significant contribution to the strategic air campaign’s destruction of the German oil industry and disruption of the German communications networks to the Eastern Front, which in combination dealt crippling blows to the German capacity to wage Bewegungskrieg – mobile war.

Ehlers rightly establishes the centrality of air power to the struggle in the Mediterranean theatre. The interlocking nature of the air, sea and land struggles meant mastery of combined arms warfare was essential, not just at the tactical and operational levels, but at the strategic level as well, and it was the airmen in the theatre who were amongst the first to grasp that fundamental truth. This is an outstanding study, which should be essential reading for any serious student of air power or the Mediterranean war.
The attack on Amiens prison will remain one of the most memorable achievements of the Royal Air Force.

This quote from the RAF Director of Public Relations press release captures the essence of the story that Robert Lyman explores in his recent book. Although scholarly research into Ramrod 564 known as ‘Operation Jericho’ is not new, Lyman sheds light on the longstanding controversy regarding who requested the attack and its military necessity. This well researched work progresses through 3 levels of analysis to explore the strategic context, operational rationale and human endeavour that framed a mission that tested the limits of what airpower could achieve. It spotlights the RAF’s heritage and ethos whilst providing valuable lessons for contemporary operations.

In this work, Lyman provides an accurate historical narrative brimming with analysis in a well-structured and accessible style. By carefully selecting personal accounts that bring this extraordinary mission to life, he gives the reader a new respect for the often overlooked French patriots who risked all to secure ultimate victory. Lyman explores the strategic considerations taxing Churchill at the time, the operational interface between the various intelligence and saboteur communities, the capability drivers for precision effects at range, and the bravery and skill that delivered success when it counted. The simple facts remain that on 18 February 1944, 10 Mosquito Mk VIs dropped forty unguided 500lb bombs within 4 minutes from heights as low as 10ft and in broad daylight on Amiens Prison. Most weapons hit within 5 metres of their planned impact point, allowing 95 of the 130 interned ‘Resistance’ to escape certain death at the hands of the Gestapo. This precision and timing was remarkable in itself but the leadership qualities, planning considerations and ‘air-minded’ creative thinking it required are as relevant today as they were over 70 years ago.

The first 8 Chapters outline the organisational relationships between MI6’s secret intelligence networks and the Special Operations Executive’s covert action that together were pivotal to the Allies’ success in Europe. The book highlights frictions between the traditional ‘spy-masters’ and the ‘unconventional’ operatives that some viewed as being engaged in ‘un-British’ warfare. Both elements, however, relied on various groups of résistance intérieure française and drew on high-demand, low-availability assets provided by the RAF from Nos 138 and 161 ‘Special Duties’ Sqsns, and No1 Photo Reconnaissance Unit. Lyman underlines the dilemma inherent in growing from 3000 réseaux grouped in secure, highly compartmentalised local cells, to form an integrated intelligence and covert operations force of 30,000 to both destroy Hitler’s strategic weapons programmes and prepare for arguably the most complex amphibious operation of all time. The Germans knew the stakes. Building on their infiltration success against MI6 in Venlo during November 1939, they decimated the
Resistance in NW France with staggering brutality to the extent that by December 1943, the volume of actionable intelligence fell by half. This, when the V-1 programme was scaling-up to hit London with 5000 rockets a day and only 6 months until D-Day. With the morale, cohesion and effectiveness of the ‘Resistance’ perilously low, there was a pressing need for action.

Chapters 9-12 move on to examine the planning, aircraft capabilities and leadership that together formed the framework for success. Lyman captures the essence of a plan underpinned by a superb secret intelligence triad of SIGINT, ISR (including FMV of the day) and HUMINT, and fundamental to its execution was the Mosquito Fighter Bomber. This ‘Wooden Wonder’ constructed from 6 tons of wood and 50,000 brass screws, was developed by Geoffrey de Havilland against the corpus of conventional Air Ministry wisdom but, once fielded, proved an instant success. Faster, more agile and survivable than other aircraft, it was capable of operating at very low-level, occasionally collecting domestic chimneys and branches en route. Indeed, its long-range, pin-point accuracy and ‘stealth’ became useful counterpoints to the medium/high altitude area bombing that was the mainstay of Allied effort. From its first success against a single Gestapo building in the centre of Oslo during a VIP visit, it became clear that the physiological effects of “any time, any place” missions were as important as the physical destruction of the targets themselves. This section concludes with an honest appraisal of the mission commander, 28 year-old Gp Capt Charles ‘Pick’ Pickard DSO**, DFC, RAF; a leader that “took pride at being at one with his men, which was different from attempting to be one of them” and who sadly paid the ultimate price whilst leading from the front.

This book is a must read for the junior officer. It presents many similarities to contemporary air operations in direct support of an indigenous force where the need for the highest levels of operational security and precision are paramount. Additionally, it has wide utility for any operational or strategic planner as it signposts the nexus between ‘military necessity’ and acceptable risk. This Second World War operation reminds us that the ‘ends’ and ‘ways’ required to deliver precise effects are often reliant on intelligence gained through technology and HUMINT often at immense risk to those on the ground. Finally, the ‘means’ then is the same as now: the pursuit of excellence in weapon delivery accuracy. This historic study, therefore, highlights to today’s airman that success is not only about having better capabilities but is also a result of outstanding leadership, solid airmanship, innate skill and endless practice.
The Direction of War: Contemporary Strategy in Historical Perspective

By Sir Hew Strachan

Publisher: Cambridge University Press, 2014
ISBN: 978-1107654235, 335 pages

Reviewed by Air Vice-Marshall (Retd) Tony Mason

Professor Sir Hew Strachan is Chichele Professor of the History of War at the University of Oxford. For several years he has been a member of Advisory bodies to the Chief of the Defence Staff and the UK Defence Academy and maintained regular contact with several overseas Defence Departments and colleges. Consequently he draws upon deep historical scholarship and extensive recent defence policy insights to conclude in this unparallelled study that for the UK, USA and Western Europe at least, contemporary strategy is non-existent. The book is based on items already published elsewhere but extensively revised. At the relatively minor cost of some duplication of analysis and events, Professor Strachan explores the nature of military strategy and explains the reasons for its demise. He examines the stultifying influence of the Cold War; misinterpretations of Clausewitz; the detrimental impact of Huntington’s “The Soldier and the State”; the replacement of strategy by “operational art”; the separation of policy from strategy and the implications of an influential media in a democracy. He asserts the essential requirement for adaptability and flexibility in the formulation of strategy to react to the unexpected, and the value of military history to encourage an ability to identify permanent features from the transient and the obsolete from the novel.

He explains how during the Cold War, from 1945 to 1989, strategy was usurped by strategic theory, which became the domain of political scientists rather than the military. The concept of nuclear deterrence was designed to prevent major war, not a prescription to fight one. The military lost control of strategy and, Professor Strachan argues, came to concentrate on the operational level of war, which included concepts such as follow on force attack, revolution in military affairs and network centric warfare, associated with tactics and technology rather than with grand strategy and policy. Military adjustment was, and remains, complicated by long procurement lead times but a need to respond to wars of different kinds.

The author explains the timeless, unmatched ideas of Clausewitz; especially the latter’s exhortations to see a war as it is, not what it is wished to be; that plans must be prepared to respond to the unexpected and that war itself shapes and changes policy. It is essential that policy and strategy be fully integrated and reciprocal. Concentration solely on the dictum that war is the continuation of policy by other means leads to separation, not integration. Such separation has been reinforced by Huntington’s emphasis on military subordination to, and separation from, the government. Professor Strachan does not challenge the concept of political primacy, but argues convincingly for strategy to be the flexible product of both military expertise and political judgement; or as the reviewer was taught, continuation of policy not “by”, but “with the admixture” of other means.
Instead, Western military, along with political leaders were slow to adapt to changed post-Cold War circumstances. They failed to identify re-emergent features in wars which were products of national, religious and ethnic identity. The notion of a global war on terror is succinctly dismissed by the Professor as “strategically illiterate”. Moreover, Western governments have failed to distinguish between the strategic requirements of counter insurgency and counter terrorism. Indeed ISIS has become prominent since Professor Strachan’s ideas were finalised, supporting his thesis by incorporating objectives which include the establishment of a theocratic state and freedom from perceived western domination while at the same time harnessing insurgency in situ and exporting terrorism to other areas, each with its own regional objectives.

Meanwhile the professor explains how the ability of the British military to influence the direction of strategy has been eroded by the subordination of the individual Service Chiefs and the co-chairing of the Defence Staff by a Permanent Under-Secretary alongside the Chief of the Defence Staff. The product, he bluntly avers, is the elevation of financial management over military thought. Unfortunately the process has been accompanied by a continued assumption of British interests worldwide with an inability to allocate the military resources necessary to support them.

Furthermore, the Professor argues, Western direction of the wars of the early 21st Century has been complicated by confusion between humanitarian objectives and national self-interest. The confusion has been aggravated by a pervasive international media and instant communications, along with the need in democracies for politicians to be sensitive to the sentiment of their populations. Clausewitz’ emphasis on the importance of the “trinity” of people, armed forces and government, is particularly relevant when the relation between national interest and national security appears indistinct in wars fought without clear objectives a long way from home.

In concluding, Professor Strachan looks to a future when nuclear deterrence will continue to inhibit major wars but there may be a reversion to wars as waged in Europe in previous centuries and outside Europe until the end of Empire. They will require the integration of policy and strategy jointly produced by politicians and military; an accurate judgement of the nature of the war to be fought and above all the adaptability and flexibility to respond to unexpected circumstances.

His emphasis on flexibility and adaptability has a particular resonance for RAF readers. The two attributes are fundamental characteristics of air power. Surprisingly, the importance attached to them in the formation of strategy is not matched by Professor Strachan’s consideration of air power generally. He examines in detail the ideas of Douhet, but of his two sources for his conclusion that the Italian had a major influence on western air forces, one refers to possible connection with US General Billy Mitchell via the Italian aircraft manufacturer Caproni; the other to hypothetical assumptions about British awareness of Douhet from senior British figures in the inter war years. Both neglect Trenchard’s earlier concepts of offensive operations and subsequent influence on the RAF; the personal contact between Trenchard and Mitchell; and the plans for US strategic air operations in Europe 1917 by US Lt Col E S Gorrell with the assistance of Trenchard’s bomber staff. Sir Basil Liddell Hart, Air Marshal Slessor and Air Marshal Harris all assured the reviewer that they had no knowledge of Douhet. Later, Professor Strachan attributes the brevity and allied success in the first Gulf War “particularly its ground component” to the concept of the air-land battle; an interpretation which carries a serious reminder to all airmen that without descending
into zealotry, there is a consistent need to spread the word, even among the most distinguished military scholars.

Some readers may wish to move lightly over detailed examinations of military theorists other than Clausewitz. It is however, impossible to summarise or even do justice to all the insights on the higher western direction of modern war which leap from many pages. It should be read by every Staff College student and any officers from the three Services who are in planning or policy appointments. However forlorn the hope, it should also be mandatory reading for any civil servant or politician who has, or is likely to have, any responsibility for the direction of British Defence Policy.
Blood Year: Islamic State and the Failures of the War on Terror

By David Kilcullen

Publisher: C Hurst & Co, 2016
ISBN: 978-1849045551, 200 pages

Reviewed by Squadron Leader Keith Slack

Blood Year is an absorbing review of events since 9/11 that led to the emergence of the Islamic State in Iraq and al-Sham (ISIS) and its subsequent explosion onto the world stage, often in the most brutal way. But it is not just about ISIS. Captivating in detail and broad in geographic and thematic coverage, the analysis focuses on what ISIS tells us about the War on Terror since 2001 and offers some insights as to how we might move forward. The book provides many compelling arguments, on a range of issues. Primarily, however, it argues that the lesson from the failed ‘Disaggregation Strategy’ after 9/11 is that political will and timing are everything and that, what Kilcullen terms, an “Active Containment” strategy – including a full scale conventional campaign and possibly greater cooperation with Russia – is the best of a bad lot of strategic choices. Indeed, as acknowledged by Kilcullen, there is the possibility that this approach may have been overtaken by events already.

Kilcullen is one of the world’s foremost analysts on counterinsurgency and military affairs, combining an operational background with authoring The Accidental Guerrilla, Counterinsurgency and Out of the Mountains. The addition of Blood Year to his scholarship provides an honest reflection on the past 15 years since 9/11 and an up-to-date analysis of insurgency and guerrilla warfare in the current operating context.

Connecting the failures in Iraq and Afghanistan, the Arab Spring, resurgent Russia, the Iranian nuclear deal, Sunni-Shia regional dynamics, the European refugee crisis and global terrorism, the book is not intended as a comprehensive history but rather a personal account. The value of this study, therefore, is twofold. First, the material is sourced first-hand from extensive travel as a hugely influential advisor in the field and subsequent academic research of global events. Second, Kilcullen draws on an extensive and multi-source reporting network from individuals who are witnessing, and in some cases personally experiencing, the Blood Year (or Years) that continues to unfold on a global and brutal scale.

This information, coupled with Kilcullen’s expertise, forges a study that is informative in explaining how we got here, and insightful and somewhat provocative in explaining how we might move forward.

The book is structured into short chapters that are geographically or thematically focused. Eminently readable, it proceeds at a canter combining strategic geopolitical dynamics with detail from tactical engagements and humanitarian disasters. In explaining the rise of ISIS, Kilcullen argues that after the Iraq war had alienated potential partners and created Al-Qaeda in Iraq (AQI), the Disaggregation Strategy “atomised” the threat and, combined with the explosion of social media, enabled remote radicalisation and leaderless resistance.
The precipitate withdrawal from Iraq in 2011, the killing of Osama Bin Laden (and the over-exaggeration of its importance), the AQ succession crisis and the failure of the Arab Spring combined to morph AQI into an emboldened ISIS. In addition, complacency after Bin Laden’s death and vacillation during the Syrian War created the basis for the rise of ISIS and the declaration of a Caliphate. Military operations in response to ISIS are covered in some depth throughout the book with specific chapters dedicated to what Kilcullen terms the “ISIS Internationale” – an unstructured, do it yourself, random and leaderless organisational infrastructure – and the establishment of ISIS overseas territories called “Wilayat”. Finally, the importance of Russian intervention and what this meant for the Iranian dynamic, and indeed Shia-Sunni relations, is also discussed.

For the air power enthusiast, there is much on offer. The book adeptly explains the difficulties in employing military forces in such a complicated and dynamic political context. Set against this backdrop, however, the employability of air power in all of the doctrinal roles is extolled throughout the book as a politically expedient option that can deliver immediate effect. The humanitarian aid drop on Mount Sinjar, the utility of air strikes to relieve pressure on friendly ground forces and support their advances, the difficulties the Syrian Air Force faced at Palmyra due to a high air threat and a failure to have enough control of the air, and the importance of intelligence collection to support operations are all covered in the analysis. Importantly, and perhaps more crucially, the limitations of air power become evident: the difficulties of supporting ground forces that are not under formal control; the limitations of operating without forward air controllers to designate targets; the problem caused by an adaptable enemy that increasingly operates in urban spaces, at night and during adverse weather; and, of course, the political challenges of coordinating airspace and securing adequate basing options. Nesting the delivery of effects within such a challenging geopolitical context in order to achieve desired behavioural change and coherent messaging is an enduring challenge - and one that this book makes plain we have not always succeeded at.

By way of conclusion, Kilcullen provides a framework for rethinking counterterrorism. First he contends that we must admit our strategic failings. Second, recognise, prepare and resource for a long war by redefining the threat, which he does succinctly. Third, respond to the Russian incursion by choosing cooperation over compliance and competition, albeit set against a number of caveats. Finally, deal with ISIS as a conventional threat not by counterinsurgency but through an “Active Containment” strategy that includes regional engagement, expanding “overseas action”, moderately increasing ground troops and radically increasing air power. He rounds off the book by providing 5 insights from his experience – categorically not labelled as lessons – that are thought-provoking and will be left to allow the reader to arrive at their own conclusions.

This book provides a thought-provoking, extremely well written and readable version of events that have been broadly termed as the “War on Terror” and more discretely as “overseas contingency operations”. Unfortunately for those living in Iraq and Syria, as well as many other places around the world including Paris and Brussels, and for the rest of us through the media, the content of this book manifests itself to different degrees and in different ways in all of our daily lives. Improving our understanding of the strategy undertaken and the employability of military forces in this conflict – a key part of the conceptual component of fighting power – is vitally important and considerably improved as a result of Kilcullen’s coverage of the Blood Year.
Binary Bullets: The Ethics of Cyberwarfare

By Fritz Allhoff, Adam Henschke & Bradley Jay Stawser

Publisher: Oxford University Press, 2016
ISBN: 978-0190221089, 320 pages

Reviewed by Squadron Leader Eoin Sands

Binary Bullets is one of the first works to attempt to tackle the thorny problem of applying ethical theories from the just war tradition to the nascent and rapidly developing area of cyberwarfare. Comprising of twelve essays covering topics ranging from emerging international legal norms for cyberconflict to a suggested “Code of Honour” for cyberwarriors, the book is a brave and valuable attempt to stimulate academic discussion on what will be an increasingly important area for military ethics in the future.

The contributors come almost exclusively from the world of academia, with the majority being current or former professors of ethics, law or philosophy. While this means that each essay has been written by an expert in the field, it does reinforce the fact that this book is intended to provoke scholarly debate rather than to appeal to the casual reader. Most chapters assume at least a glancing familiarity with just war theory and international law, although it should be pointed out that an extensive background in the field of cyberwarfare itself is not a prerequisite. This is very much a book for military ethicists with an interest in cyber rather than the reciprocal. That said, some chapters are more accessible than others, perhaps due to the presence of a former USAF officer on the editorial staff.

The book is split into four parts. The first explores the moral and legal normative framework that has already begun to emerge around the realm of cyberwarfare. The second investigates how easily cyberwarfare fits into the existing just war tradition, fundamentally asking whether there can be such a thing as a cyberwar (a question answered in the negative by Thomas Rid some years earlier in his seminal work ‘Cyber War Will Not Take Place’). The third section of the book considers the human element of cyberwarfare, both in terms of those who prosecute it and those who are affected by it. Perhaps the most accessible part of the book, it includes a fascinating chapter that examines through practical experimentation the psychological effects that cyberattacks can have on the individual. The book concludes by looking at “Cyberwarfare, Deception and Privacy” and includes an essay examining what is perhaps the salient question for the average citizen in the post-Snowden/Assange era: how ethical are national security surveillance programs.

Four practical examples of cyberattack dominate the book and they will be familiar to any student of cyberwarfare: the Stuxnet attack on the Iranian nuclear program; the Distributed Denial of Service (DDoS) attack on Estonia following the move of a Russian war memorial; Operation Orchard, the (alleged) Israeli Air Force raid on a Syrian weapons facility enabled by a prior cyberattack on the Syrian air defence system; and the alleged cyberespionage carried out by the Chinese military into a range of organisations and governments as detailed in the Mandiant Report. These examples highlight a
fact that proves the importance of works such as *Binary Bullets*: cyberattacks to date have not involved death and large-scale physical destruction and therefore have fallen between the gaps of much of existing just war theory in a similar fashion to economic sanctions, diplomatic embargoes and other forces-short-of-war. Combined with the anonymity of cyberattacks (the so-called ‘attribution problem’), this makes cyberwarfare an ethical minefield and one that demands attention.

Two works sit on the periphery of many of the essays and any prospective reader of *Binary Bullets* would benefit from also adding them to their collection. The first is the aforementioned ‘Cyber War Will Not Take Place’ by Rid, which is in equal parts venerated and denounced in a number of the essays in this book (perhaps not surprising for what was an intentionally though-provoking and controversial piece). The second is *The Tallinn Manual*, perhaps the best attempt to date to codify rules for regulating the prosecution of cyberwar. Again, depending on the essayist, this work is either held up as a “very serious and expert document (p. 125)” or “a spectacular failure (p. 17).”

The presence of such contradictory opinions within the same book is indicative not only of *Binary Bullets*’ ambition to spur academic debate but also of the absence of any existing agreed ethical frameworks for cyberwarfare. To further illustrate this point, in Chapter 5, Ryan Jenkins contends that cyberwarfare is a morally ideal form of war and as such the deployment of cyberweapons should be morally favourable to a relevantly similar act of conventional war. Later on in Chapter 10, Heather Roff argues that any cyberattack (or at least any which results in death, injury or capture of adversaries) constitutes perfidy and is not only morally and legally prohibited but will also deleteriously affect the likelihood of *jus post bellum*. There can be few areas in military academia so undeveloped as to allow such opposing views equal credibility. This perhaps highlights the real appeal of *Binary Bullets*; it truly feels as if it is stepping into untrodden ground. It is not a book for everyone and casual readers will struggle with the occasionally impenetrable language used throughout. However, for those with a background or even merely an interest in ethics, it is essential reading.
Peter Singer and August Cole’s book is important, thought-provoking and gripping. It should be read by policymakers, military planners, the defence and technology industry, and it will be enjoyed by a far wider audience. Both fictional thriller and deeply researched assessment, in the vein of Hackett’s 1978 *The Third World War*, this is the best vision of future war that we have, and it makes for enjoyable, intense, yet uncomfortable reading.

The scope of the tale and the research is vast. Beginning 243 miles above the Earth’s surface in the International Space Station, the action descends to 10,590 metres below sea level in the Mariana Trench. The war between China and the US focuses on China’s Third Island Chain with Hawaii at its centre but touches on counter-piracy, European decline, Russian imperial pretentions, Japanese vulnerabilities, the energy industry and globalised industry. It covers the import of autonomous drones in the air, sea and land environments; there is the to-be-expected import of cyber warfare and space, stealth and directed energy weapons. The criticality of logistics is examined. There are important roles for the private sector and non-state actors; a multi-billionaire entrepreneur’s help proves crucial while online-hackers Anonymous feature too. I challenge any reader exposed to the array of technologies and trends not to learn something they didn’t know before.

This is also an intensely human story, of hubris and nemesis for both the US and China, of difficult family relationships strained by Service life, of racism and identity, of love, of revenge, of sex. The human element is present in all the main characters, the XO of the USS Coronado Jamie Simmons, as well as a host of others from Vice Admiral Wang Xiaoqian of the Chinese military junta that has replaced the Communist party, to American insurgents in territory occupied by the Chinese. The human interest reminds us of both the enduring nature of war and of man at his best and worst.

There are three principal operational areas of interest for the Royal Air Force. The first is the importance of drones in all of air power’s roles including air-to-air combat, the second is the dangers of being reliant on microchips and electronic components often made in China, the third is the need to be able to operate without access to space-based navigation and command and control systems. All are brilliantly described in a series of gripping air-to-air engagements that should leave those planning for our future capabilities with pause for thought.

Strategically the book indicates just how irrelevant Britain is coming to be for the US as it looks to the future. Britain, weakened and divided when Scotland separates from the Union, is unable to deploy its Anglo-French aircraft carriers due to French objections. Britain’s air force, seemingly reliant solely on F-35s, is unable to respond due to the same software and hardware vulnerabilities in the aircraft that have so weakened the USAF. One can argue
with the analysis of how Britain might respond to a global war in the 20-30 year time frame, but when one hears the authors discuss the book in podcast with War on the Rocks’ Ryan Evans there can be little doubt that Britain is seen, at least by them, as just another declining and unreliable ally. Contrast this with the centrality and import of British capabilities in Tom Clancy’s 1986 vision of future warfare in *Red Storm Rising*.

Singer and Cole are both staples of the Washington security commentariat with serious credentials; Singer’s *Wired for War* is the seminal book on robotics and warfare. August Cole’s work at the Wall Street Journal as Defence Industry Correspondent and his innovative work at the Atlantic Council make him a highly credible and well-informed analyst. Perhaps the most remarkable thing about their book is how impeccably sourced its storylines are. The extensive footnotes at the back of the book provide a trove of useful sources for anyone seeking to think about the future operating environment. The authors are too wise to put a precise date on the story, but have indicated that the furthest forward they thought they could project current trends is the 2020-2030 period. One can only hope our own planning is as well researched and considered.

There is a broader context behind this. The book’s authors express the hope that the book is read only as a work of fiction, not prediction. Our strategic context in the future may be that envisioned by Steven Pinker from his detailed statistical analysis of violent trends: a gradually more peaceful, less violent world, marred by warfare yes, but always with violence on a downward trend. Or it may be that Colin Gray, Laurence Freedman and Nassim Nicholas Taleb are right: the downward trend means nothing. History is made in the discontinuities. And this is certainly the under-pinning assumption of Singer and Cole’s book. *Ghost Fleet*, has at its centre, a Naval conflict. Perhaps we might end with our senior Service’s motto *Si vis pacem, para bellum*, “if you wish for peace, prepare for war”. Such a preparation is mental as much as physical. Ghost Fleet’s authors have made a significant contribution in helping us to understand what it is we might be preparing for.
Contents of CAS’ Reading List 2015

**Thinking Fast and Slow**
By Daniel Kahneman
Publisher: Penguin

**Wind in the Wires**
By Duncan Grinnell-Milne
Publisher: Grub Street

**Why We Lost - A General’s Inside Account of the Iraq and Afghanistan Wars**
By Daniel Bolger
Publisher: Eamon Dolan/Houghton Mifflin Harcourt

**The Unseen War: Allied Air Power and the Takedown of Saddam Hussein**
By Benjamin S. Lambeth
Publisher: Naval Institute Press

**High Command: British Military Leadership in the Iraq and Afghanistan Wars**
By Major General (Retd) Christopher L Elliott
Publisher: C. Hurst & Co

**World Order: Reflections on the Character of Nations and the Course of History**
By Henry Kissinger
Publisher: Allen Lane

**Airpower Reborn: The Strategic Concepts of John Warden and John Boyd**
By Colonel John Andreas Olsen
Publisher: Naval Institute Press

**Strategy and Defence Planning: Meeting the Challenge of Uncertainty**
By Colin S. Gray
Publisher: OUP Oxford

**Cybersecurity and Cyberwar: What Everyone Needs to Know**
By P.W. Singer and Allan Friedman
Publisher: Oxford University Press

**It’s Only Rocket Science: An Introduction in Plain English**
By Lucy Rogers
Publisher: Springer-Verlag New York Inc
Contents of CAS’ Reading List 2014

**Boyd: The Fighter Pilot who Changed the Art of War**
By Robert Coram  
Publisher: Back Bay Books

**Air Commanders**
By John Andreas Olsen  
Publisher: Potomac Books Inc

**British Generals in Blair’s Wars**
By Jonathan Bailey, Richard Iron and Hew Strachan  
Publisher: Ashgate Publishing Limited

**The Sleepwalkers: How Europe Went to War in 1914**
By Christopher Clark  
Publisher: Penguin

**The Bombing War: Europe 1939-45**
By Richard Overy  
Publisher: Allen Lane

**Conflict After the Cold War: Arguments and Causes of War and Peace**
By Professor Richard Betts  
Publisher: Pearson

**European Air Power: Challenges and Opportunities**
Edited and with an introduction by John Andreas Olsen  
Publisher: Potomac Books

**Strategy: A History**
By Sir Lawrence Freedman  
Publisher: Oxford University Press

**Out of the Mountains: The Coming Age of the Urban Guerrilla**
By David Kilcullen  
Publisher: Hirst and Company

**A Fierce Domain: Conflict in Cyberspace, 1986 to 2012**
By Jason Healey  
Publisher: Cyber Conflict Studies Association
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
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
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.