

Chapter 6

Enabling Air Power Education:

Military-Strategic Doctrine Development in the Royal Australian Air Force, Royal Canadian Air Force and Royal New Zealand Air Force, 1987–2007

Similar to the other branches of the Australian, Canadian and New Zealand armed forces, air forces did not publish military-strategic doctrine until after the release of the 1987 Defence White Papers. Prior to this, they developed—or, more frequently, borrowed from the RAF or the United States Air Force (USAF)—several technical manuals and a smattering of mostly tactical doctrine, as there appeared to be a culture characterized by the oral dissemination of ideas between senior and junior officers in place of a culture of written doctrine development. Between the early 1980s and mid-1990s, this culture began to change, resulting in the production of military-strategic doctrine by all of the three air forces. This chapter explores this cultural shift, the factors underlying it, and the military-strategic doctrine that has been produced by each air force since 1987.

As the final chapter analysing the development of single-service, military-strategic doctrine, this chapter follows the same structure as the previous two. Discussion is divided into three sections. The first section examines the development of air forces in general terms, providing an analysis of the impact their origin and relationship with the other two services has had on their culture and, consequently, on their doctrine. The second and third sections examine doctrine development from 1987 to 1997 and from 1997 to 2007 respectively. These sections also describe the doctrine development process, factors that influenced development, the intended effects of each doctrine manual, and the content of the doctrine itself. In conclusion, similarities and differences between doctrine developments in the three air forces are considered, and a model is established to explain the common influences on and key intended effects of military-strategic air force doctrine.

The Establishment, Development and Culture of Air Forces

Air forces are the most recently established branch of Western armed forces. Whereas land and naval warfare have existed for centuries, air warfare only began to emerge during WWI.¹ Indeed, the three air forces studied, along with their British and American counterparts, have existed for less than a century.²

Unsurprisingly, therefore, theoretical discussion about the nature and scope of modern air warfare commenced even more recently than the development of the theoretical framework guiding modern naval warfare, and similarly, prominent theories of air warfare are largely the product of a small group of theorists.³ However, the unique culture of air forces—derived as much from the circumstances and politics of their emergence and their subsequent relationship with armies and navies as it is from their

1. Although there were several experiments and incidents of the use of the air for military purposes prior to WWI, these were limited in scope, effect and vision, and the evolution of air warfare and the application of air power can not be considered to have taken on its “modern” form until after the outbreak of WWI. For an early history of air power, see Basil Collier, *A History of Air Power* (London: Weidenfeld & Nicolson, 1974), 1–82.

2. The RAF was the world’s first independent air force, formed on April 1, 1918. The RAAF was established on March 31, 1921, the RCAF on April 1, 1924, and the RNZAF on April 1, 1937. The USAF became independent of the US Army on September 18, 1947. Roy Conyers Nesbit, *An Illustrated History of the RAF* (Surrey: Colour Library Books Ltd., 1990), 20; Alan Stephens, *The Royal Australian Air Force: A History* (Melbourne: Oxford University Press, 2001), 29; Brereton Greenhous and Hugh A. Halliday, *Canada’s Air Forces 1914–1999* (Montreal: Art Global, 1999), 28; Paul A. Harrison, “Royal New Zealand Air Force,” in *The Oxford Companion* (see note 3, Chapter 1), 459; and David A. Anderton, *The History of the US Air Force* (London: Hamlyn-Aerospace, 1981), 134.

3. For an overview of the early development of air power theory, including a discussion of key air power theorists, see Timothy Garden, “Air Power: Theory and Practice,” in *Strategy in the Contemporary World: An Introduction to Strategic Studies*, eds. John Baylis and others (Oxford: Oxford University Press, 2002), 137–57.

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operational experience—has resulted in theoretical analysis playing a different role within air forces than it does within armies or navies. This difference in organizational culture and the role of the theoretical discourse is, in turn, reflected in the development of air warfare and aerospace doctrine in the RAAF, RCAF and RNZAF. Hence, a brief overview of the culture and history of the air forces is warranted, as this shaped to a great extent the political environment in which they eventually developed their doctrine.

During WWI, aeroplanes were used by navies and especially armies to conduct reconnaissance and, in the case of armies, to locate ground targets for engagement by artillery. Counter-reconnaissance efforts soon led to the addition of interception missions to the role of air crews, and the development of technology, such as forward-mounted machine guns, soon made aeroplanes much more effective at conducting air-to-air combat.⁴ Another important role soon added to the growing list of missions was aerial bombardment of ground forces, which led to the development of the concept of “strategic bombardment,” something that was to have a great impact on the development of air warfare theory in the decade following the end of the war. During the war itself, however, air power played a comparatively minor role, being overshadowed by the vast land and naval campaigns that were its principal characteristics.⁵

Nevertheless, the development of air power during the war fuelled the early theories that gained traction in its aftermath. One of the key early proponents of air power was Italian General Giulio Douhet. His most influential work, *The Command of the Air*, was first published in 1921. “To have command of the air,” wrote Douhet, “means to be in a position to prevent the enemy from flying while retaining the ability to fly oneself.”⁶ More important was Douhet’s belief that “[t]o conquer the command of the air means victory; to be beaten in the air means defeat and acceptance of whatever terms the enemy may be pleased to impose.”⁷ Subsequently, he postulated:

From this axiom we come immediately to this first corollary: *In order to assure an adequate national defense, it is necessary—and sufficient—to be in a position in case of war to conquer the command of the air.* And from that we arrive at this second corollary: *All that a nation does to assure her own defence should have as its aim procuring for herself those means which, in case of war, are most effective for the conquest of the command of the air* [emphasis in original].⁸

Furthermore, Douhet envisaged a key role for strategic bombardment in future warfare, reasoning that bombardment of targets within enemy territory would “cut off the enemy’s army and navy from their bases of operation, spread terror and havoc in the interior of his country, and break down the moral and physical resistance of his people.”⁹

Writing during the same period, other air warfare theorists made similar arguments, particularly regarding the potential effects of strategic bombing. In the US, General William “Billy” Mitchell demonstrated the potential of air power at sea in 1921 by sinking a captured German warship using aerial bombardment. In his writings, Mitchell advocated strategic bombing as a means to win wars. Where he differed from Douhet, however, was that he did not advocate the use of air power to “spread terror and havoc” among a civilian population. Instead, he emphasized the strategic effect bombing

4. Tami Biddle, “Learning in Real Time: The Development and Implementation of Air Power in the First World War,” in *Air Power History: Turning Points from Kitty Hawk to Kosovo*, eds. Sebastian Cox and Peter Gray (London: Frank Cass, 2002), 6.

5. *Ibid.*, 4.

6. Giulio Douhet, *The Command of the Air* [originally published 1921] (Arno Press: New York, 1972), 24.

7. *Ibid.*, 28.

8. *Ibid.*

9. *Ibid.*, 35.

would have on the enemy's industrial and economic infrastructure and thus on his ability to sustain the war effort.¹⁰

In England, Lord Trenchard, the inaugural Chief of the Air Staff of the RAF, argued that air power could be used to substitute for land power in maintaining control over the colonies. The idea was tested with mixed success during the 1920s.¹¹ Given the political environment at the time, Trenchard's ideas lent much support to the ongoing independence of the RAF, which had to frequently fight attempts by army and naval officers to reabsorb it back into their own services.

Such an environment did not just affect the RAF. During the interwar years, the strategic environment facing all Western air forces was one of fiscal constraint and strong opposition to their existence by armies and navies. In Australia, "[t]he question of air force independence was intensely political. Generals and admirals might dismiss the claim of this 'third brother' to equal and independent status, but they valued their new-found capability and did not want to lose control over it."¹² For similar reasons, the RCAF remained only semi-autonomous during its first 14 years, with its headquarters officially a directorate within Militia Headquarters until 1938; a mixture of funding and political constraints prevented its independent development during this period.¹³ In New Zealand, a lack of advocacy for independent air power resulted in the country's various air combat organizations of the 1920s and early 1930s remaining under the command of the Army or New Zealand branch of the RN Reserve, and budget constraints (particularly during the 1930s) seriously limited force development prior to 1937.¹⁴

Overall, the political circumstances surrounding the establishment of independent air forces were frequently hostile, and the early existence of air forces coincided with a period of severe fiscal constraints, in an environment in which interservice competition for resources was the norm. As Alan Stephens asserted regarding Australia (although, importantly, the same could be said of Canada and New Zealand), "one of the strongest, most persistent pressures on air force attitudes has been the hostility of admirals and generals to independent air power."¹⁵ As will be discussed in subsequent sections of this chapter, this pressure continued to affect the air forces during the period studied, with an organizational fear of being dissolved into armies and navies having a noteworthy influence on doctrine development during some key phases.

During the 1920s and 1930s, the emergence of the theoretical debate about command of the air and the potential of strategic bombardment proved to be a "double-edged sword" for fledgling air forces. On one hand, the idea that air power could prove the decisive factor in future wars provided a potent argument for the advocates of air power to justify its funding and, more importantly, the ongoing independence of air forces. On the other hand, the theories themselves "provided their opponents with the means to refute them,"¹⁶ since they were often overstated, and the concepts they developed were still, in some cases, decades ahead of what contemporary technology could achieve.¹⁷ As a result,

10. David McIsaac, "Voices from the Central Blue: The Air Power Theorists," in *Makers of Modern Strategy: From Machiavelli to the Nuclear Age*, ed. Peter Paret (Princeton: Princeton University Press, 1986), 630–31.

11. David E. Omissi, *Air Power and Colonial Control: The Royal Air Force 1919–1939* (Manchester: Manchester University Press, 1990); and Garden, "Air Power: Theory and Practice," 142–43.

12. Stephens, *The Royal Australian Air Force*, 25.

13. Greenhous and Halliday, 41; see also Morton, *A Military History of Canada*, 170–79.

14. Harrison, "Royal New Zealand Air Force," 459.

15. Stephens, *Power Plus Attitude*, 11.

16. *Ibid.*, 7.

17. A good example of this is Douhet's concept of the "battleplane." Douhet, 117–20. For further examples, see McIsaac, 634–35.

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the theories remained largely untested.¹⁸ Furthermore, the potential significance of air power provided an additional incentive for generals and admirals to attempt to maintain control over air assets.¹⁹

The Second World War provided a testing ground for several of the theories developed in the early 1920s, initially yielding many disappointing results for the advocates of strategic bombardment. Instead of having the effect of spreading “terror and havoc,” the bombing of London during the Blitz (1940–41) and of Germany (1941–43) had the overall effect of strengthening the resolve of civilian populations. “During the early years of World War II,” wrote Stephens, “the apparent failure of strategic bombing to meet its supporters’ claims damaged the credibility of air power generally.”²⁰

The Second World War promoted the development of air power in a different way, however. The course of the war saw the development, application and refinement of most of the contemporary roles of air power. These included recognition of the importance of air supremacy,²¹ the development of close air support (CAS) to land forces, the role of aeroplanes in the protection of SLOCs, and the development of tactics for air-to-air combat.²² Finally, the atomic bombs dropped on Japan at the close of the war reinvigorated the debate about the potential of strategic bombing and whether or not the theory had gained a renewed applicability in the atomic age. As Mader observed: “In sum, the Second World War witnessed the emergence of modern air power and laid the foundation for the broad spectrum of roles evolving in its aftermath.”²³

Despite the many lessons the proponents of air power learned during WWII, the experience of the interwar period and the early stages of the war itself provoked scepticism regarding the utility of written theory. The intense criticism that early conceptual thinkers had attracted combined with the early failure of strategic bombing during the war and the ongoing gap between technology and theory (which, despite narrowing, persisted to the war’s end) made most air force personnel reluctant to commit their thoughts to paper.²⁴ Ongoing concerns about being absorbed back into armies and navies appear to have reinforced this aversion, and the prospect of attracting unnecessary criticism from army and naval officers dissuaded many within air forces from recording theoretical developments. The result was that within Western air forces, including the three studied, a strong oral (rather than written) tradition of passing lessons from senior to junior officers developed.²⁵

Despite this tradition, during the cold war the RAAF, RCAF and RNZAF often adopted RAF and USAF tactical and operational doctrine, subject to its existence. As a result, in the case of the RAAF, this practice “proved a disincentive to the independent development of air power strategic thought.”²⁶ The effect was similar in New Zealand, even though New Zealand’s small size meant that

18. Stephens, *Power Plus Attitude*, 5–9.

19. Stephens, *The Royal Australian Air Force*, 25–26.

20. Stephens, *Power Plus Attitude*, 8–9.

21. Air supremacy exists where enemy air power cannot present a threat to one’s own forces or territory. Ian McFarling, *Air Power Terminology*, 2nd ed. (Canberra: The Aerospace Centre, 2001), 10.

22. Richard P. Hallion, “The Second World War as a Turning Point in Air Power,” in *Air Power History* (see note 4), 93–124.

23. Mader, 108.

24. There was, of course, much debate about the potential role of nuclear weapons during this period, with much of it related to notions of strategic bombardment. However, participation in the written aspect of the debate by members of Western air forces was sparse. Lawrence Freedman, “The First Two Generations of Nuclear Strategists,” in *Makers of Modern Strategy* (see note 10), 735–78, esp. 736–37.

25. Although it has often been observed that air forces have historically been inclined to have oral rather than written traditions of developing and disseminating ideas, little research has actually been done about why this is the case. One of the few studies to offer some explanation, Futrell’s analysis of early conceptual thinking in the USAF, suggests that the nature of air forces tend to attract people with an “active” rather than “literary” focus. According to Futrell, an existing propensity to eschew written theory was greatly exacerbated by the heavy criticism the few prominent interwar air power theorists attracted. Robert Futrell, *Ideas, Concepts, Doctrine*, vol. 1, *Basic Thinking in the United States Air Force 1907–1960* (Maxwell Air Force Base: Air University, 1989), 2–3.

26. Kavanagh and Schubert, 2–3.

allied doctrine had limited applicability at best.²⁷ At the military-strategic level, almost all of the few doctrinal publications produced by the RAF and USAF during the cold war were not applicable to the RAAF, RCAF or RNZAF since they related to the deployment of nuclear weapons that the three smaller air forces did not possess.²⁸

Of the three air forces, the closest any came to maintaining an ongoing, written institutional strategy during the cold war was the RCAF. However, updates and alterations to its strategy were ad hoc and undertaken primarily to ensure the Air Force could continue to meet Canada's NORAD commitments. As a result, the strategy was heavily focused on interoperability, to the detriment of RCAF doctrinal development.²⁹

The unification of the Canadian Forces in 1968 warrants mention at this juncture in relation to its effect on the RCAF. As mentioned above, a long-standing concern within all three air forces was the possibility they might be reabsorbed into armies and navies. In Canada, unification effectively had the same result; that the RCAF was divided between the unified CF's newly established "commands" rather than being divided between the army and navy was merely a detail. Since the Mulroney Government reintroduced a limited form of separation of the services in the mid-1980s, however, there has been little evidence that the RCAF has continued to be wary about the potential division of its assets into the other CF commands, and this concern does not seem to be as prominent as one might suspect.³⁰ Rather, the key ongoing effect of unification on the RCAF with regard to doctrine development has been to heighten the prominence of "communities" within the Air Force.

Communities refer to the different capability components that constitute an air force or, more accurately, to the attitudes of the individuals within them. Just as armies have corps and regiments and navies have different classes of ships to perform different roles, so too are air forces comprised of different components, each charged with performing a different primary role. Examples of air force communities based on these components include the personnel primarily involved with the flight and maintenance of "fast-jets" (mostly fighter aircraft), surveillance aircraft, helicopters, tactical (or battlefield) and strategic transport aircraft, and so on. Furthermore, other communities exist that overlap these component-based groupings. These additional communities may be based on occupation (such as maintenance personnel, logisticians, pilots, etc.) or on the type of service an individual renders (such as Reserve or Regular service).³¹ Although these divisions exist in most air forces, including all three studied here, in Canada, unification had the effect of increasing the significance of the division between the Air Force's capability-based communities.

This was most likely because unification divided the former RCAF units between the CF's six new commands according to capability. Maritime Command, for example, was assigned the former RCAF antisubmarine and other maritime-based assets, Mobile Command the CAS assets, and Air

27. Shaun Clarke, *Strategy, Air Strike and Small Nations* (Canberra: Aerospace Centre, 2001), 76.

28. On RAF and USAF doctrine development during the cold war, see Mader, 105–12; and Johnny R. Jones, *Development of Air Force Basic Doctrine, 1947–1992* (Maxwell: Air University Press, April 1997).

29. On NORAD, see Danford W. Middlemiss and Denis Stairs, "The Canadian Forces and the Doctrine of Interoperability: The Issues," in *The Canadian Forces and Interoperability: Panacea or Perdition?* ed. Ann L. Griffiths (Halifax: Centre for Foreign Policy Studies, Dalhousie University, 2002), esp. 15–17; and Joseph Jockel, "NORAD: Interoperability at 'The Zenith,'" in *The Canadian Forces and Interoperability* (see this note), 126–34.

30. Interview with a retired RCAF general officer, conducted in Ottawa, August 22, 2008, supplemented by email correspondence received December 15, 2008. Quoting Douglas Bland, Allan English offered a possible explanation for the RCAF's recent nonchalance in this regard: "Bland tells us that 'few senior officers would be so bold as to advocate the dismantling of a rival service, at least overtly,' because they understand that 'appearing to share scarce resources protects them from criticism.'" Allan D. English, *Understanding Military Culture: A Canadian Perspective* (Montreal: McGill-Queen's University Press, 2004), 105.

31. Allan English and John Westrop, *Canadian Air Force Leadership and Command: The Human Dimension of Expeditionary Air Force Operations* (Trenton: Canadian Forces Aerospace Warfare Centre Production Section, 2007), 156–227.

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Transport Command the strategic and some tactical-lift assets.³² Although the period of such stark division was short-lived (the amalgamation of Air Defence and Air Transport Commands into Air Command in 1975, accompanied by the amalgamation of all other Canadian air assets into this new command regardless of their primary function, provided a foundation upon which an air force culture could be rebuilt),³³ it nonetheless had ongoing ramifications for doctrine development, which will be discussed below.

Finally, the application of air power during the 1991 Gulf War substantially furthered the development of air power theory shortly after the opening of the period studied. During the 1990s, theoretical developments that emerged in the wake of the Gulf War influenced the content of the doctrine produced by all three air forces studied. Regarding the Gulf War itself, Mader asserted:

The contribution of the allied air forces to the campaign proved to be more than a supporting role and was in fact interpreted by many as a war-winning role. Airmen were henceforth considered to be equal partners to their military and maritime counterparts in the all-arms high-intensity warfare. Finally, it appeared, military aviation could apply its technological edge to a degree which proved decisive, and live up to early 20th century imaginations.³⁴

Largely responsible for the debate about air power's new-found decisiveness was the widespread use of precision-guided munitions in both tactical and strategic roles. The use of these munitions was a major contributing factor to the emergence of the RMA debate during the early 1990s, which focused primarily on technological advances that were perceived as somehow radical.³⁵

Most importantly of all, however, the Gulf War led to the re-emergence of the theoretical debate about the role of air power at a time when military-strategic doctrine development was beginning to become the norm in Western militaries.³⁶ The result was described by Mader as “the emancipation of air power.”³⁷ In the RAAF especially, although also to a noticeable degree in the RCAF and RNZAF, this emancipation meant that during the early 1990s there was an increasing willingness on the part of air force officers to discuss in writing what it was that they did, and how and why they did it. It is against this background that the initial development of military-strategic air power doctrine proceeded.

Military-Strategic Air Power Doctrine Emerges, 1987–1997

One of the key similarities between armies, navies and air forces in Australia, Canada and New Zealand is that none published military-strategic doctrine prior to 1987. While the exact reasons for this vary between services, the RAAF stands out as one of the first services to have begun work on

32. Morton, *A Military History of Canada*, 251.

33. *Ibid.*, 261.

34. Mader, 117.

35. Given the more limited role that air power has played in the post-9/11 wars in Iraq and Afghanistan, the RMA debate, and the role it envisaged for air power, now seems to have been somewhat overstated from the outset. However, while the RMA concept has always had its critics, it has not attracted the same depth of sustained criticism as similarly overstated theories of strategic bombardment did during the 1920s and 1930s. Interestingly, one of the most realistic discussions to emerge during the early years of the RMA debate was published in early 1993 in *Australian Defence Force Journal*. The article, by RAAF Group Captain Gary Waters, unashamedly declared that “*Desert Storm* witnessed a revolution in warfare.” However, with the benefit of hindsight, it is apparent that Waters also made one of the earliest accurate predictions about the role of air power in post-9/11 warfare, observing that “[d]esert warfare does not translate directly across to guerrilla warfare in mountainous and jungle terrain, where even with air superiority, the contribution of air power to ground battles may be quite limited.” Had he used the term “urban” instead of “jungle,” Waters would have been spot on. Gary Waters, “Conclusions for Doctrine from the Air War in the Gulf,” *Australian Defence Force Journal*, no. 98 (January/February 1993): 37.

36. In the case of the RAF, it has been argued that the role air power played in the Gulf War was the decisive factor in the subsequent decision to produce military-strategic doctrine. See Sebastian Cox and Sebastian Ritchie, “The Gulf War and UK Air Power Doctrine and Practice,” in *Air Power History* (see note 4), 287–300.

37. Mader, 104.

military-strategic doctrine. Indeed, the initial development of *AAP 1000 The Air Power Manual* commenced in mid-1987, although the first edition was not released until August 1990.³⁸

The primary motive underlying the comparatively early development of the RAAF's doctrine was recognition of the need to create a common foundation for the education of its personnel about their profession.³⁹ As Stephens observed, the traditional emphasis of the RAAF's professional education programmes "was largely practical and contemporary, and was not the same thing as examining the RAAF's theoretical *raison d'être* and the basis of air power."⁴⁰ Beginning in the early 1970s, this emphasis had slowly begun to change, primarily as a result of the decision in 1971 to send a few officers to the USAF War College each year. Over time, this led to the emergence within the RAAF of "a group of scholars with a deep theoretical and practical knowledge of air power."⁴¹ As this group grew in size, and its members' careers progressed, their influence gradually brought about the impetus towards reform of PME within the RAAF.

This educational reform was accompanied by military-strategic doctrine development because doctrine was viewed as a means for RAAF personnel to be enlightened about and aligned with the nature and role of air power.⁴² Partly because of the link to education, the doctrine development process involved the production of numerous research and discussion papers and, uniquely amongst the doctrine publications studied herein, the development process itself was well documented.⁴³

The other motive for the production of research and study papers during the development of *The Air Power Manual* was the lessons learned from an earlier unsuccessful attempt by the RAAF to produce military-strategic doctrine. That attempt had begun in the early 1980s and had quickly become the victim of the involvement of too many contributors and the lack of an overarching Australian strategic framework to guide its development. As a result, the project "simply ran out of steam" and was cancelled in early 1984.⁴⁴ When it was resurrected in 1987 by Air Marshal R. G. Funnell, Chief of the Air Staff, the primary writing team was limited to a core group of three senior officers in order to prevent the same thing from impeding doctrine development a second time. Due to the link to be fostered between education and doctrine, two of the appointed writing team members had graduated from the USAF War College and the third from the RAF Staff College.⁴⁵

In addition to the desire of some of the RAAF's senior officers to educate other personnel about the organization's theoretical and philosophical *raison d'être*, three additional factors drove the RAAF's doctrine development. The first was developments in Australia's strategic policy, which, following the release of the 1987 Defence White Paper, was finally comprehensive enough to provide a framework within which RAAF doctrine could be located.⁴⁶ The second factor was the perceived need to inform those in Australia's broader defence community about the RAAF and what it did. This factor was particularly salient following the release of the Dibb Report, and it was observed:

38. DOD, RAAF, *AAP 1000 The Air Power Manual*, 1st ed. (RAAF Base Fairbairn: RAAF Air Power Studies Centre, August 1990).

39. Kavanagh and Schubert, 9–10.

40. Stephens, *Power Plus Attitude*, 185.

41. *Ibid.*, 185–86.

42. Kavanagh and Schubert, 13.

43. In 1989, two articles published in *Australian Defence Force Journal* discussed the framework used to develop *AAP 1000*. These were reproduced in 1990, along with four other articles based on the content of *AAP 1000*, as *Canberra Papers on Strategy and Defence No. 71*. During the period *AAP 1000* was being developed, Alan Stephens, a former RAAF pilot, provided a broader historical grounding by developing (and subsequently publishing) a PhD dissertation about "ideas, strategy and doctrine in the RAAF." Kavanagh and Schubert, 13–18; Brian Kavanagh, "One-a-Penny, Two-a-Penny ..." *Australian Defence Force Journal*, no. 76 (May/June 1989): 3–10; Gary Waters, ed., *RAAF Air Power Doctrine: A Collection of Contemporary Essays*, Canberra Papers on Strategy and Defence No. 71 (Canberra: Australian National University, 1990); and interview with staff of the Strategic and Defence Studies Centre, Australian National University, conducted in Canberra, August 24, 2007.

44. Stephens, *Power Plus Attitude*, 187.

45. These officers were Wing Commanders Brian Kavanagh, David Schubert and Gary Waters. Stephens, *Power Plus Attitude*, 190.

46. Kavanagh and Schubert, 3.

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Dibb's strategy of denial and his threat assessment created a doctrinal challenge for the RAAF. By emphasizing a defensive strategy and low-level contingencies, Dibb raised doubts, at least in some Air Force minds, about the RAAF's *raison d'être*, especially in relation to independent strike operations. That concern seemed justified. Dibb had questioned the utility of the RAAF's strategic strike and interdiction forces in dealing with the most likely (low-level) threats he perceived, and it was with apparent reluctance that he had recorded his "inclination" to recommend the retention of the fleet of F-111 bombers.⁴⁷

The final factor driving the RAAF's early doctrinal development was the re-emergence of the RAAF's old fears of being devolved back into the other services. Largely responsible for kick-starting this resurgence was the 1987 decision to remove the RAAF's rotary-wing tactical-lift capabilities and give their operational control to the Army.⁴⁸

Against this backdrop, the RAAF not only developed a comprehensive military-strategic doctrine, but it also established the Air Power Studies Centre as an intellectual think tank for furthering the philosophical and theoretical development of Australian air power. This establishment amounted to nothing less than a major cultural shift within the RAAF towards a culture of expressing conceptual developments in writing, then formally accepting selected developments by incorporating them into doctrine. Air Marshal Funnell's role in instituting this change should not be overlooked; he was personally responsible for initiating the establishment of the Air Power Studies Centre, and he subsequently had a high degree of influence during the development of the first edition of *AAP 1000*.⁴⁹ Since its inauguration in August 1989, the Air Power Studies Centre (since renamed the Air Power Development Centre) has published several works on air power and has also been responsible for undertaking regular updates of RAAF military-strategic doctrine.⁵⁰

The first edition of RAAF doctrine was particularly successful in achieving the goal of educating RAAF members and the general public about the theoretical and philosophical *raison d'être* underlying Australian air power. This was as much due to the strategy the RAAF used for distributing and raising awareness of the doctrine as it was due to the content of the doctrine itself. A comprehensive educational programme involving visits to air force bases by members of the Air Power Studies Centre, a high-profile launch by the Chief of the Air Staff, and a wide distribution programme all contributed to the doctrine's success in achieving the goals underlying its development.⁵¹

The Air Power Manual was not accepted by everyone, however. Several positive comments and reviews by academics, the Minister for Defence, the Governor General and members of overseas air forces were tempered by harsh criticism and, on occasion, outright dismissal from within the Army and RAN.⁵²

Running to 273 pages, *The Air Power Manual* was divided into three parts. The first part placed the study in a broader context, examining the nature and characteristics of warfare and air power. In the chapter on air power, a discussion of the nature, characteristics and maxims of air power was un-

47. Stephens, *Power Plus Attitude*, 168.

48. *Ibid.*, 188.

49. *Ibid.*, 187.

50. The RAAF Air Power Studies Centre and the role it played in furthering the awareness of air power within the Australian community was a great success. Eventually, this success contributed to the establishment of equivalent organizations within Australia's other services—the Army's Land Warfare Studies Centre, established in 1997, and the RAN's Sea Power Centre, established in 1999 (the latter was preceded by a limited maritime studies programme funded by RAN since 1990). As a result of the endeavours of these three studies centres, the material available on Australian doctrine development has been far more comprehensive, coherent and easily accessible than is the case in the other countries studied.

51. *Ibid.*, 194.

52. *Ibid.*

dertaken, and three types of air campaign were established: control of the air, air bombardment and air support for combat forces. Of these, air control was deemed to be the “prime campaign” an air force should undertake, as “[t]he possession of control of the air does not of itself guarantee success; however, its absence generally accompanies failure.”⁵³

The second part moved the general discussion from the first part to within the Australian context and greatly elaborated on the different types of air force operations. In the early chapters within this part, the strategy established by the 1987 Defence White Paper was clearly influential.⁵⁴ In the final part, perhaps the most important for driving future developments, the RAAF’s doctrine process was established. As part of this process, responsibility for reviewing and updating RAAF doctrine was delegated, effectively enshrining RAAF doctrine at an institutional level.⁵⁵ As a result, the RAAF almost instantaneously transformed from an institution with no military-strategic doctrine to one with an on-going doctrine development process akin to that of the Australian Army, although the RAAF’s process was more explicitly stated. Hence, it could be said that the first edition of *The Air Power Manual* represents more than just doctrine; it is symbolic of a significant shift in the RAAF’s institutional culture.

The first edition of *The Air Power Manual* was the only air force military-strategic doctrine publication produced in any of the three countries studied prior to the 1991 Gulf War. Although the RAAF and RNZAF did not directly participate in the war (by contrast, the RCAF contributed a squadron plus of CF18s that flew combat missions over Kuwait, Iraq and the Persian Gulf),⁵⁶ they were nonetheless affected by its outcome and the possible consequences it presented for the future application of air power.

Given the significant effect the Gulf War had on the development of air power theory during the early 1990s, it is interesting that air power doctrine produced in all three countries during this period mentioned the Gulf War and subsequently proclaimed RMA only in passing, if at all. Indeed, more frequently than not the concept was avoided altogether. This is true of the first air force military-strategic doctrine publication produced following the Gulf War—the *RNZAF Air Power Doctrine Statement*—released in November 1992. Divided into 11 chapters, the *Statement* avoided reference to the Gulf War or the RMA, instead briefly discussing “contemporary, new and emerging technologies that influence warfare in the air environment” in its final chapter. This discussion barely filled three pages.⁵⁷

The remainder of the *Statement* tended more towards a discussion of the theoretical aspects of air power and, similarly to *The Air Power Manual*, its opening chapters discussed the nature of air power and warfare itself, outlining the types of warfare, its levels and fundamental principles. The hierarchy of air campaigns, operations and roles it established was almost identical to *The Air Power Manual*, leading one to conclude that the Australian publication was highly influential in the development of this discussion. However, the *Statement* differed from *The Air Power Manual* by including a subsequent elaboration about the nature of military doctrine and the “purpose of national defence forces.”⁵⁸

In its latter chapters, the *Statement* went on to discuss the force structures and equipment associated with air warfare. Finally, it established guidelines for equipping an air force. In addition to the influence of Australian doctrine, the influence of New Zealand’s defence policy was also clearly evident. For example, the *Statement* elaborated on the 1991 Defence White Paper’s ill-defined concept

53. RAAF, *AAP 1000*, 1st ed., 33.

54. *Ibid.*, Chapters 3–4.

55. *Ibid.*, Chapter 12.

56. Greenhous and Halliday, 154.

57. MOD, RNZAF, *RNZAF Air Power Doctrine Statement*, November 24, 1992, Chapter 11.

58. *Ibid.*, Chapters 2–7.

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of a credible minimum defence force,⁵⁹ attempting to refine the term and explain the RNZAF's role in helping provide it.⁶⁰

Despite the merits of its discussion, it appears that the *Statement* was not widely circulated. Indeed, there is some doubt as to whether it was circulated at all, even within the RNZAF, and only scarce evidence of its distribution and impact (if it had any) exists. Instead of revising it, sometime during the 1990s, the RNZAF began informally deferring to a mixture of Australian and British military-strategic aerospace doctrine. In the late 1990s, the decision was made to officially defer to RAAF military-strategic doctrine, possibly because at the time the decision was made it was more up to date than the British equivalent.⁶¹ Despite occasional calls for a new military-strategic air power doctrine publication to be developed within New Zealand,⁶² deferral to the RAAF remained RNZAF practice until the conclusion of the period studied.

Interestingly, despite a dearth in the formal development of doctrine, a few RNZAF officers continued to further the conceptual development of air power in the New Zealand context throughout the 1990s. Similar to the effect the exchange postings to the USAF War College had within the RAAF during the 1970s and 1980s, the most notable of these developments occurred as a result of exchange postings to the RAAF Air Power Studies Centre, the first of which occurred in 1994.⁶³

The result of the inaugural exchange was the production by Squadron Leader Stuart Mackenzie of a monograph titled *Strategic Air Power Doctrine for Small Air Forces*.⁶⁴ Although he discussed several existing air power concepts at length, Mackenzie's key contribution was to establish that "[a]lthough small air forces will have command levels equating to tactical, operational and strategic operations, it is likely that most small air forces effectively operate at only two levels: tactical and strategic." Furthermore, he went on to assert that "[a] scarcity of doctrine at the operational level of war and a lack of air campaign planning experience often results in strategic level doctrine and thinking collapsing down on top of the tactical level."⁶⁵ In the RNZAF, it is possible that this process of "collapsing" occurred during the 1990s. If so, Mackenzie's theory goes a long way towards explaining the institutional culture underlying the RNZAF's lack of production of military-strategic doctrine after 1992.

The RAAF, in line with the doctrine development process outlined in the first edition of *The Air Power Manual*, released an updated edition of its doctrine in March 1994.⁶⁶ As with the first edition, it was lengthy—totalling 243 pages—although its structure had changed somewhat. This edition was divided into four parts, with the first examining war, doctrine and air power in both the general and Australian contexts. The second part examined the roles of the RAAF in detail, and the third examined support functions such as command and control, personnel, and training. The final part, titled "air power in context," examined the application of air power concepts independently as well as in relation to the maritime and land environments. This change in structure was a result of the motive underlying

59. MOD, *The Defence of New Zealand 1991*, 28-30

60. MOD, RNZAF, *RNZAF Air Power Doctrine Statement*, 1.1

61. Email correspondence with a senior RNZAF officer, December 13, 2007.

62. Squadron Leader Donald B. Sutherland, *Unit 49.799 – Research Project: Airpower Doctrine for the RNZAF*, RNZAF Command and Staff College, undated, but circa 1997.

63. This exchange posting has occurred every other year since 1994, with the "RNZAF Fellow" undertaking the exchange in the year following their graduation from Australian Command and Staff College (where they are also posted on exchange). Email correspondence with staff of the RAAF Air Power Development Centre, December 15, 2008.

64. Stuart Mackenzie, *Strategic Air Power Doctrine for Small Air Forces* (Canberra: RAAF Air Power Studies Centre, 1994). Of note, Mackenzie's work is the only one known to this author to have cited the *RNZAF Air Power Doctrine Statement*. Other than its inclusion in Mackenzie's bibliography, there is no evidence to indicate the *Statement* was ever distributed.

65. *Ibid.*, 43.

66. DOD, RAAF, *AAP 1000 The Air Power Manual*, 2nd ed. (RAAF Base Fairbairn: RAAF Air Power Studies Centre, March 1994).

the production of the second edition of *The Air Power Manual*: it was published primarily to address feedback received about the first edition.⁶⁷

The final military-strategic air force doctrine publication released during the “decade of uncertainty” was the RCAF publication *Out of the Sun: Aerospace Doctrine for the Canadian Forces*, dated July 20, 1997.⁶⁸ Although this was almost seven years after the RAAF had first released its military-strategic doctrine, the RCAF had nonetheless undertaken some doctrine development during the intervening period.

A good starting point for analysis of Canadian air power doctrine development is the unification of the CF in 1968, as this dissolved the components of the RCAF into the six newly established CF commands. With this division, the organization formerly responsible for Canadian air power doctrine development was eliminated, although no indication was given as to which organization would replace it. As a result, virtually no air power doctrine, including that designed to guide the tactical level of conflict, was produced until the creation of Air Command in 1975. Even after this, doctrine development progressed slowly. The first noteworthy air power doctrine published after unification, B-GA-283-000/FP-000, *Conduct of Air Operations*, was not released until June 1981.⁶⁹ This publication was, however, only an update to a pre-1968 publication, and its scope and utility were severely limited.⁷⁰

In 1984, Lieutenant-General Paul Manson, then Commander Air Command, convened a conference to address “the fragmented state of aerospace doctrine.”⁷¹ The outcome of the conference was the establishment of an Aerospace Doctrine Board (ADB) in 1986, which quickly endorsed a new doctrine hierarchy. From the outset, this hierarchy included a keystone doctrine, which was published in 1989 under the title B-GA-400-000/FP-000, *Basic Aerospace Doctrine*.⁷²

Although its initial chapters included brief explanations of military doctrine, “Canadian strategic doctrine” (strategic policy), the principles of war, and the relationship between war and the nation, as far as this study is concerned, *Basic Aerospace Doctrine* did not constitute military-strategic doctrine.⁷³ There are two reasons for this classification decision. Firstly, the doctrine never had a public relations role, as its distribution seems to have been limited to within the CF, even though it is unlikely that it ever had a “restricted” status. Secondly, and more importantly, it was observed that the entire doctrine hierarchy, including *Basic Aerospace Doctrine*, failed to sufficiently address strategic considerations, “in particular space and strategic aerospace defence.”⁷⁴

Following the release of *Basic Aerospace Doctrine*, the RCAF’s doctrine hierarchy fell into a state of disrepair, largely due to the lack of manpower and expertise available to maintain the hierarchy’s currency on an ongoing basis.⁷⁵ As a result, RCAF doctrine development again waned during the early

67. Email correspondence with staff of the Strategic and Defence Studies Centre, Australian National University, May 5, 2009.

68. DND, B-GA-400-000/AF-000, *Out of the Sun: Aerospace Doctrine for the Canadian Forces*, July 20, 1997. Two copies of *Out of the Sun* were obtained during research for this study. While both are otherwise identical, one is dated July 20, 1997, and the other is dated July 20, 1998. As no other discrepancies between the two copies could be found, it is assumed that the later version is a reprint of the earlier one, rather than an updated edition. Given the edition with the later date is spiral-bound and was found in a box in the library basement at Fort Frontenac, Kingston, it is highly likely that it was reproduced as a textbook for a Land Forces Command and Staff College course. Why the date was changed when no other amendments were made remains a mystery. The copy with the earlier date, obtained electronically with the help of an officer posted to the Canadian Forces Aerospace Warfare Centre, is, therefore, referred to exclusively throughout this study.

69. Canada, DND, B-GA-283-000/FP-000, *Conduct of Air Operations*, June 1, 1981.

70. “The Evolution of CF Aerospace Doctrine,” Annex A, in Westrop, 39.

71. *Ibid.*

72. Canada, DND, B-GA-400-000/FP-000, *Basic Aerospace Doctrine*, June 30, 1989. This is the same title given to USAF military-strategic doctrine, indicating the prominent influence this allied air force had on RCAF doctrinal thinking during this period.

73. *Ibid.*, Chapters 1–3.

74. “The Evolution of CF Aerospace Doctrine,” in Westrop, 40.

75. *Ibid.*, 41.

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1990s. At the military-strategic level, this was most likely compounded by additional factors, most prominently the lack of Canadian strategic policy guidance during the period.

Even after the 1994 *Defence White Paper* finally provided some respite from Canada's strategic policy uncertainty, the RCAF continued to suffer from a declining budgetary allocation. Although the White Paper had established a requirement for "[t]he retention of multi-purpose, combat-capable forces,"⁷⁶ it also shifted the operational emphasis towards the Army. As a result of this new emphasis, the RCAF's budget fell from \$C3 billion in 1994 to \$C2.2 billion in 1998.⁷⁷

Furthermore, it is likely that the RCAF's lack of military-strategic doctrine development during the early 1990s was compounded by the close link between the Air Force and its US counterpart. As Allan English observed, "the Canadian Air Force has moved its culture closer to its American cousin's than have the other two Canadian services to their American analogues."⁷⁸ In the early 1990s, it is likely that this led to an inclination to refer to USAF military-strategic doctrine in preference to undertaking doctrine development domestically.⁷⁹

Despite these factors, the eventual catalyst for the production of *Out of the Sun* was a meeting of the ADB in October 1994, at which it was determined that a replacement for *Basic Aerospace Doctrine* was required. This was because *Basic Aerospace Doctrine* "lacked consistency and balance, perpetuated 'stove piping,' and did not reflect current thinking about air power."⁸⁰ Although this determination was made in late 1994, it took almost three years for a replacement publication to be developed, the delay primarily resulting from "organizational friction" within Air Command Headquarters.⁸¹ Furthermore, when production finally did occur, it was rushed so that something could be published in time for the 1997 Aerospace Power Conference. The result, *Out of the Sun*, "was based primarily upon a précis on air power theory developed at the Canadian Forces College (CFC) in Toronto."⁸²

From the outset, *Out of the Sun* encountered a multitude of problems, which ultimately led to its failure. The first of these problems was that (as had been the case with *Basic Aerospace Doctrine*) there was no authority charged with distributing, publicizing, updating or maintaining it. Abetting this problem was the unique format of *Out of the Sun*, which was originally released as a unilingual publication without a National Defence Index of Documentation (NDID) number, meaning that it could not be traced or ordered through official channels.⁸³

The second problem *Out of the Sun* encountered was that its content was intellectually questionable. Ten chapters in length, it began in the same way as its RAAF and RNZAF counterparts,

76. DND, 1994 *Defence White Paper*, 14.

77. Greenhouse and Halliday, 156.

78. English, *Understanding Military Culture*, 95.

79. Westrop, iv. A revised edition of USAF AFDDI: *Basic Doctrine* was released in 1992. Department of the Air Force, *Air Force Manual 1-1*, vol 1, *Basic Aerospace Doctrine of the United States Air Force* (Washington DC: Headquarters USAF, March 1992); Department of the Air Force, *Air Force Manual 1-1*, vol 2, *Basic Aerospace Doctrine of the United States Air Force* (Washington DC: Headquarters USAF, March 1992).

80. "The Evolution of CF Aerospace Doctrine," in Westrop, 41. "Stove piping" is defined as "the condition that exists when staff or support personnel forget that they are subordinate to a line commander," instead, following instructions from higher up within the staff or support branch hierarchy. Richard Szafranski, "Desert Storm Lessons from the Rear," *Parameters* 21, no. 4 (Winter 1991–92): 45. See also Carl H. Builder, *The Icarus Syndrome: The Role of Air Power Theory in the Evolution and Fate of the US Air Force* (New Brunswick: Transaction Publishers, 1994), xiii–xix. In the case of the Canadian Air Force, its stovepipes were divided along similar lines to its various capability-based community groups, with loyalties being directed upward within each community. English and Westrop, 156–58.

81. Information obtained via email correspondence with a senior RCAF officer, May 6, 2009.

82. Paul Johnston, "Canopy Glint," 83. The document on which *Out of the Sun* was based was titled *ACSP-1 Air Doctrine Manual*. "The Evolution of CF Aerospace Doctrine," in Westrop, 41.

83. Johnston, "Canopy Glint," 84. At some point since its original release, *Out of the Sun* has been allocated an NDID number, as the version obtained for this study was labelled B-GA-400-000/AF-000.

describing key terminology—in this case, the principles of war and the principles of aerospace power.⁸⁴ Following this, the bulk of *Out of the Sun* discussed the spectrum of air force operations under three headings: air combat, supporting air and sustainment operations.⁸⁵ It was this aspect of *Out of the Sun* that attracted the most criticism, particularly as the accompanying definitions it gave were often simplistic and occasionally contradictory.⁸⁶ Furthermore, *Out of the Sun* failed to explain the rationale underlying the existence of Canada's Air Force. As Paul Mitchell noted, "*Out of the Sun* tells one how the air force seeks to accomplish its missions, but not why, nor more importantly, why this is critical to Canada as a nation."⁸⁷ Because of this omission, *Out of the Sun* failed to achieve one of military-strategic doctrine's key objectives.

Finally, *Out of the Sun* fell victim to the strong influence capability-based communities had within the RCAF. Indeed, the content of *Out of the Sun* provoked the objection of elements within almost all of the RCAF's capability-based communities. As a result, the majority of the Air Force itself failed to embrace the doctrine, and like the *RNZAF Air Power Doctrine Statement*, its effect—if it had one—is barely noticeable.⁸⁸ Following the 1997 Aerospace Power Conference, *Out of the Sun* appears to have been unofficially relegated to use as an instruction manual at CFC. As Johnston asserted: "there is scant evidence that it is ever used or referred to by anyone actually applying air power."⁸⁹

The Divergence of Air Power Doctrine Development, 1997–2007

From 1987 to 1997, the RAAF was the only one of the three air forces studied to successfully produce, distribute, implement and update its doctrine. Although the RCAF and RNZAF produced military-strategic doctrine, there is evidence of only limited distribution, and furthermore, it appears that the doctrine failed to gain traction within the air forces themselves. As Codner asserted about RAF doctrine (although his argument also applies to the three air forces studied): "Air force doctrine has a function of explaining to the unconvinced the utility and effectiveness of centrally directed air power."⁹⁰ Due to the failure of many within the RCAF and the RNZAF to embrace their doctrine during the early and mid-1990s, it is unsurprising that the doctrine produced by these air forces failed to achieve this key objective.

Throughout the decade from 1997 to 2007, military-strategic doctrine development within the three air forces diverged greatly. In the case of the RAAF and RCAF, the content of the doctrine they produced was markedly different, although the intended effects of their doctrine remained similar. As stated above, following the release of the *RNZAF Air Power Doctrine Statement* in 1992, the RNZAF did not produce a second military-strategic doctrine publication during the period studied. In the late 1990s, its decision to defer to RAAF doctrine in place of undertaking further domestic doctrine development became official.⁹¹

Because of this decision, the conceptual development of air power in the New Zealand context informally fell onto the shoulders of a few RNZAF officers. Following Squadron Leader Mackenzie's precedent, Wing Commander Shaun Clarke's book *Strategy, Air Strike and Small Nations* (published in 2001) presented a unique contribution to the air power debate in the RNZAF context.⁹²

84. DND, *Out of the Sun*, Chapter 3.

85. *Ibid.*, Chapters 8–10.

86. Johnston, "Canopy Glint," 84–85.

87. Paul Mitchell, "The Revolution in Military Affairs and the Canadian Air Force," in *Air Power at the Turn of the Millennium*, eds. David Rudd, Jim Hanson, and Andre Beauregard (Toronto: The Canadian Institute of Strategic Studies, 1999), 43.

88. Interview with a senior Canadian Air Force officer, conducted at the Royal Military College of Canada, May 24, 2007.

89. Johnston, "Canopy Glint," 83.

90. Codner, "British Maritime Doctrine and National Military Strategy," 89.

91. Email correspondence with a senior RNZAF officer, December 13, 2007.

92. Clarke, *Strategy, Air Strike and Small Nations*.

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Written in the wake of the air power theoretical developments of the 1990s and the 1999 air war in the Balkans—which had substantially furthered the notion that air power was now capable of achieving the strategic results its early proponents had envisaged—Clarke’s work was understandably optimistic about the advantages air power could offer small states.⁹³ His central thesis was:

A fundamental re-examination of the nature of war and the utility of air strikes reveals the possibility that what has been popularly perceived as the standard shape of strategic bombing operations is actually just the superpower interpretation. ... History reveals a handful of campaigns ... which have directly pursued very high order strategic aims with quite limited air campaigns. The suggestion that some form of strategic air strike might be achievable by small nations and small coalitions is thus made. ... The challenge this thesis puts to small nations is to raise the strategic order of air strike operations—to prepare not just for the direct and indirect support of fielded battle, but for the exploitation of opportunity to more directly influence the ultimate strategic aims of conflict.⁹⁴

In making this assertion, Clarke’s thesis constituted an original contribution that had the potential to significantly promote the development of RNZAF doctrine.

However, before the RNZAF had the opportunity to debate Clarke’s work in detail, or take steps towards incorporating his ideas into doctrine, the recently elected Labour Government made the decision in mid-2001 to scrap New Zealand’s air combat capability in order to free up funding for other priorities.⁹⁵ The result was that the RNZAF lost one of its three primary roles (as Clarke had observed, air power has “three generic applications,” these being reconnaissance, transport and the destruction of the enemy).⁹⁶ Suddenly, the RNZAF found its role changed from that of potential combat multiplier to exclusively that of a combat enabler.

Given this sudden shift, the traditional air force fear of being reabsorbed into the army and navy soon spread through the RNZAF. A second prominent publication, released the year after the decision to scrap New Zealand’s air combat capability was announced, is somewhat revealing. The publication—titled *Air Force or Air Corps? Does New Zealand Need an Independent Air Force in a Joint Environment?*—not surprisingly concluded that “New Zealand should retain an independent air force, not because of any specific aircraft type or role, but because an air force adds strength, flexibility and utility to the NZDF as a whole.”⁹⁷ While these fears appeared to have receded by the close of 2007, the RNZAF nonetheless continued to defer to RAAF doctrine in place of developing its own.

On a related note, an interesting question arises over whether the existence of well-publicized and up-to-date military-strategic doctrine may have prevented the government’s decision to scrap the air combat capability. What little evidence there is suggests it is more likely that in New Zealand’s case the existence of well-publicized and up-to-date doctrine would not have been able to save the air combat capability.

As it was, the *Review of the Options for an Air Combat Capability*, released in February 2001, conducted a comprehensive survey of New Zealand’s air combat capability within the broader strategic context. It is clear that the authors of the report had a comprehensive understanding of the role of a

93. For details of the air war in the Balkans, see Sebastian Ritchie, “Air Power Victorious? Britain and NATO Strategy during the Kosovo Conflict,” in *Air Power History* (see note 4), 318–29; Peter W. Gray, “The Balkans: An Air Power Basket Case?” in *Air Power History* (see note 4), 330–44; and Joel Hayward, “NATO’s War in the Balkans: A Preliminary Analysis,” *New Zealand Army Journal*, no. 21 (July 1999): 1–17.

94. Clarke, *Strategy, Air Strike and Small Nations*, 179–80.

95. MOD, *Government Defence Statement*, 8–11.

96. Clarke, *Strategy, Air Strike and Small Nations*, 6.

97. Andrew Clark, *Air Force or Air Corps? Does New Zealand Need an Independent Air Force in a Joint Environment?* (Canberra: RAAF Aerospace Centre, 2002), 97.

country's air combat capability.⁹⁸ Their assessment that it was unlikely that in the foreseeable future New Zealand's strategic environment would require the possession of such capability was, therefore, driven by strategic imperatives, rather than by ignorance about what the air combat forces had to offer. In light of this, it is unlikely that the educational effect of doctrine would have altered the government's decision. Although there was possibly an outside chance that a combination of the right personalities in key positions within the RNZAF at the right times, with comprehensive doctrine to support them, might somehow have been able to convince the government to make an alternative decision, it is far more likely that funding constraints combined with an unfavourable hierarchy of strategic priorities were simply beyond the RNZAF's control.

The New Zealand government's decision to scrap the air combat capability, therefore, demonstrates one of the limitations of doctrine. While doctrine can be very useful in saving capabilities where they are at risk due to ignorance on behalf of the public or government decision makers, there is little that doctrine can do to save capabilities if decision makers are already well informed and acting in pursuit of bigger-picture economic, political or strategic policy concerns.

For the RAAF and RCAF, 1997 to 2007 did not yield significant changes to the same extent as those that affected the RNZAF. In the case of the RAAF, its doctrine development process (established by the first edition of *The Air Power Manual*) remained in place, leading to the development and release of a third edition of *The Air Power Manual* in February 1998, a fourth in August 2002 and a fifth in March 2007. Given the number of editions, examination of the third and fourth editions will be limited to a brief overview of the major themes in the development and content of each publication. This is done in order to allow analysis to focus on the fifth edition, as this edition embodies a much more significant change in the nature and role of air power doctrine in the Australian context than either of its immediate predecessors.

The most obvious difference between the second and third editions of *The Air Power Manual* was that the length of the publication was cut from 243 to 57 pages.⁹⁹ Although this observation may appear rudimentary, it is nonetheless important as the length change is representative of a substantial shift in thinking between the second and third editions. This difference was explained by the Chief of Air Force, Air Marshal L. B. Fisher:

Unlike the first and second editions of the Manual, the third edition does *not* present the "how to" of air power doctrine. That is, the operational aspects of doctrine have been removed in the interests of presenting our basic philosophy as clearly and concisely as possible [emphasis in original].¹⁰⁰

In other words, the shortening of the doctrine was designed to make it easier to read and, therefore, increase the scope of its appeal. The "operational aspects" it omitted were to be included instead in a future operational doctrine manual.¹⁰¹ The omissions included the detailed discussion of air roles and support functions that had encompassed 8 of the second edition's 14 chapters.¹⁰²

As it transpired, the trend of shortening doctrine to increase its appeal was short-lived. The fourth edition ran to a lengthy 367 pages and reintroduced most of the conceptual discussion that had been

98. *Review of the Options for an Air Combat Capability* (Wellington: New Zealand Government, February 2001), esp. 10–17.

99. DOD, RAAF, *AAP 1000 The Air Power Manual*, 3rd ed. (RAAF Base Fairbairn: RAAF Air Power Studies Centre, February 1998).

100. L. B. Fisher, "Official Release: The Air Power Manual – Third Edition" in *Testing the Limits: The Proceedings of a Conference Held by the Royal Australian Air Force in Canberra, March 1998*, ed. Shaun Clarke (Fairbairn: Air Power Studies Centre, 1998), 3.

101. *Ibid.*, 3–5.

102. RAAF, *AAP 1000 The Air Power Manual*, 2nd ed., Chapters 5–12.

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omitted from the third edition.¹⁰³ More important than this reversal was a change in terminology represented by a name change to the fourth edition, which was titled *Fundamentals of Australian Aerospace Power*. The shift in terminology from “air power” to “aerospace power” was designed to facilitate a broadening of the doctrinal scope, as discussion of the term aerospace could also encompass the area above the Earth’s atmosphere.¹⁰⁴

Despite the change in terminology, *Fundamentals of Australian Aerospace Power* elaborated on similar themes to those discussed in its predecessors, and many of the differences between it and previous editions appear unrelated to terminology. For example, the update to its discussion of “the characteristics of aerospace power” was ostensibly motivated by reaction to the layout of previous editions:

In previous editions of aerospace power doctrine, the characteristics of aerospace power were portrayed as either strengths or weaknesses, implying that they were absolute. This often resulted in unnecessary and odious comparisons with sea and land power. However, this failed to take into account the context in which aerospace power might be applied. For example, a characteristic that is clearly a strength in one scenario could well be a limitation in another.¹⁰⁵

When it came to the space component of aerospace, the doctrine discussed the theme only briefly, acknowledging that “cost currently prohibits the RAAF from exploiting the space environment.”¹⁰⁶

In the fifth (2007) edition, the terminology was changed again, from “aerospace” to “air and space.” Although this change was made in order to better reflect the different operational requirements of the two environments, the new terminology brought RAAF doctrine into alignment with the USAF *Basic Doctrine*, which had referred to “air and space” in both its 1997 and 2003 editions.¹⁰⁷

Unlike the second, third and fourth editions of RAAF military-strategic doctrine, which had all contained substantial but not pioneering conceptual developments, the 2007 edition constituted a major change to the nature and role of RAAF doctrine. Along with this change, and partly the result of it, was the division of the doctrine’s structure into three component manuals. The first manual, *AAP 1000-H The Australian Experience of Air Power*, provided a comprehensive history of the RAAF from WWI to the “War Against Terror.”¹⁰⁸ The second manual, *AAP 1000-D The Air Power Manual* (which returned the series to its original title), was doctrinal, discussing and developing air and space power concepts and their application in the Australian context.¹⁰⁹ Finally, *AAP 1000-F The Future Air and Space Operating Concept* established the RAAF’s “developmental imperatives and preferences primarily from the operational dimension” from roughly 2007 until “about 2025.”¹¹⁰

For the RAAF’s doctrine writers, this division had the benefit of separating the doctrine’s historical component from its conceptual component. This was intended to allow future updates to be streamlined, since the separation would allow the conceptual component to be updated without an accompanying need to also rewrite the historical component. More significant, however, was the in-

103. DOD, RAAF, *AAP 1000 Fundamentals of Australian Aerospace Power*, 4th ed. (Canberra: RAAF Aerospace Centre, August 2002).

104. Interview with a senior Australian DOD official, conducted at the RAAF Air Power Development Centre, Canberra, August 23, 2007.

105. RAAF, *AAP 1000*, 4th ed., 122.

106. *Ibid.*, 291.

107. Secretary of the Air Force, *Air Force Doctrine Document 1: Air Force Basic Doctrine* (Maxwell: Headquarters Air Force Doctrine Centre, September 1997); and Secretary of the Air Force, *Air Force Doctrine Document 1: Air Force Basic Doctrine* (Maxwell: Headquarters Air Force Doctrine Centre, November 17, 2003).

108. DOD, RAAF, *AAP 1000-H The Australian Experience of Air Power* (Tuggeranong: RAAF Air Power Development Centre, March 2007).

109. DOD, RAAF, *AAP 1000-D The Air Power Manual*, 5th ed. (Tuggeranong: RAAF Air Power Development Centre, March 2007).

110. DOD, RAAF, *AAP 1000-F The Future Air and Space Operating Concept* (Tuggeranong: RAAF Air Power Development Centre, March 2007), 1.

clusion of *The Future Air and Space Operating Concept*, as it was the first time any Western air force had incorporated into its keystone doctrine a strategic document that worked backwards from a potential future operating environment to current government policy.¹¹¹

Accompanying this innovation was a shift in the doctrine's framework from one that was platform driven (the traditional framework used for developing RAAF doctrine) to one that was capability-effects driven.¹¹² This was significant for two reasons: first, it reduced the RAAF's reliance on aircraft currently in service to achieve doctrinal aims; second, it facilitated integration between the content of the theoretically inclined *Air Power Manual* and the future-focused *Future Air and Space Operating Concept*.

The RAAF's doctrinal shift from being platform driven to capability-effects driven was also timely in light of Australian strategic policy shifts. Since *Fundamentals of Australian Aerospace Power* had been released in 2002, Australian strategic policy had substantially shifted towards a forward defence posture. To give substance to the philosophical aspects of the policy shift, the 2005 *Defence Update* set aside funding for the purchase of joint strike fighters.¹¹³ Beyond merely confirming the purchase, the 2007 *Defence Update* declared that "one of the highest priorities for the Government is to ensure the Air Force's air combat capability is second to none in our region."¹¹⁴ In addition to the joint strike fighter, most of the RAAF's fleet was scheduled for replacement during 2008 to 2020.¹¹⁵ The shift in the doctrinal framework was deliberately designed to help enable the RAAF to manage the transition to its new platforms (the scale of the replacements made the acquisition programme the most substantial modernization in the RAAF's recent history).¹¹⁶

It can, thus, be concluded that the RAAF's need to manage the transition to its new platforms was the primary factor driving the development and structure of the 2007 edition of *The Air Power Manual*. The conduct of operations constituted a significant additional influence, and a large portion of *The Air Power Manual* was dedicated to an elaboration about the types and effects of air force operations (it was in this part of the discussion that the capability-effects driven framework was most immediately apparent).¹¹⁷ Since strategic policy established acquisitions priorities and determined the types of operations the RAAF may have been called upon to conduct, it can be said that strategic policy also had a significant influence over the content of *The Air Power Manual*, although this influence was mostly indirect.¹¹⁸ Finally, allied doctrine was also influential, with an acknowledgements section noting the guidance provided by RAF and USAF doctrine during the development of *The Air Power Manual*.¹¹⁹

Also in 2007, the RCAF released a new doctrine publication titled *Canadian Forces Aerospace Doctrine*.¹²⁰ Its development was part of a broader transformation programme that began in late 1999. Like both the Canadian Army and Navy, the Air Force had been heavily influenced by the 1999 release of *Strategy 2020*, which was fundamental in driving the early phases of its transformation. Just as the Navy's production of *Leadmark* began as an institutional response to *Strategy 2020*, in 2000 the

111. Interview with a senior Australian DOD official, conducted at the RAAF Air Power Development Centre, Canberra, August 23, 2007.

112. Ibid.

113. DOD, *Defence Update 2005*, 23.

114. DOD, *Defence Update 2007*, 52.

115. Andrew Davies, "ADF Capability Review: Royal Australian Air Force," *Policy Analysis No. 26* (Canberra: Australian Strategic Policy Institute, 2008).

116. Interview with a senior Australian DOD official, conducted at the RAAF Air Power Development Centre, Canberra, August 23, 2007.

117. RAAF, *AAP 1000-D The Air Power Manual*, 5th ed., Chapter 6.

118. The fourth chapter of *The Air Power Manual* elaborated about the link between national strategy and air power, discussing the requirements of Australia's defence strategy in broad terms. It did not mention any specific strategic policy documents, nor did it mention any specific acquisitions. RAAF, *AAP 1000-D The Air Power Manual*, 5th ed., Chapter 4.

119. Ibid., xiii.

120. DND, B-GA-400-000/FP-000, *Canadian Forces Aerospace Doctrine*, 2007.

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Air Force released its own response to the strategy, titled *Vectors 2020: An Air Force Strategic Assessment*. Primarily, it provided “a series of signposts about air operations in 2020 so as to assist us in developing the air force of the future.”¹²¹ Unlike *Leadmark*, which morphed into a comprehensive doctrine during its early development, *Vectors 2020* remained an institutional strategy that linked the Air Force to *Strategy 2020*.

Over the following few years, Air Force transformation was advanced conceptually by the release of two further documents. The first of these was *The Aerospace Capability Framework*, which established a comprehensive short-to-medium-term agenda designed to provide more detail about the early steps in the transformation process.¹²² The second document was *Strategic Vectors: The Air Force Transformation Vision*. This document established eight “vectors,” which focused on a broad variety of operational, personnel and public relations priorities.¹²³ While the vectors were broader in scope and substantially less specific than the transformation agenda set within *The Aerospace Capability Framework*, they were also longer-term in their focus.¹²⁴ Importantly, both of these documents considered doctrine development to be a central component of transformation.¹²⁵

To understand how doctrine development came to occupy a central role within the RCAF’s transformation programme, it is necessary to briefly examine reforms to the Air Force’s doctrine development process that commenced shortly after the release of *Out of the Sun*. In 1997, a restructuring of Air Force Headquarters necessitated changes to the ADB, which was renamed the Air Doctrine and Concepts Board (ADCB). At its inaugural meeting in November 1997, the ADCB endorsed a new doctrine hierarchy to replace the hierarchy that had been endorsed in 1986.¹²⁶ The progress of events thereafter was later summarized by Colonel John Westrop:

The inaugural session of the ADCB was convened at NDHQ on 29 Nov 97, and the subsequent (and final) session took place on 26 May 98. Since then there has been little activity by the ADCB; in particular, there has been no progress on developing the “new” hierarchy of aerospace doctrine manuals. Instead, sporadic action has taken place to update some doctrine publications in the “old” hierarchy. With minor exceptions, since the reconfiguration of the ADB into the ADCB, the coherent promulgation of CF aerospace doctrine has virtually ceased.¹²⁷

In December 2000, this situation was formally acknowledged by the Air Force Development Committee, which also proposed a study be conducted to determine a course of action for rectifying the absence of up-to-date Air Force doctrine. In August 2001, an aerospace doctrine study commenced under the direction of Colonel Westrop.¹²⁸

The study’s final report, dated 30 April 2002, made several recommendations. Key among these were the creation of an Aerospace Doctrine Authority (ADA) and an aerospace doctrine system framework to allow doctrine to be developed and disseminated, and also to undertake the “research, education, lessons learned, experimentation and simulation, and possibly history and heritage”

121. Canada, DND, *Vectors 2020: An Air Force Strategic Assessment*, 2000, 1.

122. DND, Director General Air Force Development, A-GA-007-000/AF-002, *The Aerospace Capability Framework: A Guide to Transform and Develop Canada’s Air Force*, 2003.

123. Canada, DND, A-GA-007-000/AF-004, *Strategic Vectors: The Air Force Transformation Vision*, 2004, 44–52.

124. Ken R. Pennie, “Transforming Canada’s Air Force: Vectors for the Future,” *Canadian Military Journal* 5, no. 4 (Winter 2004–05): 41.

125. DND, A-GA-007-000/AF-002, *The Aerospace Capability Framework*, 64; and DND, A-GA-007-000/AF-004, *Strategic Vectors*, 48–49.

126. “The Evolution of CF Aerospace Doctrine,” in Westrop, 41–42.

127. Westrop, v.

128. *Ibid.*, iv–v.

functions associated with the development and application of doctrine.¹²⁹ To supplement this, it was also recommended that an Air Force publications centre be established and that the ADA be given a secondary role as the CF aerospace warfare authority, in order to ensure it was operating from a position of authority when developing and disseminating doctrine.¹³⁰

By coincidence, the delivery of the final report of the aerospace doctrine study coincided with the development of the RCAF's transformation programme. The result was that several of the study's recommendations were implemented as a central part of the programme. Most importantly, *The Aerospace Capability Framework* directed the establishment of the Canadian Forces Aerospace Warfare Centre (CFAWC).¹³¹ The establishment of the Centre was also a key part of the fourth vector contained within *Strategic Vectors*.¹³² CFAWC was mandated to develop RCAF doctrine and distribute it as well as to conduct the related research, education, experimentation, simulation, lessons learned and conceptual development functions that had been identified as requirements by the aerospace doctrine study.¹³³

Because of this mandate, CFAWC had much in common with the RAAF Air Power Studies Centre. Although this was coincidental, commonalities are especially noticeable regarding the roles both had in the education of air force personnel about their profession and in furthering the philosophical and theoretical development of air power in their national contexts. Furthermore, just as Air Marshal Funnell's influence had been instrumental in the establishment of the RAAF Air Power Studies Centre, Lieutenant-General Ken Pennie's support for CFAWC was an instrumental factor in its establishment and in determining the broad scope of its mandate.¹³⁴

Following its inauguration in October 2005, CFAWC undertook its educational and theoretical development functions through the commission of studies and, more prominently, through the establishment of the *Canadian Air Force Journal*.¹³⁵ Its primary responsibility, however, was the production of doctrine. Work on a new keystone manual commenced immediately after the inauguration of the Centre, leading to the release of *Canadian Forces Aerospace Doctrine* in early 2007.¹³⁶

In terms of its content, *Canadian Forces Aerospace Doctrine* varied substantially from *Out of the Sun*. Although both documents defined key terminology, *Canadian Forces Aerospace Doctrine* also provided a brief chronological history of Canada's air forces since WWI.¹³⁷ The terms and concepts it defined included "doctrine," "national security," "aerospace power," the nature of conflict, and the principles of war.¹³⁸

However, *Canadian Forces Aerospace Doctrine's* major conceptual contribution occurred in its fifth chapter, which developed "the functions of Canada's air force."¹³⁹ The five functions it developed—sense, shape, move, sustain and command—were derived from the Army's "combat functions," which had constituted a fundamental component of the evolution of Canadian Army conceptual thinking since 2001 (see Chapter 4). This interservice influence was unique amongst the doctrine studied. As the other examples examined testify, single-service doctrine is usually influenced by the equivalent service in allied countries, not by another service in the same country.

129. Ibid., 32.

130. Ibid., 32–34.

131. DND, A-GA-007-000/AF-002, *The Aerospace Capability Framework*, 64.

132. DND, A-GA-007-000/AF-004, *Strategic Vectors*, 48–49.

133. DND, *Canadian Forces Aerospace Warfare Centre Concept of Operations (Final)*, June 7, 2005, http://www.airforce.forces.gc.ca/CFAWC/ConOps/ConOps_e.asp (accessed October 29, 2012).

134. Interview with a senior RCAF officer, conducted at the Canadian Forces Aerospace Warfare Centre, Trenton, August 15, 2008.

135. DND, *Canadian Forces Aerospace Warfare Centre*.

136. Interview with a senior RCAF officer, conducted at the Canadian Forces Aerospace Warfare Centre, Trenton, August 15, 2008.

137. DND, B-GA-400-000/FP-000, *Canadian Forces Aerospace Doctrine*, Chapter 2.

138. Ibid., Chapters 1, 3–4.

139. Ibid., Chapter 5.

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In the case of *Canadian Forces Aerospace Doctrine*, the Army's influence came about due to a growing feeling within the RCAF during the early 2000s that "the Army and Navy appears [sic] to have been able to make a politically better case for their service than the Air Force has."¹⁴⁰ Despite this feeling, the writing team had initially planned to produce a more typically structured military-strategic doctrine manual that had a similar content to the doctrine produced by other Western air forces. In spring 2006, the writing team was ordered by the Chief of the Air Staff, Lieutenant-General Steve Lucas, to shelve their previous draft as it was felt the traditional concepts were "too inflexible." The writing team was also ordered to instead develop a functions-based approach (this provides a good example of a service chief exerting indirect influence over the content of doctrine).¹⁴¹ After a brief investigation, Army doctrine was selected as the "blueprint" for this development because Army conceptual development was perceived as comparatively advanced.¹⁴² The land-centric nature of post-9/11 operations (particularly in Afghanistan) and the desire to garner support from the CDS, General Hillier (who had an army background), provided additional incentives for the adaptation of an Army operational concept.¹⁴³

Although the decision by the RCAF to adapt an Army operational concept for use within its own doctrine made operational and tactical sense (since the RCAF was primarily supporting Army operations during the post-9/11 period), the decision was not made solely for this reason. Instead, the Air Force's desire to compete with perceived Army conceptual superiority played a major part in the decision. Yet this motive is unsurprising, as it is a variation of one of the more common themes underlying the production of military-strategic doctrine across all three air forces. By couching its doctrine in terms with which the Army would be familiar, the RCAF was attempting to use its doctrine as a means to explain and justify its *raison d'être* to senior Army officers in a familiar doctrinal language. Although its method and, therefore, its content were unique, the motive underlying the production of *Canadian Forces Aerospace Doctrine* was not.

Another significant benefit of the development of the five functions was that the RCAF appears to have been able to successfully tie the roles of its various communities into this broader conceptual model. This served to remove the problem of acceptance encountered following the release of *Out of the Sun*, and *Canadian Forces Aerospace Doctrine* appears to have been accepted by the Air Force's community-based groups. Finally, the doctrine was more influential than *Out of the Sun* because it was more widely distributed.¹⁴⁴ Although at the end of the period studied it was still too soon to tell what impact *Canadian Forces Aerospace Doctrine* would ultimately have, these factors had already resulted in it achieving greater success than its predecessor.

Summary and Implications: Military-Strategic Air Force Doctrine

An examination of the influences on and intended effects of military-strategic doctrine produced by the RAAF, RCAF and RNZAF from 1987 to 2007 reveals several similarities. As was also the case for the armies and navies (see Chapters 4 and 5), four key influences on doctrine development remained prominent within all three air forces for the entire period. These four influences were the role of individual officers, occasionally in senior positions, but more often as members of doctrine writing teams; the influence of allied doctrinal developments (or in the case of the RCAF after 2005, Canadian Army conceptual developments); the operational experiences of the three air forces; and strategic policy guidance, when it was available.

140. J.L. Christian Carrier, *Transformation of the Canadian Forces: Is Aerospace Power Relevant?* (NSSC 5, Canadian Forces College, June 2003), 20.

141. Email correspondence with senior RCAF officers, January 6, 2009.

142. Interview with a senior RCAF officer, conducted at the Canadian Forces Aerospace Warfare Centre, Trenton, May 24, 2008.

143. Interview with a senior RCAF officer, conducted at the Canadian Forces Aerospace Warfare Centre, Trenton, August 15, 2008.

144. *Ibid.*

As was the case for the armies and navies, for the three air forces the relative influence of each of these factors differed between countries and over time, meaning the relative importance of each factor was different for each of the doctrine manuals. The high degree of influence occasionally asserted by service chiefs provides a good example of this variation. Specifically, in the case of both the first edition of *The Air Power Manual* and *Canadian Forces Aerospace Doctrine*, service chiefs (Air Marshal Funnell and Lieutenant-General Lucas respectively) were highly influential in either enabling the production of doctrine to occur or in indirectly shaping its content. This influence was not as prominent in the case of the other military-strategic air force doctrine publications.

The way in which these service chiefs asserted their influence on the production of doctrine also provides an interesting point of contrast between armies and navies on one hand and air forces on the other. In the case of armies and navies, when service chiefs influenced doctrine production, their influence was usually direct: the chiefs provided personal guidance about what should be included in the doctrine, what its objective(s) should be, or about the military strategy it should establish. The Australian Army's Major General Hickling and the RNZN's Rear Admiral Welch both provide prominent examples of this direct influence. In the case of influential air force chiefs, however, their role was more indirect: their support generated momentum that led to the establishment within each air force of what could be termed an "air power studies and conceptual development centre." These centres then produced and distributed doctrine, with the strong endorsement of the chief.

The reason each of the four key influences identified above was prominent to a different degree during the production of each doctrine publication was the broader political context in which each publication was produced. For example, the RCAF's decision to adapt an army concept for use in its own doctrine was related to both the operational environment (which during the early part of the 21st century was characterized by the pre-eminence of land operations) and by the internal politics surrounding its production. In this case, "internal politics" included the situation within the RCAF (which needed a doctrinal framework acceptable to its capability-based community groups) and within the CF more broadly, which was undertaking a transformation programme under the leadership of General Rick Hillier, who had an army background. Beyond this example, the broader political circumstances are discussed in more detail in the first three chapters.

Another factor that influenced the development of their doctrine was the history and culture of the three air forces. At the opening of the period studied, the cultures of the three air forces were characterized by a strong oral tradition of passing lessons from senior to junior officers. In the RAAF and RCAF, a key motive underlying their doctrine development was the education of their own personnel about the philosophical and theoretical *raison d'être* underlying the role air forces played in achieving strategic policy objectives. Although there was no evidence of this motive being especially prominent within the RNZAF, its decision to adopt RAAF doctrine in lieu of producing its own ensured it had access to a regularly updated series of military-strategic doctrine publications that were designed with the education of air force personnel in mind.

The role military-strategic air force doctrine was intended to play in the education of air force personnel themselves means the doctrine could be said to be *inward focused*. This is in contrast to both army and navy doctrine, which are primarily downward and upward focused respectively.

The education of air force personnel about the philosophical and theoretical underpinnings of their profession was not the only intended effect of military-strategic air force doctrine. Another commonality between the three air forces (including the RNZAF) was that their doctrine was also designed to educate the general public about the role independent air forces had to play in national

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strategy. The prominence of this influence did, however, vary between countries and was consistently more influential in the development and distribution of RAAF doctrine.

An interesting contrast did, however, emerge between the motives underlying the production of RAAF and RCAF doctrine towards the end of the period studied. Although the educational role of doctrine (both internal and external) continued to constitute a motive underlying doctrine development, *Canadian Forces Aerospace Doctrine* and the 2007 edition of *The Air Power Manual* were both motivated by additional factors. In the case of *Canadian Forces Aerospace Doctrine*, it was intended to enable the RCAF to enhance its competitiveness with the Army at the joint planning level and during the formulation of Canadian strategic and acquisitions policy. In the case of *The Air Power Manual*, it was written to enable the RAAF to conceptually adjust to the many new platforms it was set to acquire during the years following the doctrine's release.

The relative weights of the common influences on and intended effects of military-strategic air force doctrine are represented in Figure 5. In this model, solid, thin, black arrows (style 1) represent influences and effects that occurred consistently across countries and publications; dotted, thin, black arrows (style 2) represent indirect influences and effects, or influences and effects that occurred frequently (but not always); and the solid, thick styles 3 and 4 arrows linking doctrine to its educational functions (internal and external) represent the primary inward focus of air force doctrine.

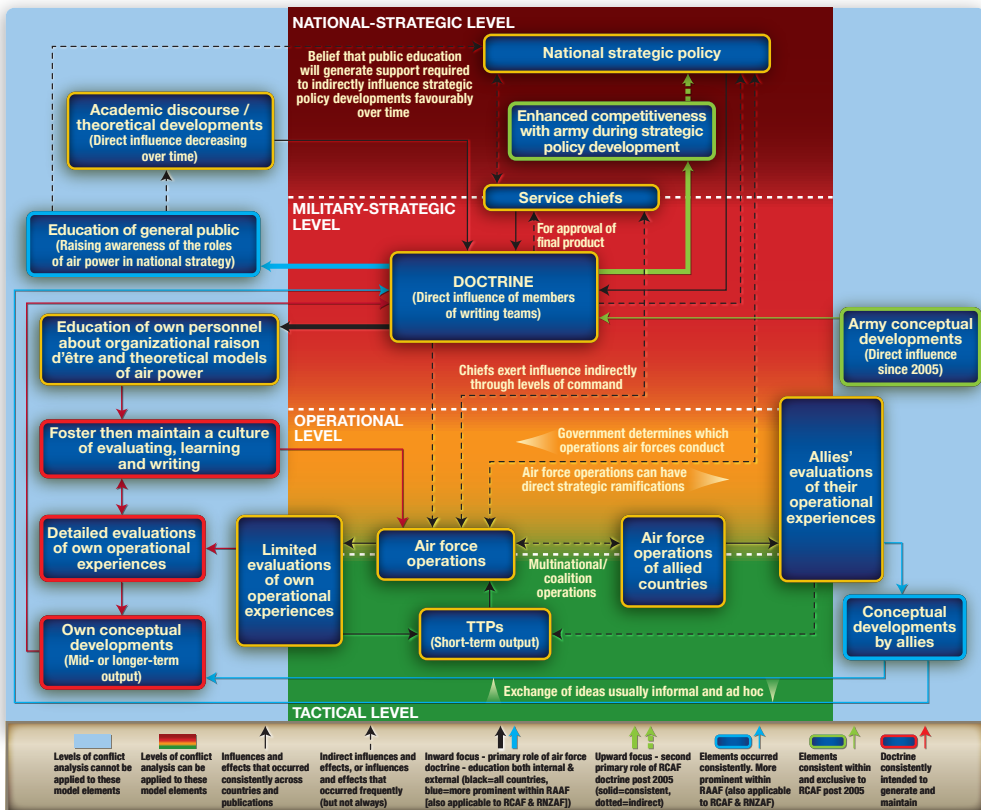


Figure 5. Common influences on and intended effects of military-strategic air force doctrine

The discrepancies in the influences on and intended effects of air force doctrine discussed above are also represented within the model by the use of grey (styles 4 to 7) boxes and arrows. The styles 4 and 6 boxes and arrows represent factors that, although applicable to all three air forces, were more prominent in the case of the RAAF. These factors were the education of the general public about the role an independent air force had to play in achieving strategic policy goals, which was a more consistent influence during the development and dissemination of RAAF doctrine, and the role of allied conceptual and doctrinal developments. While the doctrine of allied air forces influenced doctrine development in all three air forces studied (RAF and USAF doctrine was especially influential, although RAAF doctrine was also influential during the production of the *RNZAF Air Power Doctrine Statement*), after 2005 the RCAF was instead influenced primarily by Canadian Army conceptual developments.

This influence during the production of RCAF doctrine after 2005 is represented by the use of style 5 boxes and arrows. The Air Force's desire to influence CF joint planning and Canadian strategic policy formulation, which was one of the primary motives underlying the decision to adapt an Army concept for use within Air Force doctrine, is also shown with style 5. By coincidence, this resulted in a major motive underlying the post-2005 production of RCAF doctrine to align with the primary motive underlying the production of military-strategic naval doctrine.

Most interesting, however, are the style 7 boxes and arrows, which represent the most significant and most consistent intended effect of air force doctrine. These boxes are what doctrine is intended to *generate* within air forces themselves—a culture of evaluating, learning and, most importantly, writing about operational experiences and strategic air concepts. This could then filter back into future doctrine development or into operational conduct (perhaps through the subsequent production of operational and tactical doctrine).

Additionally, the model portrays the role of strategic policy, influential individuals (service chiefs and members of the doctrine writing teams themselves), the academic discourse about air power, and the conduct of operations. Although service chiefs played a less direct role in the development of air force doctrine, their influence—as well as the influence of members of doctrine writing teams and strategic policy—is nonetheless similar enough to the armies and navies studied to enable it to be represented in the same way. While the academic discourse was accorded greater prominence within air force doctrine than within army doctrine, its influence decreased over time, as earlier editions of doctrine allowed internal conceptual development to gain momentum (and, in the case of the post-2005 RCAF, as it was substituted with the adaption of Army conceptual developments).

Due to the nature of air force operations, the link between the operations of the air forces studied and the operations of allied air forces is represented in the same way as the link between army operations is represented in model about army doctrine (see Figure 3). As with armies and navies, air forces have always conducted at least limited evaluations of their operational experiences, and these have generally led to the dissemination of TTP. The link between operational evaluation and higher-level doctrine is, however, still a tenuous one for the air forces studied. Where the link does exist, it is because it has been brought about as part of the written culture earlier editions of doctrine were influential in creating.

Overall, the development of military-strategic air force doctrine by the RAAF, RCAF and RNZAF has been part of an ongoing effort to educate both air force personnel and the broader community about the philosophical and theoretical underpinnings of air power. In the case of air force personnel,

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this education was intended to encourage a deeper understanding of the theoretical foundations of air power. In the case of the broader community, this education was intended to promote an understanding of why an independent air force was in the national interest. For all three air forces, it was this dual motive that drove the educational focus underlying doctrine development.