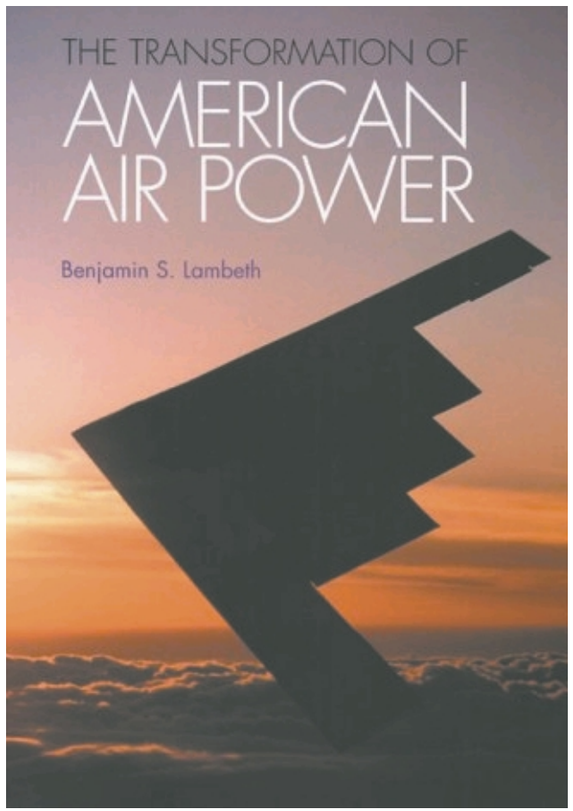
THE TRANSFORMATION OF AMERICAN AIR POWER

Benjamin S. Lambeth



Review essay by John Andreas Olsen

RAND-analyst Benjamin S. Lambeth argues that the United States has witnessed, over the last two or three decades, a non-linear growth in air power's ability to contribute to the outcome of joint operations. Although many factors have played their part in this development, the author emphasises that air power's increased leverage is a result of "stealth", precision and "stand-off" capabilities combined with the expanded battlespace awareness made possible by recent developments in C4ISR.[1] Lambeth advances his thesis by taking us on an excursion from the failures of "Rolling Thunder" to the mixed performances of "Deliberate Force" and "Allied Force", via the epitome of "Desert Storm". He does not, however, argue that air power can win wars single-handedly, or that air power is universally applicable, but that recent developments have increased the *relative* combat potential of air power considerably *in comparison* to that of other force elements. The work is as such a timely and comprehensive survey that merits attention by those interested in the utility of contemporary aerospace power and the larger debate on defence investments.

From Rolling Thunder to Desert Storm

Rather than perceive air power as synonymous with bombs, Lambeth stresses that "in its totality, air power is a complex amalgam of hardware and less tangible but equally important ingredients bearing on its effectiveness, such as employment doctrine, concepts of operations, training, tactics, proficiency, leadership, adaptability, and practical experience".[2] With this definition in mind, the author's point of departure is that air power failed miserably in Vietnam, but that it is insufficient to accept the classic air power advocate argument that the misuse should be attributed to the limits *on* air power rather than limits of air power. Although the micro-management of Lyndon B. Johnson and Robert McNamara had a degrading effect on the application of air power, the author argues that there were organisational problems within the military force that did not allow it to be effective, and that there were considerable shortcomings in equipment, training, doctrine and operational proficiency that have to be accounted for in the overall assessment. The air weapon was largely ill-suited in the proxy-fed war of insurgency in South Vietnam and the "Rolling Thunder" campaign was ineffective partly as a result of self-deceiving measures of effectiveness and needlessly self-imposed operational restrictions that hampered aerial combat and exposed aircraft to the North Vietnamese surface-to-air missile threat. Lambeth argues that the

military commanders have to share the responsibility for the outcome as there was an unhealthy inter-service rivalry that among other things resulted in fragmented command and control arrangements. Moreover, through "mirror-imaging" the politicians, generals and admirals misinterpreted not only the determination of the enemy, but also the whole nature of the war at hand.[3] Lambeth provides an interesting account of the Vietnam experience, and most importantly he demonstrates its influence on the 1991 campaign: "It put all four services on a vector to perfect their air assets during the two decades that spanned Vietnam and Desert Storm".[4] Indeed, several improvements that were to be the hallmark in 1991 originated with the Linebacker campaigns: laser-guided precision bombs (LGB) were tested, the "tank-plinking" idea was conceived, improvements in electronic warfare were found, the Vietnamese air defence system was largely suppressed, and finally, an integrated air offensive based on a plausible strategy and reasonable rules of engagements (ROE) was largely executed with an acceptable operational outcome.

The Vietnam experience, combined with the results of the Yom Kippur War of 1973, where Israel lost one-third of its air force in the combined Arab attack, and the increased mobilisation of Soviet forces during the "Second Cold War", led to a period of reform in the American military. Lambeth discusses how the United States improved its air posture over the subsequent years by describing the changes in USAF training and education, the modernisation of aircraft and equipment inventory, and the refining of American doctrine and concepts of operations. All these three elements played an important role in forming the air power capabilities witnessed in the 1990s and according to Lambeth the incorporation of leading-edge technology made for a quantum leap in operational efficiency. The author discusses the introduction of new aircraft, pays attention to the partnership between the USAF Tactical Air Command (TAC) and the US Army Training and Doctrine (TRADOC) centre, and assesses the utility of the Air-Land Forces Application (ALFA), AirLand Battle Doctrine and the Follow-On Force Attack (FOFA) plan. Although these concepts in theory gave the Army and the Air Force a common basis for planning through the "31 Initiatives",[5] the author identifies a substantial lack of understanding between the two parties.

Lambeth discusses how the USAF improved its inventory and concepts of operations throughout the 1970s and 1980s, but the author does not deal with the "Fighter Mafia" and the "Military Reform Movement" explicitly. The development of the technologically sophisticated F-15 and the more manoeuvrable F-16, combined with Colonel John R. Boyd's role therein, deserves consideration. One side argues that the Movement was critical of the very technology that makes air power and thus largely irrelevant in the wider defence debate, while the other side argues that John Boyd, William S. Lind, Norman Polmar, Pierre Sprey and others strongly influenced the military thinking that eventually prevailed during "Desert Storm".[6] According to Colin Gray, "John Boyd deserves at least an honourable mention for his discovery of the 'OODA [Observation-Orientation-Decision-Action] loop' .... The OODA loop may appear too humble to merit categorisation as grand theory, but that is what it is. It has an elegant simplicity, an extensive domain of applicability, and contains a high quality of insight about strategic essentials".[7] In discussing John Boyd one is reminded of Martin van Creveld's comment on Machiavelli in his survey of military theorists: "The reason for including him in these pages is principally because he is *there* and because in other respects he is a commanding intellectual figure. Like a major general standing in the middle of the road, one must salute him whether one wants or not".[8]

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parts of the security and intelligence network for the moment focused on their own survival rather than the protection of the regime. The concurrent operations against leadership targets provided a factor of uncertainty and element of resolve that is difficult to account for, but the confusion and disorder certainly undermined the effectiveness of the Iraqi leadership. Although the 850 strikes against leadership and C^3 targets were not comprehensive enough to ultimately change the Iraqi leadership, it is fair to argue that bombing of strategic targets made a worthwhile contribution to "Desert Storm's" ultimate outcome. It was of course, in the end, the combination of attacks on the Iraqi war-making and war-fighting capabilities that gave the Coalition its unique leverage in arms.

Nonetheless, Lambeth provides a comprehensive explanation of the importance of Suppression of Enemy Air Defence (SEAD) operations on the one hand and the significance of combining JSTARS with precision engagements on the other.[11] That combination enabled an impressive "tank plinking" operation, and together with Push CAS and other tactical and operational procedures the Iraqi defeat was inevitable prior to the one hundred hour ground battle.[12]

Although Desert Storm was a watershed in modern American military history, the author argues that there were several important problems in terms of air tasking, air-ground co-ordination specifically and joint operations generally. Although all the US services accepted in principle the need for a single air commander there was continuous strife over allocations. The corps commanders preferred assets for their own area of responsibility rather than the second and third echelons of Iraqi forces that General Schwarzkopf considered most important. An extension of such disagreements resulted in "arm-wrestling" over the proper placement of the Forward Support Control Line (FSCL), and consequently the argument is put forward that the Army's obsession with extending the line prohibited the USAF from conducting strikes that would possibly have prevented the Republican Guard's escape. The author provides different sides of that story and other disputes, and concludes the chapter with emphasising how air power came of age in 1991 although there are many caveats and qualifications that have to be considered carefully before one generalises about the overall utility of air power. One possible caveat for the future would be to believe that Saddam Hussein's actions and reactions represent future adversaries. The Iraqis were for example not able to take advantage of the fact that the large ground organisation of a modern air force is its Achilles' heel, and arguably Saddam Hussein made several military/strategic decisions during the battles that favoured the Coalition.

While technological progress was vindicated in 1991 the author next discusses the operational impact of stealth throughout the decade, including the advent of B-2. Lambeth explores a new generation of munitions, allowing for accurate through-the-weather ground-attack capabilities, and discusses the formal shift from a nuclear to a conventional bomber force that took place with the disestablishment of the Strategic Air Command (SAC) and the Tactical Air Command (TAC) in June 1992. The author demonstrates the improvements found in technology, which have been part of shaping the operational concepts for the Post-Cold War era, and as American bases world-wide are being severely reduced he speculates that the future might bring more attention to an Air Expeditionary Force (AEF). In evaluating operations in Bosnia, the author states that "Deny Flight" was a near disaster and "little more than a costly exercise in converting jet fuel into noise",[13] "while Deliberate Force" was a clear success and a good example of coercive diplomacy working with air power. As with the Israeli surprise attack on the Iraqi nuclear reactor

in June 1981, it provided a clear case where air power was used not to win a war, but rather to achieve limited objectives. The combination of increased artillery fire, the credible threat of a ground attack and the diplomatic pressure played important parts in driving the Bosnian Serb leadership to the negotiation table, but as Richard Holbrooke stated in his book, the air campaign made a "huge difference" in helping bring about the Dayton accord. The interaction between diplomacy and bombing is still under-researched, but one might speculate that it was in fact Milosevic's concessions in 1995 that persuaded large parts of the US political leadership in 1999 into believing that Milosevic would give up Kosovo after only three days of bombing.

Operation Allied Force and Beyond

Lambeth discusses the three phases of Operation "Allied Force" by looking into what worked and what caused problems. The first phase intended to soften the Yugoslav integrated air defence system, but although the B-2 and other aircraft performed superbly, the Yugoslavs were highly professional as far as surface-to-air missiles and anti-aircraft-artillery operations were concerned. They did not disclose their positions easily and although NATO managed to gain air superiority there remained a certain threat to the pilots throughout the campaign. The Serbs were extremely good at imitating tanks and artillery with milk carton material and wood-burning stoves, and to this day the Serbs' ability to disperse and hide equipment is not known. The author presents theories on how the F-117 was shot down and he makes the pertinent point that when no friendly casualties becomes accepted as a goal of strategy, then one is judged by unreachable standards in this human endeavour of fog and friction called war. One becomes a victim of one's own success and at best it makes for an inefficient air campaign, as one operates in an environment where civilians and soldiers are mixed.[14]

The second phase envisaged attacks against military targets below the 44th parallel. Despite the escalation the intensity of effort averaged merely fifty strike-sorties a night throughout the first week. Without a ground threat, however, the Serbs could disperse their ground forces in Kosovo, and with shortcomings in the intelligence cycle time combined with escalation on ethnic cleansing the Alliance came under severe criticism. The Apache fiasco is discussed, as are the collateral damage incidents that dominated the news, and thus influenced the choice of strategy.

The third phase included attacks directly on Belgrade. This was kept as a last resort for political reasons, and when it finally found acceptance it was halted by the unfortunate destruction of the Chinese Embassy. As with the al-Firdos incident in 1991, which was also an intelligence error, the strategic air campaign was halted for a period of time and the much-needed momentum was lost. The larger point which the author makes is that "tactical mistakes" may have "strategic implications", and with war being a continuation of politics by other means the larger geopolitical issues will and should always prevail. The author adheres to the view of Philip Meilinger and Tony Mason that airmen have to accept that air campaigns originate in a political situation, and thus the political considerations will always govern the choice of strategy. Lambeth furthermore discusses why Milosevic chose to give up in the end, the problems of interoperability, the problems of decision-making in such a diverse alliance and the dispute over strategy that occurred between Lieutenant General Michael C. Short and General Wesley Clark.[15] In essence Short argues that because of all the compromises that had to be made in both planning and executing the air campaign it was

in the end a "victory by happenstance rather than a victory by design".[16]

The debate on "centres of gravity" has to a large extent focused on whether it is the political leadership commanding war, or the military forces occupying territory. In 1991 Colonel Warden was the strongest advocate of the former, and in 1999 Lieutenant General Short continued that line of argument. In an attempt to "untangle" the air power debate Lambeth argues that those who focus on whether strategic bombing works, or whether air power can win wars single-handedly, are in reality approaching straw-men that will not provide useful answers in providing a vector for the future. Moreover, the battle over resources and doctrine is so linked to parochialism that no service is really capable of moving beyond their own concepts of operations and terms of reference. The author is certainly right in arguing that "the most enlightening view is the eclectic one that argues for avoiding formulaic, single-recipe solutions to the exclusion of all others".[17]

Air Power Transformed and the Future

Lambeth provides an informative discussion on the possible synergy of air and space power in the near future. He argues that they are still considered as two separate professions with different cultures and that there is a lack of understanding between the two parties, but integration between the two has proved ever more successful after 1991. The spectrum of space missions includes space support, force enhancement, space control and force application, but the doctrinal work in the sphere is often seen as unrealistically visionary within the air power environment. There were, nevertheless, several space contributions to the Gulf War that are often forgotten or taken for granted. The Navstar global positioning system (GPS) came of age in Desert Storm, satellites were crucial in enabling the command, control and communication network that was used, and the space surveillance system proved important in dealing with the Scuds.

In the last chapter Lambeth concludes that improved battlespace awareness, heightened aircraft survivability, increased weapons accuracy and improved understanding of concepts of operation witnessed today have made it possible for air power to achieve strategic effects without having to mass numbers. If, however, the promise of air and space power outlined in this book is to be realised in the future force posture, the author suggests several recommendations that must be adhered to. First, air power proponents must candidly acknowledge what air power cannot do, and moreover, "to argue for an aerospace-centric U.S. defense strategy for all occasions is possibly the single most self-destructive error that air power proponents can make".[18] Second, airmen must accept that achieving and maintaining air superiority is a means to an end and that it does not amount to achieving a military victory. Third, airmen must unburden themselves with the belief that urban-industrial bombing can undermine the enemy's will to fight to the degree that bombing alone can win the war. Fourth, air power theories must be developed for attacking ground forces, rather than relying on a reductionist attrition approach of destroying as many tanks and artillery pieces as can be seen. Fifth, airmen should convince their military colleagues what air power can do for them. Sixth, one has to redefine or specify what the terms "winning" and "victory" actually mean: "This canonical image of victory entails defeating an enemy's ground forces in detail, occupying his territory, and controlling his population on an open-ended basis. Yet the latter

two of these objectives are rarely likely to be goals of any U.S. joint operation".[19] Finally, in order to maintain the leverage of the air weapons one must continue to explore the mixture of advancing equipment, operational acumen and theoretical foundations for operations. One might also add that doctrine consists of theory, history, technology and culture, and that the latter has essentially been neglected in the design of air power strategies throughout the century.[20]

Overall Assessment

Lambeth's thesis is that the exploration of stealth, precision and the increased use of space, such as global positioning system, amounts to a "transformation" in US air power. There is no doubt that there has been a transformation in *combat* effectiveness, and that air power has become the first choice for policy makers. One should, however, take note of the fact that precise targeting does not equal precise military or political effects, and the author does well in stressing that air power is ultimately but one part of an overall joint-operation package. There are interestingly two sides of the coin, as observed by Mark Clodfelter: The implication might well be that the changes in American air power have altered the way a future adversary will fight, so that air power's capabilities are minimised.[21]

Lambeth's main argument nevertheless stands scrutiny: American air power has been transformed over the past two-three decades to a point where it has become strategically realisable outside the Cold War paradigm. Air power has a relative advantage in its relationship to the other elements of military force in the sense that it can influence the outcome in part because of stealth, precision and information dominance on the one hand and speed, range and flexibility on the other. Still, Lambeth does well in not arguing that the technological changes have amounted to a revolution in military affairs (RMA). Indeed, the author does not use that term RMA, or "information warfare", but he brilliantly illustrates how technological improvements have altered the conduct of war and improved the effectiveness of air operations on the tactical, operational and strategic levels of command. Lambeth's work is a highly recommended survey for better understanding of how air power can provide other elements of force with cost-effective leverage that subsequently increases the chance for successful outcomes in contemporary conventional conflicts.

One could of course criticise the author for not having accounted for the technological improvements of the other services, but it may well be that technology has not increased the real preponderance of land power and sea power. Armies in the future will have flanks, but whether they will be able to add depth is quite another matter, and navies seem often to be subordinate to armies in waging and winning wars. In conclusion it seems as though the traditional combined-arms ground offensive has witnessed a paradigm shift, where the organic army assets of tanks and attack helicopters play a more subordinate part to fixed-wing aircraft and unmanned vehicles than previously. The Pentagon's research on futuristic "space bombers" that could destroy targets on the other side of the world in thirty minutes strengthens Lambeth's conclusion.[22]

"The Transformation of American Air Power" is primarily written for policy-makers who require a greater appreciation of the technical and doctrinal issues involved in the application of air power, and secondly for the general audience who is interested in air power and defence matters. It is based on secondary sources rather than archival documentation and provides in summary a comprehensive, well-

articulated and perceptive survey. The case studies and cogent explanations are of high scholarly quality with substantial footnotes and interesting anecdotes, and the author's ability to use history, technological data and conceptual insight when drawing the big picture is nothing less than praiseworthy.

NOTES

1 C4ISR is short for Command, Control, Communications and Computers - combined with Information, Surveillance and Reconnaissance.

2 Benjamin S. Lambeth, *The Transformation of American Air Power*, (Ithaca: Cornell University Press, 2000), p. 9.

3 See particularly Mark A. Clodfelter, *The Limits of Air Power: The American Bombing of North Vietnam*, (New York: Free Press, 1989).

4 Benjamin S. Lambeth, *The Transformation of American Air Power*, p. 53.

5 Richard G. Davis, *The 31 Initiatives: A Study of Air Force-Army Cooperation*, (Washington D.C.: Office of USAF History, 1987).

6 See for example Grant T. Hammond, *The Mind of War: John Boyd and American Security*, (Washington D.C.: Smithsonian Institution Press, 2001).

7 Colin Gray, *Modern Strategy*, (Oxford: Oxford University Press, 1991), pp. 90-91.

8 Martin van Creveld, *The Art of War: War and Military Thought*, (London: Cassell & Co, 2000), p. 73.

9 See H.P. Willmott, "When Men Lost Faith in Reason", draft, 1999, chapter V, pp. 14-15.

10 Benjamin S. Lambeth, *The Transformation of American Air Power*, p. 117.

11 JSTARS is short for Joint Surveillance Target Attack Radar System. It identifies tanks, artillery and movement on the battlefield. It does for the ground picture what AWACS does for the air picture.

12 Push CAS is, according to General Charles A. Horner, "that aircraft would be designated for [Close Air Support] CAS , but where, how, and when they would be used would be determined "on the run" by events in the field". See Tom Clancy with General Chuck Horner (Ret.), *Every Man a Tiger*, (New York: G. P. Putnam's Sons, 1999), p. 22.

13 Benjamin S. Lambeth, *The Transformation of American Air Power*, p. 179.

14 According to General Short there was no defined Fire Support Co-ordination Line (FSCL) in the war over Kosovo. See Lieutenant General Michael C. Short, "An Airman's Lessons from Kosovo", in John Andreas Olsen (ed.), *From Manoeuvre Warfare to Kosovo?*, (Trondheim: The Royal Norwegian Air Force Academy, 2001), p. 264.

15 Dana Priest, "Air Chief Faults Kosovo Strategy", *The Washington Post*, 22 October 1999. See also John A. Tirpak, "Washington Watch: Short's View of the Air Campaign", *The Air Force Magazine*, 82, vol. 9, September 1999, pp. 43-49.

16 Lieutenant General Michael C. Short, "An Airman's Lessons from Kosovo", p. 258.

17 Benjamin S. Lambeth, *The Transformation of American Air Power*, p. 298.

18 Benjamin S. Lambeth, *The Transformation of American Air Power*, p. 307.

19 Benjamin S. Lambeth, *The Transformation of American Air Power*, p. 312.

20 Ian MacFarling, *Air Power Terminology*, second edition, (Canberra: Aerospace Centre, 2001), p. 34.

21 Mark Clodfelter, Book Review: "The Transformation of American Air Power", *Joint Force Quarterly* (JFQ), forthcoming 22 March 2001.

22 See for example "U.S. Looking At Spacecraft As Bomber", *Los Angeles Times*, 28 July, 2001, p. 1. For a different perspective, see for example Barry R. McCaffrey, "Cutting Ground Forces is Dangerous", *Commentary*, 1 August 2001.