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## **Air Power and the Defence of Australia** Alan Stephens

This paper addresses air power and the defence of Australia, with special reference to the recent Defence White Paper, *Defending Australia in the Asia Pacific Century: Force 2030*.<sup>1</sup> Two contextual points need to be made at the outset, noting that without context nothing we propose has any meaning.

First, the practice of too many commentators of equating a military capability with the mere possession of platforms must be rejected unreservedly. For example, it is frequently asserted or implied in the daily media and aviation magazines, and on the web, that the acquisition by country 'X' of a handful of MiG-29s, or by country 'Y' of some Su-30s, in itself constitutes a capability, and can therefore be construed as a threat. This is patently untrue, to the extent of being almost willfully misleading.

The fact is, since air power was first used methodically almost one hundred years ago, in World War I, it has worked best when applied as a system. That system is comprised of social, intellectual, organisational, and technological components. It starts with the national culture and political process, which between them shape how the polity goes about its business. In the case of an air force, the system then incorporates recruitment, training, education, research and development, industry, an enormous range of ground- and air-based technologies, workplace practices, and so on.

When translated into an operational structure, the resulting system is invariably complex; and during the evolution of air power it has become increasingly so.

Air defence provides an instructive case study. We could start with the surprisingly sophisticated Ashmore system developed by the Royal Flying Corps to defend London in World War I; then progress to the ADGB command – the Air Defence of Great Britain command, which in World War II became Fighter Command - which, among other things, included the magnificent Chain Home radar network; before arriving at the exceedingly complex and exceedingly effective IADS – the Integrated Air Defence System - that today is a feature of any advanced air power.

Within the capability that such systems generate, the platform - that is, the aeroplane - is unquestionably vital, but to do its job fully it is reliant on many other no less vital components. Put it this way: if the Battle of Britain were re-fought with the Royal Air Force flying Bf-109s and the Luftwaffe flying Hurricanes and Spitfires, and everything else remained the same, the RAF would still have won.

If just one conclusion were to be drawn from the truism that air power is a system, it is that superficial reporting engenders superficial comprehension.

The second contextual observation concerns Australia's military outlook. Again, the issue turns on simplistic analyses, in this instance as they relate to the Asia-Pacific region. Two strategic realities must be made crystal clear. First, it is highly unlikely that Australia will go to war with China under any circumstances; and it is certain that Australia will not go to war with China by itself. And second, it is highly unlikely that Australia will go to war with India under any circumstances; and it is certain that Australia will not go to war with India by itself. We should not, therefore, invent threats, or fantasise about force structures, based on either of those implausible scenarios.

We can now turn in detail to the White Paper, *Defending Australia in the Asia Pacific Century: Force 2030* (WP 2009), and discuss its implications for air power.

WP 2009 has reasserted the immutable force of geography as a strategic determinant. There is a very good reason for this - propinquity is the most common factor in human conflict. Even a cursory reading of history will reveal that most disputes occur between contiguous nations, tribes, and interest groups. Other, more emotional factors such as ideology, religion and race are also likely to be involved, but geography is a near-constant.

Consequently, using ‘proximity’ as a primary element in security determinations (and, therefore, in defence policy and force structuring) is more likely to lead to useful answers than is the alternative of making somewhat abstract estimates based on alleged national interests, noting that interests ‘can be jarred and reshaped in an instant, and then refigured with incredible speed’.<sup>2</sup> Here, we might note as examples the Molotov/Ribbentrop pact that facilitated the start of World War II, the fall of Singapore, the collapse of the USSR, September 11, and so on.

No less important than recognising the reality of location is WP 2009’s implicit acknowledgment that the era has gone in which predominantly white, predominantly European, predominantly Christian armies could stampede unquestioned around the world, invading countries their governments either don’t like or want to control. The practical and ethical effects of globalisation have made that kind of mentality obsolete. Perhaps more to the point, the subjects of invasion have learnt how to exact costs that far exceed any benefits an occupying force might realise.

These days, once we deploy an invasion force, the Taliban, al-Qa’ida and their ilk fight on their terms, not ours. Thus, at present in the Middle East and Central Asia, the most advanced armies the world has ever known are spending billions of dollars trying unsuccessfully to counter homemade roadside bombs and primitive suicide bombers.

Those conclusions indicate that the West needs to reassess its attitude towards formulating military strategy. It is to the credit of the Australian Government and the Australian Defence Organisation that they have done precisely that. White Paper 2009 has broken with the failed model of the recent past, and in the process has provided a rational template for Australia’s distinctive military/geostrategic circumstances for the next twenty years.

It may be helpful briefly to track the circumstances that have led us to this position. Since federation, Australian defence strategy has oscillated between two main forms, expeditionary campaigns, and the defence of Australia, with the former being the dominant model. Within that broad framework, Australian forces commonly have been subsumed as a component part of a larger coalition force, a fate which in general has rendered irrelevant any Australian voice in shaping higher strategy.

Moreover, and without denigrating the courage and professionalism of the service-men and-women concerned, frequently that fate has also rendered irrelevant Australia’s warfighting efforts. For example, it may be displeasing to hear but it is nevertheless true that in Vietnam and Iraq, the operations conducted by Australian Army, Navy and Air Force contingents were of little consequence to the ultimate outcome.

Indeed, within the expeditionary model generally – a category that covers some nine decades - few instances can be found in which Australian forces have played an independent or decisive role. In other words, an inference of political tokenism as the *raison d’être* for our expeditionary campaigns would be justified.

Given that the Australian Defence Force has spent the last nineteen years fighting and losing ill-considered expeditionary wars of choice in the Middle East and Central Asia, the explicit inclusion of ‘Asia Pacific’ in WP 2009’s title is instructive. The significance of this geographical characterisation of national defence priorities cannot be overstated. It is a shift of the first order, which will do nothing less than redefine Australia’s defence strategy, away from expeditionary operations, which by definition are *responsive* in nature, towards a posture that in the first instance will seek to *shape* and to *deter* in our region.

Simultaneously, the policy places a much sharper focus on the critical distinction between wars of choice and wars of necessity, which in turn should lessen the risk that Australia will be drawn in to unnecessary, unwinnable wars as a junior member of a coalition. The end result should be a greater degree of defence self-reliance than has previously been the case. By advocating a proactive posture, WP 2009 offers the potential for the ADF to become a leader, not a follower.

Australia’s unique strategic geography as an island continent is central to WP 2009’s implied policy of shaping and deterring within our region. As a wealthy, educated, technologically advanced middle power, Australia is able to support a very high quality defence force. Furthermore, that force does not have to share land borders, an immense strategic advantage which not only removes the threat of substantial,

short-warning, cross-border incursions (which might range from refugees, to terrorists, to full-scale military invasions), but also eases the demand on Australia's relatively small population for defence manpower.

This fortunate combination of first-world status and the physical protection provided by an air-sea barrier enables the ADF to pursue a solution to Australia's military security needs based on a small but highly skilled workforce and advanced technology. Moreover, that solution – to shape and to deter, and to respond only as a last resort, instead of as a first resort - is consonant with the geostrategic and ethical imperatives of the 21<sup>st</sup> century.

Also central to WP 2009's logic is the changing balance of power in the Asia-Pacific, where China will become more influential and the United States relatively less so. By refocusing the ADF to better address this seminal shift, WP 2009 is not implying that China is any kind of threat but is simply making a prudent adjustment to objective circumstances.

Having acknowledged Australia's comparative geostrategic advantages, WP 2009 then details the force structure needed to implement the resultant concept of operations.

Much of WP 2009's post-release publicity centred on the proposed acquisition program for the Royal Australian Navy; in particular, considerable attention was given to the decision to assemble twelve new submarines fitted with long-range land-attack cruise missiles. Other high-profile planned naval capabilities, including new destroyers and frigates also armed with land-attack cruise missiles, and at least 24 new combat helicopters, added to a general impression that Australia was adopting a maritime strategy reliant on surface and sub-surface warships. That, however, is a narrow interpretation of the term 'maritime'.

Perhaps some commentators have been subliminally influenced by the quaintly expressed reminder in the national anthem that 'our land is girt by sea'.<sup>3</sup> Australia is, of course, like every other country, also girt by air, a more pervasive and, in the 21<sup>st</sup> century, far more flexible medium for pursuing military influence than either sea or land. Any shaping and deterring the ADF pursues during the Asia-Pacific century will be at least as reliant on the air component of its maritime forces as on its navy component, probably more so.

The relatively restrained media response to WP 2009's acquisition program for the Royal Australian Air Force was perhaps attributable to the fact that none of the main announcements was unexpected. But familiarity should not be an excuse for reporters beguiled by the spectre of missile-equipped submarines to let their attention wander from the implications of the ADF's emerging air power system.

Moreover, given the budgetary pressures WP 2009 is certain to encounter, it is essential to understand that most of the components of the air power system are either in place or are very close to being so. These include: the Jindalee over-the-horizon radar network; the F-35 Joint Strike Fighter; the Wedgetail Airborne Early Warning and Control platform; the F/A-18F Super Hornet; the C-17 long-range airlifter; and the KC-30A multirole tanker-transport. By contrast, Navy's proposed submarines, destroyers and frigates will all be new-build, and will not enter service for perhaps 25 years, if at all.

Force structuring is a complex business, evidenced by the fact that many countries get it wrong more often than not. Vested interests, politics, inter-service rivalries, insufficient funds, the demands of local industry, and having to persevere with legacy platforms are only some of the complicating factors. The Australian Defence Organisation has been subject to all of those pressures, and more. Against that background, it needs to be said that the ADF's emerging air power system will be exceptional, by any standard.

A force which seeks to shape-deter-respond, in that order, must possess credible capabilities in the following domains:

- High quality people
  - Incorporating recruitment, training, education, and retention practices
- Excellent command and control, and planning
- Pervasive, continuous, real-time information, surveillance and reconnaissance
- Powerful, quick reaction, small footprint, long-range strike forces

- Especially submarines, special forces, and strike aircraft
  - All with advanced weapons and sensors
- A defensive component relevant to geographic imperatives
- Integrated systems across all three combat environments (air, sea, land)
- Skilled stabilisation/intervention forces, and
- Sustainability
  - Logistics
  - The ability to improvise technologically in-country.

As well as providing the human and technical wherewithal to apply force effectively, expertise in those domains creates a regional awareness that the force is both credible and worth engaging with. In other words, interest groups are likely either to want to form an affiliation of some kind – that is, we are shaping - or will be intimidated – that is, we are detering. All of the necessary capabilities are present in WP 2009's blueprint for Australian air power.

High quality people and a sustainable organisation must be the start point for the Australian way of war. The point bears repeating: too many commentators continue to equate 'hardware' with 'capability', in the process ignoring the reality that hardware by itself is useless.

For example, much has been made in recent years of the arrival in the Asia-Pacific region of Russian fighters like the MiG-29 and the Su-30, to the extent that some critics have claimed that Australia's long-standing air dominance will be lost. Such assertions misrepresent the systemic nature of air power. Sustainability illustrates the point.

Over the past 40 years, on combat operations in the Middle East and Central Asia, advanced air forces from countries such as the United States, the United Kingdom, Israel, Canada, France and Australia have routinely achieved aircraft availability rates of 90%, often 95%. By comparison, air forces operating Russian strike/fighter fleets have struggled to achieve 50%. Fleet numbers thus are effectively halved even before combat starts, and before other systemic liabilities begin to further erode availability rates. Russian logistics support is abysmal; systems integration weak; and the ability to adapt, modify and upgrade on the run poor.<sup>4</sup> Similar kinds of comparisons can be made regarding campaign planning and warfighting practices.

The end result is that Western forces have without exception achieved air supremacy within days of a campaign's start, as demonstrated by Operation Desert Storm in 1991, Operation Deliberate Force in 1995, Operation Allied Force in 1999, Operation Enduring Freedom in 2001, Operation Iraqi Freedom in 2003, and so on.

It follows from this that the single most important section of WP 2009 is Chapter Fourteen, 'People in Defence'. Indeed, people are not merely 'a' key strategic priority as the paper states, they are the priority.<sup>5</sup> Absent the right people and a military force will unravel, period. Questions have already been asked about Australia's capacity to pay for WP 2009's equipment acquisition program. The issue here is that even if a funding shortfall does threaten the paper's force structuring logic, on no account should it be allowed to threaten the ADF's investment in first-class people. Given the ADF's long-standing difficulty in attracting and retaining suitable people, staffing is likely to be the greatest challenge to the implementation of WP 2009.

Turning to equipment, the air power component of WP 2009 reflects the concept of operations the RAAF and sections of the Defence scientific community have been patiently advocating since the early 1970s, when capabilities such as Jindalee, air-to-air refuelling, and AEW&C were first mooted. That some 30 years later the network of systems needed to control and manage events in our region is finally emerging in an organisationally robust and technologically credible form is nothing short of remarkable, and is a testament to the vision and resilience of those responsible, both uniformed and civilian.

Jorn has been working satisfactorily for some seven years now and will continue to become more effective as operational techniques and technical boundaries are extended. The exceptional situational awareness Jorn provides will be considerably enhanced by the introduction into service of six Wedgetail AEW&C platforms. WP 2009's endorsement of Wedgetail is noteworthy in view of the technical problems the program has experienced, especially with its multi-role electronically scanned array radar. If Wedgetail

fails to meet the ADF's operational requirements, WP 2009 will lose some of its logic, so recent positive reports are welcome.<sup>6</sup> So too is the sound progress of the KC-30A multirole tanker-transport program. Derived from the Airbus A330, the KC-30A will add a new dimension to the ADF's capacity to manoeuvre rapidly over vast distances.

Important as AEW&C and the MRTT will be, the centrepiece of the ADF's ability to shape, deter and respond throughout the Asia-Pacific region for the next two decades will be Defence's preferred option for a new air combat capability, the F-35 Joint Strike Fighter. WP 2009 confirmed the government's intention to acquire a fleet of 'around' 100 F-35s to equip four operational squadrons, with the initial tranche to comprise 'not fewer' than 72 platforms.

The subject of extraordinarily naïve and misinformed criticism for the past three years, the F-35 will elevate the ADF's joint ISR, strike, and air control capabilities to new levels. The F-35's full suite of capabilities has been examined in detail elsewhere, but several warrant brief mention to illustrate the quantum advance the aircraft represents in situational awareness. These are: the advanced networking capabilities, including inter-flight data links; the exceptional situational awareness systems; the electronically-scanned array radar; and the distributed aperture system, which uses multiple infrared sensors to generate a full spherical image and allows the pilot to 'look' through the airframe via a helmet mounted display.

While the distributed aperture system's manufacturer, Northrop Grumman, may be overstating the case by claiming that it will make manoeuvrability 'irrelevant', the technology has the potential to fundamentally change within visual range air-to-air combat.<sup>7</sup> When the F-35 enters service, it will be the only fighter in the world with such a system.

Some comment is necessary on the F-22. There is no dispute that the F-22 will be the world's pre-eminent control of the air fighter for the next two decades. It is optimised for the role, with its all-aspect stealth, supercruise, and complementary avionics and weapons systems reportedly generating a kill/loss ratio of 20:1 in exercises and USAF simulations. It will be superior to the F-35 in the air-to-air role. However, the F-22 does not meet the full range of requirements the ADF has defined for the new air combat capability. It has a limited strike capability, and will not be able to carry the 2000 pound class of weapons that are an essential part of the F-35's inventory. The F-22's radar currently has neither a ground mapping facility nor a precision targeting system. While there are plans to upgrade the F-22 to the F-35's standard, there are doubts whether funding will ever be available. Even if such upgrades are made, the F-22 will never have the F-35's extensive suite of electro-optical sensors.

In short, despite its air-to-air excellence, the F-22 remains a limited warfighting system which will be inferior to the F-35 in air-to-surface strike and as an ISR system, both of which are essential roles for the ADF. None of the foregoing will matter, of course, if the American Administration's decisions to halt production of the F-22 and to prohibit overseas sales hold firm, as seems likely.

Returning to the F-35, the RAAF's approach to the human factors dimension of the acquisition program - that is, to the dimension that acknowledges that acquiring a capability involves much more than simply buying hardware - has not been neglected. Ever since Australia joined the JSF program as a partner in 2002, RAAF pilots have been periodically visiting the United States to fly the F-35 simulator in order to develop warfighting tactics relevant to the aircraft's unique combination of characteristics, such as stealth, advanced networking, and the distributed aperture system. Additionally, for some two years, the RAAF has had a pilot on exchange with a USAF F-22 squadron, accumulating experience on the world's only other fifth generation fighter which will be directly transferrable to the F-35.

The Defence White Paper's policy on the F-35 was supported by confirmation that the 24 F/A-18F Super Hornets ordered as bridging capability should start arriving next year. Also confirmed was the intention gradually to replace the Super Hornets with up to 28 additional F-35s as the new air combat capability program progresses. An introduction date for the F-35 was not given but it would be optimistic to expect the first aircraft to arrive much before 2018. In the meantime, the Super Hornets will be an excellent substitute.

Because 12 of the Super Hornets will be prewired for possible conversion to the EA-18G 'Growler' electronic warfare variant, there has been some speculation that the Hornets might be retained regardless of the final number of F-35s. The 'standard' F-35 will, however, come with an inherent electronic warfare suite, primarily courtesy of its powerful AESA radar.

At this early stage it would be sensible not to make too much of the nominal in-service timings indicated in WP 2009 for the air combat force, noting that most are deliberately vague. The two key points

are, first, that a single-type fleet – namely, all F-35 – would offer valuable operational, engineering, and administrative savings; and second, that regardless of the eventual composition, the ADF will have the best air combat/ISR/surface attack system in the region.

More needs to be said about ISR, which is fundamental to WP 2009's implied concept of operations, but before doing so some important developments in air manoeuvre should be outlined.

The ADF's capacity to position forces, weapons and supplies over a range of distances and within a variety of topographies will be enhanced by the decision to acquire two additional C-130J Hercules, and up to ten 'light' fixed-wing transport aircraft (reportedly the C-27 Spartan is favoured), while simultaneously retiring 12 elderly C-130Hs. Substantial additional capacity will be added by the five KC-30As, each of which can carry around 270 troops plus cargo. Battlefield manoeuvre will be boosted by the replacement of the Army's Blackhawk and Chinook helicopters with more capable platforms.<sup>8</sup>

The maritime nature of the Asia-Pacific region means that most manoeuvre operations conducted by the ADF's air transport assets are likely to fall within the 'respond' category of the strategic continuum of shape-deter-respond; that is, they are unlikely to be as important to WP 2009's implementation as will be ISR and strike.

Information/Surveillance/Reconnaissance has been left until last, because while no individual system can achieve its full potential without being integrated into the total force, ISR is the ADF's single most important technological capability. Consequently, WP 2009's announcement that the ADF will acquire its own remote sensing satellite, probably fitted with a high-resolution, cloud-penetrating, synthetic aperture radar, is enormously significant.<sup>9</sup> So too is the decision to buy up to seven high altitude, long endurance, unmanned aerial vehicles, when previously there had been some doubt about this program. Space and UAVs are an essential part of the future of air power.

The new UAVs – possibly Global Hawk - will be complemented by eight manned aircraft, almost certainly the Boeing 737-derived P-8A Poseidon, which will replace the RAAF's AP-3C Orions. Although described in WP 2009 as 'maritime patrol' aircraft, the P-8s are likely to devote much of their effort to broader ISR tasks, including cooperation with land forces, as is presently the case with the AP-3Cs deployed to the Middle East area of operations.

The ADF's networked system of JORN, AEW&C, F-35s, F/A-18Fs, KC-30As, surveillance satellite, UAVs, P-8s, RAN surface and sub-surface units, and Army formations (especially special forces), will represent a fundamental shift in the ADF's approach to, and focus on, ISR. The end result will be an unsurpassed knowledge capability in the Asia-Pacific region.

Given the pressures associated with limited funding, the demands of local industry, and political and inter-service rivalries, the air power component of WP 2009 represents an exceptional outcome. Two areas of concern nevertheless need to be raised.

The first is the use of space. As the White Paper notes, space assets are increasingly important to military operations. Advanced defence forces are already acutely reliant on space-based information, communications, and navigation systems, and will become even more so. Consequently, WP 2009's declaration that 'a career stream' will be developed for space specialists in the ADF is to be commended, but whether or not the initiative ever amounts to anything will be one of the more interesting promises from the Paper to monitor over the next few years.<sup>10</sup>

Missile defence is the second area of concern. At a time when the proliferation of short-, medium- and long-range missiles is one of the major features of armed conflict and international tension, WP 2009 has taken a hands-off approach to the problem, rejecting the idea of 'a unilateral national missile defence system' and undertaking only to 'review' its policy annually.<sup>11</sup>

But notwithstanding that declaratory policy, the ADF seems gradually to be assembling a de facto missile defence system, through the sensors and weapons associated with JORN, the imaging satellite, AEW&C, the F-35, the F/A-18F, and the RAN's air warfare destroyers and Cooperative Engagement Capability. Especially noteworthy for control of the air in general and missile defence in particular is the decision to fit the air warfare destroyers with the Standard Missile-6, a top-of-the-range weapon which

should have a genuine capability against ballistic and cruise missiles, among other targets. It is an intriguing business.

## Conclusion

Two features define the 2009 White Paper as one of the most significant statements of national defence policy in decades. The first is the fundamental shift away from ill-conceived expeditionary wars of choice, invariably as a non-voting junior partner, towards seeking to shape and to deter within the Asia Pacific region, as an independent leader. The second is the Paper's implicit acknowledgment that Australia's greatest geostrategic strength is derived from the reality that the country is 'girt' by air and sea, and that its military security will be best served if the ADF can exploit that unique comparative advantage.

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<sup>1</sup> Department of Defence, *Defending Australia in the Asia Pacific Century: Force 2030* (Canberra: Commonwealth of Australia, 2009).

<sup>2</sup> Joshua Cooper Ramo, *The Age of the Unthinkable* (London: Little Brown, 2009), pp. 33-36.

<sup>3</sup> The national anthem 'Advance Australia Fair' is derived from a 19<sup>th</sup> century patriotic song.

<sup>4</sup> See for example Stéphane Lefebvre and Roger McDermott, 'Air Power and the Russian-Georgian conflict of 2008: lessons learned and Russian military reforms', in *Royal Air Force Air Power Review* (Volume 12, Number 1, Spring 2009), esp. pp. 104-106.

<sup>5</sup> WP 2009, p. 113.

<sup>6</sup> Patrick Walters, 'Flying colours for Wedgetail in flight tests', *The Australian*, 19 May 2009.

<sup>7</sup> Bill Sweetman, 'All-Seeing Eye', *Defense Technology International*, an editorial supplement to *Aviation Week & Space Technology*, October 2008.

<sup>8</sup> The Army's six CH-47D Chinooks will be replaced by seven CH-47Fs; while Army Blackhawks and Navy Seahawks will be superseded by a shared fleet of 46 MRH-90 helicopters.

<sup>9</sup> WP 2009, p. 82.

<sup>10</sup> WP 2009, p. 85.

<sup>11</sup> WP 2009, pp. 85-86.