

British Thinking on Air Power - The Evolution of AP3000

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This article traces the contemporary development of British air power doctrine from 1977 to the present day. By the late 1970s the published doctrine of WWII and the early Cold War had become stultified. The RAF had become focused upon the tactical aspect of the Central Region in particular and had developed further its anti-intellectual tendencies. The creation of the post of Director Defence Studies (RAF) allowed a series of individuals to challenge the orthodoxies of their times and, in their own ways, to stimulate a broader debate on the value of air power. The article suggests that while the context and personalities changed with time, there was a coherent line of thought about the reasons for articulating air power doctrine. And, more importantly, the principles stated were remarkably consistent and enduring ones.

"They [the USAF Doctrine Center] are the guys who build the box we are all exhorted to think outside."

USAF officer to author, Maxwell
Air Force Base, 2002

The opening quotation highlights the perennial problem of the doctrine writer; the delivery of a product that is not only relevant, but is perceived to be relevant and will therefore be used by those at whom it is aimed. In exploring the development of contemporary British air power thinking, it is perhaps useful to briefly examine the RAF's earlier doctrine. The July 1928 edition of *AP1300*¹ stated that 'the aim of a nation at war is to compel the enemy as quickly and economically as possible to conform to its purpose or will, thus the ultimate aim of all armed forces is identical although the means to achieve that aim may differ.' Later, in the chapter on air bombardment,² it said 'the bombardment of the most vital and vulnerable of these centres may be more effective and decisive than the direct attack on naval and military forces.' The former quotation chimes well with both the manoeuvrist approach and current effects-based thinking, and the latter both reflects and anticipates the work of the strategic bombing theorists. The second edition of *AP1300*³, published in 1940, dealt with the context of war at the strategic level in terms of the main roles of air warfare: the strategic air offensive; the strategic air defensive; and operations in support of the Navy and Army. It also addressed the protection of air forces on the ground, the role of intelligence and operations in austere and undeveloped areas. It is of interest

that this edition of *AP1300* devoted 33 pages to *appreciations*, the military planning process that is now termed the Estimate.

The formal RAF air power doctrine of the early Cold War period was codified in the fourth edition of *AP1300*⁴. The introductory note by the Chief of the Air Staff, Air Chief Marshal Sir Dermott Boyle, stated that:

'Providing the great deterrent is the primary function of air power today⁵. The responsibility for providing the United Kingdom's contribution to the deterrent rests with the Royal Air Force. This is our major task. And it must not be overlooked that the air defence of this country is inextricably part of the deterrent since it not only defends the bases from which our V-Bombers operate but also raises doubt in the mind of the enemy as to the degree of success he is likely to achieve in knocking out our bombers and consequently the degree of punishment which he must expect in return.'

The Manual's approach to the other facets of air power was virtually unchanged from the wartime version. *AP1300* did not explain doctrine per se, but it is implicit throughout, particularly in the application of the principles of war. Yet the role of the manual was clear from the final paragraph of the introductory note:⁶

'Success in the military field, whether in the preliminary planning or in the actual conduct of operations, is largely a matter of judgement. Judgement, though partly intuitive, is mainly based on knowledge. All officers should therefore strive continually to increase their professional knowledge so that their

*judgement may be soundly based.*⁷

The target audience for the manual was primarily junior officers and particularly aircrew; while the fourth edition was printed in March 1957, reprinted in September 1964, and amended in 1968, despite its withdrawal in the early 1970s, it was still used as a 'C' promotion exam (from flight lieutenant to squadron leader) primer as late as 1977. With this doctrinal background as a starting point, this paper will consider how and why current Royal Air Force air power doctrine has developed, in the form of the *AP3000* series, from 1988 to the present day, identifying whether the changes have been conceptual or contextual. In this story, successive Directors of Defence Studies (RAF) (DDS) have played a key role.

The post of DDS was created in 1977 by the CAS, Air Chief Marshal Sir Neil Cameron, to 'be responsible for reviving and maintaining an interest in the study of present and future uses of air power in its various military applications'.⁸ The DDS had direct right of access to CAS and his work was not to be constrained by current MOD thinking. Consequently, the first incumbent had no hesitation in drawing CAS's attention to the fact that 'no authoritative publication on air power concepts has been issued since the now defunct *AP1300* of March 1957, last revised in 1968'.⁹ Subsequent DDS' expressed concern that the RAF's 'sense of unity and common purpose was being weakened as each specialist force pursued its own route to professional excellence'¹⁰ and proposed the formation of a single directorate of air power doctrine at

the RAF Staff College, Bracknell. In 1988, steps were taken on an unofficial basis to produce a new RAF doctrine manual.¹¹ This faced two major hurdles. The first was the inherent scepticism and suspicion within the RAF towards a written doctrine, although this was perhaps borne of ignorance about its purpose. The second was the view expressed by several very senior officers that this would somehow conflict with NATO doctrine and thus detract from Alliance solidarity. However, NATO air power doctrine was described in Allied Tactical Publication 33B, and this was definitively 'tactical' rather than elaborating the fundamental principles or philosophy that would guide a broader thinking about the uses of air power within the RAF. Furthermore, numerous bureaucratic obstacles, not least the lack of a budget for producing the document, were all exploited by the project's opponents. While the aspiration was to produce a comprehensive strategic manual, comprising a summary document, essays which elaborated on the key principles and references to permit further research, it was more than the market could bear at the time. Fortunately, there were also some key supporters, including the ACAS, Air Vice-Marshal John Thompson. With his approval, *AP3000* – purposefully renumbered to draw a clear distinction between it and its predecessor, *AP1300* – was produced on a trial basis, with a limited print run. It was intended that the trial would provoke wider and more mature comment, to help the Air Force Board assess whether the new air publication was necessary. A second edition would then be produced if required, incorporating

comment and with a far wider distribution.

AP3000 Edition 1 was, by design, short and pithy and, in that sense, was similar to *AP1300*. However, in addition to presentational differences, such as the use of pictures and diagrams, it differed primarily in treating air power holistically, rather than separating it into individual roles. The purpose of doctrine as a statement of the fundamental principles for the employment of air power was clearly explained and it described three air campaigns – counter-air, anti-surface force and the strategic air offensive – plus two essential supporting activities, combat support air operations and ground combat support. The CAS, Air Chief Marshal Sir Peter Harding, made the target audience for *AP3000* clear in his foreword.¹² In terms of air power education, the first category was the RAF itself. The second category was the UK's allies, through the contribution to Alliance doctrine, and the last category comprised the RAF's sister services, the Civil Service, Parliament and the general public, to increase the understanding of air power more widely. Within the RAF, *AP3000* was aimed squarely at the officer cadre.

AP3000 Edition 1 was initiated in the year that the CGS, General Sir Nigel Bagnell, directed the publication of the *Design for Military Operations*, a recognition that the Army had also been in a doctrinal lacuna for many years. The Heads of Defence Studies from the Army and the Royal Navy were involved in the drafting process for *AP3000 Edition 1* and considerable effort went into achieving as much commonality as possible between the

different environmental approaches and, subsequently, the first edition of *BR1806 British Maritime Doctrine* was published in 1995. In 1991, a first draft of a new, second edition was completed, following consultation and comment on the first edition. Apart from a very short annex on the allocation of resources for the armed services and the incorporation of more detailed examples and lessons from the 1991 Gulf War, few changes were considered necessary and the stated target audiences remained the same, with the exception that all ranks were encouraged to read the book rather than just officers.

The development of RAF air power doctrine was not limited to *AP3000*. It was felt that the MOD had deliberately played down the role of air power in the Gulf War because of the impact it would have had on procurement processes and future inter-service relations.¹³ So, to explain what air power could offer over other forms of warfare, an Air Power Working Group (APWG) was formed by DDS (RAF), initially comprising senior civilian academics, but later expanded to include not only academe, but the other services, the USAF and the Department of Air Warfare.¹⁴ The intention was not only to gather a group of thinkers to address Air Power's role in the post-Gulf War world, but also for the members to act as advocates of the British view of air power within the UK and with the USAF and RAAF as well. The Dean of SAAS was invited to participate, as was the Director of the RAAF's Air Power Study Centre. The inaugural meeting in 1994 brought together a group of Air Power sceptics; the challenge was to turn them into apostles.

The result was the publication of *The Dynamics of Air Power*¹⁵. This consisted of two parts. The first, 'Evolving Theory', looked at the distinctive characteristics of air power, the counter-air context, synergy in operations, air power force and coercion and air power and the role of the media. The second part looked at air power in peace support operations with the common thread being the primacy of the supporting elements of air power in those operations. While the overt target audience for the book was not particularly clear, as it was commended 'to theorists and practitioners alike',¹⁶ the intention was 'to get the decision makers to think'¹⁷ and to further understanding of the issues, rather than just providing a simple explanation through an oblique look at the fundamentals. This was to be the first of a series of analyses of the efficacy of modern air power and, together with subsequent books, would provide the intellectual springboard for air operations and future versions of *AP3000*. However, the debate was not to be confined solely to the deliberations of the APWG and it was important to set military force in a post-Cold War and post-Gulf War context. In the first instance, a Tri-Service Conference established the strategic direction, and this was followed by a joint RAF/USAF Air Power Conference, held in 1996. Apart from making sister services think how each would contribute to the air battle of the future, it provided an opportunity for members of the APWG to expose their thoughts to scrutiny. The audience was drawn not only from the defence establishment, but included the Vice Chief of the USAF and senior members of other NATO

forces, as well as politicians of all three main parties. An unstated aim was to influence any defence review following the 1997 election.

In parallel, the APWG re-examined the validity of the concepts and doctrines of the Cold War era to ensure that the RAF was not being seduced by its expectations of technology and the resulting book, *Perspectives on Air Power*¹⁸, examined the political, technological and military context of air power in the post-Cold War era.

Concurrently, the publication of the first edition of *British Defence Doctrine*¹⁹ and the *UK Doctrine for Joint and Multinational Operations* (JWP 0-10)²⁰ marked a move towards joint, as opposed to single, service doctrine, embodying concepts such as the manoeuvrist approach and the three components – conceptual, moral and physical – of fighting power.

In 1996, it was determined that a new version of *AP3000* was needed, although this was to be 'evolutionary, not revolutionary'.²¹ Air Chief Marshal Sir Richard Johns was to remain CAS until April 2000, a month after the eventual publication of the new, *AP3000 Edition 3*,²² and although he was initially sceptical of the need for it, his view changed²³ as he became convinced that the RAF's doctrine must take full account of the changes in the strategic environment following the end of the Cold War, including the move towards 'jointery,' a perspective reinforced by the emphasis on joint structures in the 1998 Strategic Defence Review.²⁴ He also felt very strongly that the final document needed to be endorsed by the other services, to recognise their contribution to

the generation of national air power. Consequently, *Edition 3* was the first to carry a joint imprimatur and was launched publicly at the RUSI by CAS and senior representatives of the RN and the Army.

CAS's views were borne of his own experience as Director of Operations during the Gulf War of 1990/91, when it became clear to him that the RAF's operational focus on Central Europe had constrained its thinking and left it tactically inflexible. As an ex-Senior Air Staff Officer in RAF Germany and at HQ Strike Command, he felt that he had to bear his own share of the responsibility for the RAF's fixation with the Central Region²⁵. He was determined that doctrine should not become dogma, so his aim was to educate his people so that they could develop a sound and deep understanding of both the strengths and weaknesses of air power, to inform the application of military judgement. Unsurprisingly, Air Chief Marshal Johns took a keen personal interest in the drafting process.

The themes of *Edition 3* were initially aired in the leading article of the first *Air Power Review*, published in the summer of 1998. The three air campaigns were replaced by the core capabilities of air power: control of the air, strategic effect, joint force employment, combat support air operations and force protection. A slightly revised version of this paper was later presented, adding 'information exploitation' to the core capabilities. However, these ideas were not universally well-received, with attempts being made by some factions within the Air War Centre and the dying embers of the RAF Staff College to kill off

AP3000 through the drafting of an 'Air Operations' chapter for the *UK Operations Document*. This was seen off by an alliance of CAS, ACAS, the Air Staff and the staff of the new Joint Services Command and Staff College, along with the three heads of defence studies.²⁶



AP3000 Edition 3 was very different from its predecessors. Its contents could now be summarised as: principles of war; air power doctrine, comprising the core capabilities; a command and control philosophy of centralised command, decentralised execution and mission command; and, an operational philosophy comprising the manoeuvrist approach and an initial look at effects-based warfare. Together, these elements linked ends, ways and means. Finally, there was an overall statement of air strategy comprising emerging ideas of effects-based warfare, the more conventional campaign planning

methodologies and the new effects-based methodology of strategy-to-task. The core capabilities were now: information exploitation; control of the air; strategic effect of air power; Joint Force Employment 1 – indirect and direct air operations; Joint Force Employment 2 – combat support air operations; Joint Force Employment 3 – force protection; and sustainability.

Edition 3 was longer than its predecessors and was also more explanatory, using historical examples set in text boxes. The concept of air component command was implicit in *Editions 1 and 2*, but explicitly covered in *Edition 3*. In line with CAS's direction, the primary purpose of *Edition 3* was to explain the use of air power in the post-Cold War world from the perspective of a single environment in an era of increasing jointery. It reflected the SDR and lessons from the Bosnia campaign of 1995, but not Kosovo in 1999. It also reflected the procedural and doctrinal aspects of the first edition of *British Defence Doctrine*. The inclusion of the language of the manoeuvrist approach made it more acceptable to the Army and it was now entitled *British Air Power Doctrine* to reflect its joint endorsement. The underlying thrust of the document was that airmen needed to be able to properly understand and articulate air power doctrine and concepts. *Edition 3* aimed at a higher intellectual plane than previous editions, with the aim of enhancing understanding rather than providing simple explanations, and it increased the use of references and included an extensive bibliography.

It was to be ten years before a new edition of *AP3000 Edition* was drafted.

In the interim, CAS's Air Power Workshop produced *Air Power 21*,²⁷ which considered the dichotomy between governments taking the peace dividend while operational tempo, particularly in intervention operations, increased, addressing issues such as expeditionary warfare, the revolution in military affairs, command and control and, interestingly, in view of what was to happen in Operation IRAQI FREEDOM, an article on the land-air interface, which at this time was a neglected area. CAS's Air Power Workshop also produced *British Air Power*²⁸ which, *inter alia*, addressed evolving views on effects-based warfare, particularly with regards to the strategic effect of air power and the challenges of the age of transformation. However, it was becoming increasingly clear that *AP3000* would again require revision, as *Edition 3* had been finalised before the Kosovo campaign, and subsequent events, such as 9/11 and the consequent SDR New Chapter and Operation ENDURING FREEDOM in Afghanistan, required consideration. Furthermore, effects-based operations and net centric warfare had become significant conceptual topics.

However, at an early stage of drafting in 2003, Operation IRAQI FREEDOM intervened and the process was put on hold, both to enable the doctrinal lessons of the conflict to be identified and because many of the key players in the process were personally involved in the conflict. Subsequently, to inform initial thinking on the development of *AP3000 Edition 4*,²⁹ a joint conference, organised by the three Heads of Defence Studies, was held to examine effects-based

warfare with the aim of exploring what was becoming a common doctrinal language, despite having no basis in explanation or common understanding. Additionally, a conference was held to capture the air power lessons of Operation IRAQI FREEDOM in May 2004, including the CAS (Air Chief Marshal Sir Jock Stirrup), General 'Buzz' Moseley USAF (JFACC), Air Chief Marshal Sir Brian Burridge (UK National Contingent Commander) and Air Marshal Glen Torpy (UK Air Component Commander). This established the facts of the air war and also addressed themes such as technology, legality and ethics and their doctrinal implications.

Despite this groundwork, the gestation of *Edition 4* proved to be far more protracted than was originally foreseen. *Edition 3* predated much of the plethora of contemporary UK joint doctrine that now exists and, consequently, included material that was generic across defence rather than being peculiar to the air environment; concepts such as the principles of war and the components of fighting power, for example, are now covered entirely adequately in *British Defence Doctrine*. This prompted a debate about the purpose of *AP3000* as distinct single-service doctrine, and its position, within the hierarchy of extant joint doctrine. This was finally resolved at a workshop convened by DDS in September 2008, and a new draft was submitted for approval by the Air Staff in January 2009, with the aim of publishing and distributing it in time to inform preparation for the next Advanced Command and Staff Course, which sits at the Joint Services Command and Staff College in September 2009.

The purpose of *AP3000 Edition 4* is to distil the essence of air and space power into a concise and easily digestible format that complements joint doctrine, rather than replicates it, so it will be shorter and generic, and non-air power specific concepts have been removed. *British Defence Doctrine Edition 3* provides the cue, when it refers to the discrete doctrine publications of the maritime, land and air environments 'that guide the single services and provide the necessary familiarity and broad basis of understanding for joint and component commanders, formations and units to operate effectively across environmental boundaries'.³⁰ Accordingly, *Edition 4* has two aims: first, to provide authoritative conceptual direction on the employment of air and space power to airmen; and second, to explain as clearly as possible its utility to soldiers, sailors and all of the other actors who, as part of a Comprehensive Approach to ordering crises, are influenced by, or influence air and space power. Just as *British Defence Doctrine* 'provides the broad philosophy and principles underpinning the employment of the British armed forces'³¹, so *AP3000 Edition 4* aims to do the same for the air component, by describing what air and space power does in broad terms; the detail of how it is delivered is provided elsewhere in the *AP3000* series. The content is conceptual, rather than providing a practitioners' guide, and the target audience is predominantly at the staff training establishments; in particular, at squadron leader or wing commander level, or other service or civilian equivalent, at the Joint Services Command and Staff

College, and at squadron leader level for the new Intermediate Command and Staff Course and at the Higher Air Warfare Course. However, *AP3000* will also act as the capstone document to guide and inform the lower level, single service, doctrine publications that will provide the core syllabi for the training schools and new junior officer and airmen through-life training courses. It can be regarded as strategic doctrine, explaining the what and why of air power, while tactical doctrine will be provided in the form of *AP3001*, *Air Power Essentials*, giving more detail on the fundamentals of air power, and *AP3002*, *Air Operations*, which will explain the how of air power application.

Edition 4 is sub-titled *British Air and Space Doctrine* to reflect the increasing importance of space to all military operations. It explains how British air and space power can be applied in a complex world, where expeditionary warfare is as likely to be enduring as interventionist, but where success in contemporary counter-insurgency operations, conducted within a framework of joint action, must be balanced against the retention of a contingent, full spectrum capability, able to deliver national security objectives whatever the crisis situation. The doctrinal heart of the publication is the distillation of air power into four core roles: control of the air, mobility and lift, intelligence and situational awareness and attack, both kinetic and non-kinetic. A new definition of air and space power is proposed, to reflect its importance in influencing events and changing behaviours, and its application is considered in terms of coercion theory. *AP3000*

Edition 4 is set in the context of the Comprehensive Approach, adopted by the UK in the realisation that the best method of achieving militarily and politically favourable outcomes in complex crisis situations is to use all of the available levers of power, in a cross-governmental and inter-agency approach. Although some of the enthusiasm for an effects-based approach to operations has abated in the decade since *Edition 3* was published, the UK's military contribution to the Comprehensive Approach will still be expressed through the campaigning process, where the achievement of desired outcomes is produced by synchronised activities delivering required effects.³² It also reflects the renewed emphasis on air-land integration, and the development of Networked Enabled Capability.

It has been suggested that the development of *AP3000* from 1988 to the present follows a route from doctrinal famine to feast. Perhaps the RAF has observed Michael Howard's dictum that doctrine should be subject to 'constant and critical interrogation,' although it could equally be accused of falling into the trap outlined by Richard Overy, where doctrine becomes an end in itself and will 'solidify like a slowly moving lava flow.' Be that as it may, analysis of the development of British air power doctrine over the last 20 years reveals four enduring themes.

The first theme is the importance of the contextual environment, and there are two key events. The first is the end of the Cold War, which exposed the lack of any publicly articulated understanding of how air power could be employed beyond

the constraints of the Central Region and its flanks. Subsequent pressure on government to take the 'peace dividend' while fighting the UK's first major expeditionary war since Suez was the manifestation of the end of the Cold War and clearly influenced the development of doctrine. The second key event was the Strategic Defence Review and the subsequent 'New Chapter'.³³ These dictated increasing 'jointery' in the employment of UK Armed Forces and in their structures, training and doctrine.

The second theme is the importance of personalities. The role of successive DDS' (RAF) has been key in 'leading the development of air power thinking and doctrine within the military and academic communities'³⁴ while the intervention of particular Chiefs of the Air Staff and other senior officers has often been critical in the direction of the development of air power doctrine.

The next theme is the reasons that emerge as drivers for the development or amendment of doctrine, often linked again to personalities responding to events as they transpire. For example, one DDS was prompted to 'raise RAF official doctrinal development from a near-death hibernation'³⁵ as a result of his perception of the corporate approach of the contemporaneous RAF hierarchy, while ever-increasing jointery has forced *AP3000* to articulate a coherent environmental air power doctrine.

The last theme is that of the doctrine itself, but before examining this, it is necessary to define doctrine and its purposes in this context. While *AP3000* has been described

as strategic air power doctrine, the description of its contents through successive iterations in this paper demonstrates that it is primarily aimed at the operational level. Indeed, the core capabilities of air power can be seen as the operational level effects which air power can achieve; tactical level missions are the statements of the available mechanisms with which those effects may be achieved.

On the other hand, the work of CAS's Air Power Workshops does address the impact of the strategic level of war upon air power, and vice versa. It would therefore appear that there are two manifestations of doctrine present – implicit doctrine, described in the publications of Air Power Workshop and indeed in the proceedings of conferences, and explicit doctrine, codified in formal doctrinal publications. It is also clear from the content of *AP3000* that at this level, doctrine is concerned with what air power can achieve and why, rather than how it is procedurally and technically employed; in short, what the Army describe as philosophy and principles. In this light, the various editions of *AP3000* are remarkably consistent in their approach. Each describes the overarching philosophy of the British application of armed force; the principles of war extended latterly by the manoeuvrist approach. They all describe the operational effects of air power, initially expressed as the three air campaigns and more latterly as the core components, or the four fundamental roles in the draft *Edition 4*. They all describe the enabling capabilities that are required to achieve those operational effects, and the command and control philosophy,

starting with the Cold War construct of centralised command and decentralised execution, through to network enabled capability and its impact upon the earlier philosophies. Finally, all discuss how these operational effects are crafted into air elements of the joint campaign, the joint campaign itself and the achievement of the desired strategic end state. This was firstly expressed in terms of an air strategy, but it is now encapsulated within the effects-based approach and the concept of strategy-to-task or 'joint action' within *Edition 4*. Indeed, as a way of explaining this level of doctrine, clear parallels can be drawn with the interwar, wartime and post-war editions of *AP1300*.

The development of British air power doctrine from 1988 to the present day can be characterised in terms of consistency and change. The consistencies are apparent in the overall framework and approach, the philosophy and principles of the application of air power. Change is visible in the context, in terms of political changes such as the withdrawal of the airborne nuclear deterrent, or geopolitical in terms of the move to expeditionary air warfare, and also in technological developments. The first technological change has been the advent of relatively cheap and highly accurate precision-guided weapons. The effect of this, even over so short a time-span as the last 18 years, has been to vastly increase the ability of air power to deliver the offensive-based operational effects such as control of the air and strategic effect to support the other environmental commanders. But perhaps the more important development has been that of information technology in its

broadest sense which, when coupled with stealth technology and precision weapons, enable increasingly more flexible and focused operational effects. So it would appear that while air power has developed hugely in the means for its employment, the principles for its application, which were well known at the time of the formation of the RAF on 1 April 1918, have not really changed at all: indeed, if they were to change regularly, they would not be the fundamental principles that British air power doctrine has constantly sought to identify and explain, from the publication of *AP1300* through to the *AP3000* series.

Notes

¹ *AP1300 – Royal Air Force Manual - Operations*, Ministry of Defence, July 1928, Chapter I, para 3.

² *Ibid*, Chapter VIII, para 4.

³ *AP3000 – Royal Air Force Manual - Operations*, Second Edition, Ministry of Defence, February 1940.

⁴ *AP1300 – Royal Air Force Manual - Operations*, Fourth Edition, Ministry of Defence, March 1957 (reprinted September 1964).

⁵ *Ibid*, p viii.

⁶ *Ibid*, p viii.

⁷ *Ibid*, p 4, para 20.

⁸ Annex A to CAS/91111 dated 2 Nov 76.

⁹ Annex A to CST/40/DDS dated 13 Sep 78.

¹⁰ 'Air Power Doctrine', *Air Clues*, Vol 42, No 5, May 1988.

¹¹ A detailed exposé of the aims and problems inherent in the *AP3000* project are contained in a letter from AVM A. G. B. Vallance to the author dated 5 March 2004, summarised in the subsequent paragraphs.

¹² *AP3000 – British Air Power Doctrine*, Ministry of Defence, 1991, p v.

¹³ Letter from Neil Taylor to author, 10

October 2002.

¹⁴ Correspondence between Air Cdre A. Lambert and author.

¹⁵ *The Dynamics of Air Power*, Group Captain Andrew Lambert and Arthur C. Williamson (Eds), RAF Staff College Bracknell, 1996.

¹⁶ *Ibid*, p iv.

¹⁷ Interview Air Commodore Lambert and author, October 2002.

¹⁸ *Perspectives on Air Power – Air Power in its Widest Context*, Stuart Peach (Ed), Joint Services Command and Staff College, Bracknell, 1998.

¹⁹ *British Defence Doctrine*. JWP 0-01, MOD London, 1996.

²⁰ *UK Doctrine for Joint and Multi-national Operations*, JWP 0-10, PJHQ Northwood, circa 1996.

²¹ Correspondence Group Captain Steve Abbott to author, 12 November 2002.

²² *AP3000, British Air Power Doctrine Edition 3*, HMSO 1999, p 1.2.12 – p 1.2.17.

²³ Letter Air Chief Marshal Sir Richard Johns to author, 7 May 2004.

²⁴ *The Strategic Defence Review*, CM399, London, July 1998.

²⁵ Letter Air Chief Marshal Sir Richard Johns to author, 7 May 2004.

²⁶ Correspondence between Stuart Peach and author.

²⁷ *Air Power 21 – Challenges for the New Century*, Peter W. Gray (Ed), Ministry of Defence, London, 2000.

²⁸ *British Air Power*, Defence Studies (Royal Air Force), Shrivenham, 2003.

²⁹ *Effects-Based Warfare*, Christopher Finn (Ed), Defence Studies (Royal Air Force), Shrivenham, 2003, Chapters 5 and 6.

³⁰ *British Defence Doctrine*, 3rd Edition, p. 4-4.

³¹ *Ibid*, p. 5.

³² *Ibid*, p. 5.

³³ *The Strategic Defence Review: A New Chapter*, CM 5566 Volume 1, Ministry of Defence, July 2002.

³⁴ D Def S (RAF) TORs, 21 Aug 02.

³⁵ Correspondence between A. G. B. Vallance and author.

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