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THE ROLE OF AUSTRALIAN LAND-BASED AIR POWER IN A MARITIME STRATEGY

By

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About the Author

Wing Commander Michael Maher was born in Brisbane on 25 April 1955 and educated in Sydney. He joined the Royal Australian Navy in 1975 and served as an A-4 Skyhawk pilot on HMAS *Melbourne* for six years and flew AV-8B Harriers on exchange with the USMC for three years. Following disbandment of the Fleet Air Arm, Wing Commander Maher transferred to the RAAF to fly the Mirage III. After completing FCI course in 1986, he served as XO of 79SQN in Butterworth, XO of 76SQN and XO of 2OCU flying F/A-18s. Following Army Command and Staff College in 1994, he served as CO of 75SQN for three years and is now completing USAF Air War College in Alabama.

INTRODUCTION

> If a nation be so situated that it is neither forced to defend itself by land nor induced to seek extension of its territory by way of the land, it has, by the very unity of its aim directed upon the sea, an advantage.
>
> Alfred Thayer Mahan

Australia shares its exceptionally favourable geographic situation with only a few other industrialised nations. However, unlike the UK, USA and Japan, Australia has never developed its maritime forces in a force projection role (except as a response during World War II). While conferring an advantage, the maritime situation of a nation also demands that it must be willing and able to protect its lines of communication with its trading partners. Australia has, until recently, relied on its large and powerful allies to assist in this task. As a result, the Australian Defence Force (ADF) has never clearly outlined how it would defeat attacks on Australia or maintain its lines of communication.

The ADF is a small but very proficient force. Can such a force with limited but highly capable equipment and personnel defeat a numerically larger force in the maritime environment? It is incumbent on such a force to continuously think about the problems, analyse the elements and synthesise new ways to approach the task. The data bank of solutions and the process of developing them are the foundations of victory.

This paper examines how Australian air power might be used in a maritime strategy. The end states of conflict and the ways and means of air power employment will be developed through historic examples, current doctrine, and the ADF's capabilities and limitations.

Figure 1 - Overview of Paper

The start point is the background and logic of Australia's security policy. The essence of that policy derives from Australia's strategic geography, its relationships and treaties, its major trading partners, and regional economics.

STRATEGIC GEOGRAPHY

Strategic geography and the posture of a nation's defence force determine its most effective force structure. Australia lies at the South-Eastern extremity of South-East Asia, on the western boundary of the South Pacific rim. The nearest point of the Asian continent lies approximately 3000 kilometres away. Over 13,600 islands stretch over 5200 kilometres through the Indonesian archipelago to Australia's north coast. Australia exists within a number of paradoxes: it has the largest landmass (in South-East Asia) but the lowest population density; it has vast natural resources, but in relation to other regional nations under-exploits them in favour of conservation and an economic drive towards manufacturing industry; is the youngest culture in the region but has the oldest and most stable government structure; and has one of the smallest military forces but has never had to fight a conflict on its own territory (although parts of northern Australia, especially Darwin, were subjected to heavy Japanese bombing raids during World War II).

Neighbors

Indonesia. Indonesia is Australia's most important strategic relationship in South-East Asia. This is not only because Indonesia is Australia's closest South-East Asian neighbor, but also because its combination of population, territory, economic potential and political force makes it the most influential country in South-East Asia. This potentially gives it a substantial role in the Asia-Pacific region as a whole. Indonesia now sees its security interests and Australia's more closely aligned and is prepared to work with Australia in pursuing common objectives.

Papua New Guinea. Australia's strategic interests in Papua New Guinea are especially compelling because of its size, proximity (only 130 kilometres north) and troubled military infrastructure. Australia aims to maintain its role as Papua New Guinea's key defence partner. The Joint Declaration of Principles (JDP) reflects the expectation that Australia is prepared to commit forces to resist external aggression against Papua New Guinea.

Strategic Points

Strategically, control of certain points will give a country defensive or offensive advantage. These points for Australia are: Cocos and Christmas Islands located south of Indonesia; Timor, which is the nearest island big enough to sustain a base of operations directed against Australia; and Papua New Guinea (PNG)/Irian Jaya. Cocos and Christmas Islands are Australian Territories, while Irian Jaya and Timor (east and west) are Indonesian territories. PNG is an independent nation with close links to Australia. Indonesia is currently negotiating with former East Timor officials to confer autonomy on the former Portuguese colony.

Defensively, the ADF must control Timor and PNG/Irian Jaya to secure the mainland from attack. Control of both points would allow a threat to form a barrier to stop Australian air and sea access to Indonesia and the world's trade routes. Offensively, Cocos and Christmas Islands are well-placed to project maritime power into the Indonesian archipelago.
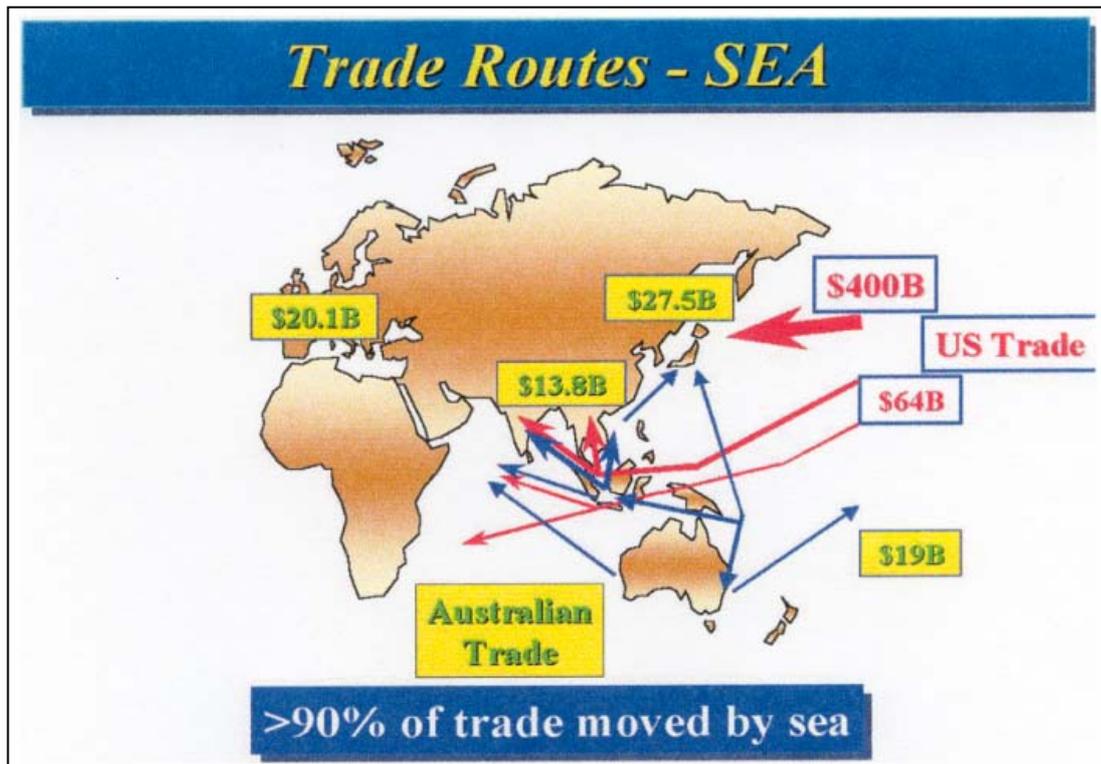

Figure 2 - World Trade SEA Routes

Major Trading Partners

Australia exported $64.6 billion in 1997 to markets in Japan ($15.9 billion), ASEAN ($8.8 billion), EU ($7.3 billion) and the US ($5 billion). Most of this trade is by sea and is truly global in nature. Imports likewise are truly global with the majority of the $64.4 billion market in 1997 coming from the US ($14 billion), EU ($12.8 billion), Japan ($11.6 billion) and ASEAN ($5 billion). Most vessels will join the world trade routes through the Singapore - Malacca Strait area.[1] Free access through the Indonesian archipelago is vital to Australia's trade. This right is assured in the International Law of the Sea (Article 31).

Summary

The key to our strategic geography is the reality that any attack on Australian territory would have to be launched and sustained across the maritime approaches. These maritime approaches and the vast Australian territory provide tremendous strategic

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[1] Nicholson, M., *Aussie Fact Book,* Penguin Books Australia, Ringwood, Victoria, 1997, p 38.

depth. Australia's strategic geography is a decisively positive factor in our ability to defend the country.[2]

AUSTRALIA'S SECURITY POLICY

> Maintaining confidence in our ability to defeat an attack on Australia is, in a sense, the focus of all our defence activities.
>
> Ian McLachlan, Minister for Defence, SR 97

The essential elements that underpin Australia's security include:

    a.   The centrality of the Asia-Pacific region to Australia's security.

    b.   The significance of economic growth in East Asia to Australia's strategic environment.

    c.   The challenge of new power relations which result from that growth.

    d.   The special importance of the relationships between China, Japan and the United

    e.   States for the security of the entire region.

    f.   The unique place Indonesia has in shaping Australia's strategic environment.

    g.   The importance of maintaining, as an integral part of our wider international policies, a strategic posture which includes both the maintenance of effective defence capabilities and the maintenance of active involvement in regional strategic affairs.[3]

National Stance

A Maritime Concept. Australia's strategic geography suggests a plan of operations that concentrates on defeating aggressors in the maritime approaches before they reach Australian territory. Operations in the maritime environment can exploit the inherent advantages of strategic geography better than operations on Australian territory. Ships at sea and aircraft over water are relatively easy to detect and attack at long ranges. Land forces are extremely vulnerable when being transported by sea or air, and their vulnerability persists because they need to be continuously re-supplied. If Australia maintains the capability to deny the air and sea approaches to hostile ships and aircraft, then it can prevent hostile forces from reaching its territory or operating on it for long.[4]

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[2] *Australia's Strategic Policy 97,* Department of Defence, Canberra, 1997, p 44.
[3] *ibid.,* p 7.
[4] *ibid.,* p 4.

Alliances and Treaties

ANZUS

Australia's principal defence alliances, involving formal, reciprocal undertakings to act together in case of conflict, are with the United States and New Zealand. Our alliance with the United States is by any measure our most important strategic relationship. This cooperation provides Australia's forces with technology and information, which is fundamental to our defence capability. Underlying this peacetime cooperation is the formal agreement to come to one another's aid in a crisis, but as Article 4 of the ANZUS Treaty puts it:

These undertakings do not amount to a guarantee by the United States of Australia's security. Indeed, the Treaty specifically requires each party to attend to its own capabilities. Nor does it amount to a promise to send armed forces in a crisis.

Nevertheless, it provides a sound basis for Australia to plan on the expectation of substantial non-combat support from the United States in a crisis. Moreover, it makes the commitment of US combat forces to Australia's defence sufficiently likely to figure in the calculations of any would-be aggressor.[5]

Five Power Defence Arrangement (FPDA)

The FPDA remains an effective and valuable element of Australia's regional defence presence. It embodies a clear commitment by the UK, Australia and New Zealand to support the security of Malaysia and Singapore in a crisis caused by external aggression, though the commitment is not reciprocal.[6]

This arrangement effectively creates a multi-front engagement for any adversary threatening Australia, Malaysia or Singapore. Australian air and maritime forces can be deployed throughout the Malaysian peninsula region to strike at either the Asian mainland, maritime approaches to Australia or the Indonesian archipelago itself.

Regional Expectations

Nations within Australia's region of interest tend to view Australia as a fair and trustworthy ally. Every country within Australia's immediate sphere of interest has some type of defence understanding with Australia (ANZUS, FPDA, Bilateral agreements with Indonesia and PNG). These countries would expect assistance from Australia if they were threatened.

Economic Base

The Government has committed to maintain the Defence funding base for the 1998-99 Budget and the 1999-2002 Forward Estimates at the current level.[7]

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[5] *ibid.,* p 18.

[6] *ibid.,* p 23.

[7] *1998-99 Defence Budget Brief,* Resources and Financial Programs Division, Canberra, May 1998, p 3.

Table 1 - Defence Outlays as a Percentage of GDP
International Comparison of Latest Data (1998)

NATION	PERCENTAGE OF GDP
Canada	1.1%
United States	3.1%
United Kingdom	2.8%
France	2.4%
Netherlands	2.0%
Sweden	2.1%
Germany	1.3%
Philippines	**1.5%**
Indonesia	**0.9%**
Singapore	**4.9%**
Malaysia	**1.6%**
Thailand	**1.3%**
India	**2.4%**
New Zealand	**1.0%**
Australia	**1.9%**

Note: Countries in **bold** are within Australia's area of strategic interest.

With the exception of India and Singapore, Australia has the highest defence outlays (as a percentage of GDP) of any South-East Asian or South Asian country. The strong Australian economy, government guarantees of funding stability and the Asian economic crisis should allow this position to be sustained well into the future.

THE IMPORTANCE OF END STATES

War is the greatest affair of state, the basis of life and death, the Tao to survival or extinction. It must be thoroughly pondered and analysed.

Sun Tzu

In the triad of ends-ways-means, the ends are the most important element. Military leaders must have a clear understanding of the objectives of the conflict. The national commitment must complement these objectives. Obviously, objectives and commitment will determine the type, duration and intensity of the conflict. Military leadership must analyse these objectives to determine whether they are attainable with the specified level of commitment.

The people (government) must decide the objectives of the conflict and the national commitment. These factors will determine the national military strategy. If the desired end state and policy are flawed then it is the duty of the military to advise the people (government). The only way to see flaws is to analyse the policy, compare it to theory and practice, and to calculate the second and third order effects.

Theoretical Basis

Clausewitz. In On War Clausewitz stated that policy determines almost everything - purpose (aims), scope (duration, breadth, type of war) and intensity. Additionally, Clausewitz believed that war is always subordinate to policy, war is a tool of policy, and that war is a continuation of policy with admixture of other means. The 'end state' of war is described as 'peace on favourable terms' by Clausewitz. He believed that the terms equal war aims, and that they can change during war. These terms are the reason for fighting, therefore they must be clear.[8] The major failing in World War I was that war stopped being an instrument of policy and became the master of policy.[9]

Jomini. Although believing war is independent of policy, Jomini stated that strategy is 'how to carry out the statesman's (government) objectives in theatre (matching military objectives to political objectives)'. He believed that states go to war to:

    a. reclaim rights,

    b. protect or maintain great interests (commerce, agriculture or manufacturing),

    c. maintain the balance of power,

    d. propagate political or religious theories,

    e. increase influence and power through territory, and

    f. gratify a mania for conquest.

Sun Tzu. In 500 BC Sun Tzu understood that victory is the main object of war. Also, the object of war is to benefit the state and avoid battle which produces only Pyrrhic victory. Sun Tzu correctly noted that when the army engages in protracted campaigns, the resources of the state would not suffice.[10]

End States in Practice

The desired end state of conflict is victory, a peace on favourable terms which benefits the state.

Sanctions

Historically, economic sanctions have a poor record of success. Between 1914 and 1990, various countries imposed economic sanctions in 116 cases. They failed to achieve their stated objectives in 66 per cent of those cases, and were at best only

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[8] Von Clausewitz , C., *On War,* Edited and Translated by Howard and Paret, Princeton University Press, Princeton, New Jersey, 1984, pp 87-89.

[9] Schmitt, B.E & Vedler, H.C., *The World in the Crucible 1914-1919,* Harper Torchbooks, 1988, p 11.

[10] Wing, R.L., *The Art of Strategy,* The Aquarian Press, Northamptonshire, 1989, p 17.

partially successful in most of the rest.[11] Since 1973, the success ratio for economic sanctions has fallen precipitously to 24 per cent for all cases.[12]

Although multilateral sanctions might succeed under the appropriate circumstances, unilateral sanctions will fail more often than not. Sanction enforcement demands a high cost in patrolling and policing. Australia could not unilaterally enforce sanctions against any country large enough to threaten it.

Limited War

Limited wars have a recent history of being expensive in air power resources and follow-on involvement. Following experience gained in Vietnam, advances in technology have made limited 'conduct' wars easier to win (achieve objectives) from a military perspective. Second order effects are created when the objectives only restore the pre-conflict status quo (Korea, Iraq and Bosnia) and require continued presence to ensure a balance of power. The third order effect is increased defence costs, reduced readiness and decreased morale of air power forces. Operations Northern and Southern Watch cost $1.4 billion annually and have increased personnel tempo to the point where it has become a major factor in personnel turnover and discontent in the USAF.

The risk of escalating the Cold War caused all post-World War II conflicts involving the US to be limited wars. The use of coalition forces will also limit war objectives to the weakest desired outcome of the coalition partners on every issue.

> **Implication:** The implication for air power is that limited war objectives must include reducing the enemy's military forces to the level where they no longer constitute a threat.

Total War

Total wars are expensive in immediate costs, but more likely to produce an acceptable outcome to the winner in the long term. Total war is in the national psyche of the participant. The US was engaged in a limited war against the North Vietnamese, but the North Vietnamese were engaged in total war against the Japanese, the French and then the US and South Vietnam.

Total wars lead to capitulation on the winner's terms. Second order effects include the possibility that the victor may have to rebuild and control the country, for example, Japan and Germany after World War II. Third order effects are that massive loss of power may result in a power vacuum and/or an altered regional (or world) order. Introduction of the Marshall Plan filled European power vacuums and contained the spread of communist influence following World War II.

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[11] Hufbauer, Gary Clyde, Schott, Jeffrey J., and Elliott, Kimberly Ann, *Economic Sanctions Reconsidered: History and Current Policy,* Institute for International Economics, Washington, D.C., 1990, pp 92-93.

[12] *ibid.,* pp 105-107.

> **Implication.** The implication for air power is that during total war the internal infrastructure of the country should be preserved (as much as possible) to lessen post conflict power vacuums and rebuilding costs.
> Cease-fires

Cease-fires are the worst outcome of a conflict. The terms of the cease-fire rarely force the enemy to de-arm, or change his attitude in relation to stated objectives, or concede to establishing an environment which ensures a future balance of power.

The second order effect of a cease-fire is that military forces will have to remain in place to maintain the balance of power. The third order effect is alienation of regional countries through an atmosphere of pseudo-imperialism and the social cost of maintaining foreign forces.

> **Implication.** The implication for air power is that the adversary's military power must be reduced over a short period, before they have time to calculate the outcome and begin negotiations.

Armistice

An armistice is more acceptable than a cease-fire. Usually the winner can extract concessions from the loser. An armistice demands a high level of understanding of the adversary and ability to foresee the long-term effects. Following World War I, the allies repeated the errors already committed in the Brest-Litovsk policies [13] causing one German delegate to utter 'a nation of seventy millions of people suffers, but it does not die.'

An armistice is peace on negotiated terms. The second order effect is the expense of establishing compliance and monitoring systems in a hostile environment. The third order effect is the possibility of regression following the cessation of monitoring.

> **Implication.** The implication for air power is that an armistice will require post conflict monitoring and policing.

Surrender

Surrender is the best outcome of conflict. Dismantling the enemy's power base and restricting his ability to reconstitute truly allows peace on favourable terms (Clausewitz's definition). Of the three settlements, surrender best accords with Sun Tzu's dictum that victory (in war) must benefit the state.

While generally being the End State of total war, surrenders have been achieved in limited wars like the Falkland Islands War. The second order effect of surrender is the cost of re-establishing authority systems and the filling of power vacuums. Third order effects include possible economic and military dependency. USAF basing in Germany and Japan has been ongoing for 54 years (although not due to military

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[13] Treaty of Brest-Litovsk: a peace treaty signed in Brest-Litovsk, Poland (now Brest, Belarus) on 3 March 1918, by which Russia agreed to stop fighting the Central Powers (Germany, Austria-Hungary, Turkey, and Bulgaria) in World War I (1914-1918).

dependency). Australian Air Force occupation forces were still in Japan at the outbreak of the Korean War.

> **Implication.** The implication for air power is that the adversary must be left with sufficient military forces to conduct defensive operations. This leads to the notion of targeting primarily those forces able to conduct offensive operations.

Australian End States

A relatively small military power like Australia cannot afford the expense of long-term air power involvement. This being the case, the following factors must be stressed in the formulation of war policy:

a. War aims must allow freedom of action against all adversary military forces, military infrastructure, civilian centres of gravity (leadership) and defence industry.

b. War aims must include reducing the adversary's offensive military capability to regional norms.

c. Cease-fire negotiations must not be completed before destruction of the adversary's offensive capability.

d. Military and air power planners must:

   i. Limit destruction of defensive military capability to avoid post-conflict military power vacuums.

   ii. Limit destruction of national infrastructure to avoid post-conflict rebuilding and political power vacuums.

   iii. Calculate the requirements for the adversary's post-conflict military structure and aim to achieve the required level of destruction.

   iv. Conduct the counter attack and exploitation phase in minimum time with maximum destruction of offensive capability.

CAPABILITIES AND THREATS

National Commitment

Commitment is one of the most important factors in war. Once it has been determined, from the political conditions, what a war is meant to achieve and what it can achieve, it is easy to chart the course. But great strength of character, as well as great lucidity and firmness of mind, is required in order to follow through steadily, to carry out the plan, and not to be thrown off course by thousands of diversions.[14]

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[14] von Clausewitz, *On War,* p 178.

In the two world wars Australia's national commitment saw spending on Defence rise from 1.1 per cent to 12.5 per cent of GDP in World War I and from 1.5 per cent to 34.0 per cent of GDP in World War II.[15] Australia has participated in every major conflict since the Boer War. Additionally, Australia continually supports a number of UN peacekeeping missions. Any attack on Australia's mainland or significant threat to Australian trade would be met by significant national commitment and resistance.

Population

A 'remarkable trinity' of the government, armed services, and people wages war. The government establishes the political purpose; the military provides the means for achieving the political end; and the people provide the will, the 'engines of war.'[16]

Australia has a largely homogeneous population base with major ethnic groups being Caucasian 95 per cent, Asian four per cent, and Aboriginal and other one per cent.[17] Today's ADF is an all-volunteer force. The ADF's policy to integrate females into all but the three army combat arms (infantry, armor and artillery) has effectively doubled the potential recruitment base within the country.

Economic Slack

Currently Australia's defence spending is approximately $10 billion, or 1.9 per cent of GDP. Moderately high unemployment (eight per cent) and a predominately single shift mix of heavy, light and high-technology industry gives Australia a high degree of economic slack. Established weapons manufacturing (Australian Defence Industries) and design (Defence Science and Technology Organisation) industries, combined with hardware assembly and software modification capabilities, give Australia a self-reliant defence capability. Economic slack, while inefficient for the country, allows a rapid buildup to a war economy.

Australia does not have any critical dependency and is self-sufficient from resources to manufacturing to services. This self-sufficiency defuses external lines of communication as a centre of gravity.

Morality

Since Vietnam, any conflict involving Australia and the ADF must pass the population's moral efficacy test. Although the Gulf War was largely fought for economic reasons, the Australian Government found most support was generated by emphasising the immorality of Iraqi aggression and the actions of their troops in Kuwait.

Any threat to Australia or its trade interests would certainly be seen by all Australians as an immoral activity, and accordingly the population and government should give the ADF complete support.

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[15] *1998-99 Defence Budget Brief,* Resources and Financial Programs Division, Canberra, May 1998, Appendix A.
[16] von Clausewitz, *On War*, p 89.
[17] Http://www.odci.gov/cia/publications/factbook dated 3 January 1999.

ADF Capabilities

Forces in Being

The ADF is a small but highly technical and well trained force. Defence provides four principal deliverables to the Australian Government. These Defence outputs are:

a. Combat capability - a national capacity to defeat any use of armed force against Australia, without the assistance of combat forces from other countries.

b. Effective international defence relationships and contribution to international activities.

c. Effective contribution to national support tasks.

d. Strategic command and policy.

It is very difficult to segregate combat capability into measurable, comprehensive and mutually exclusive components. ADF elements, platforms and personnel can be applied flexibly to a wide range of defence tasks. Capability afforded by force elements can be broken down into the following broad areas:

a. Operational command.

b. Strategic intelligence.

c. Capability for major surface combatant operations.

d. Capability for patrol boat operations.

e. Capability for submarine operations.

f. Military geographic information.

g. Capability for afloat support.

h. Capability for mine countermeasures and defensive mining.

i. Capability for amphibious lift.

j. Capability for special forces operations.

k. Capability for land task forces operations.

l. Capability for logistics support of land operations.

m. Capability for air strike/ reconnaissance.

n. Capability for tactical fighter operations.

o. Capability for ground-based air defence.

p. Capability for strategic surveillance.

q. Capability for maritime patrol aircraft operations.

r. Capability for airlift.

s. Capability for operational support of air operations.[18]

Although listed, the amphibious lift capability is very limited, comprising two LPAs and an LPD (equivalent).

Jindelee Over-the-Horizon Radar Network (JORN)

The JORN system consists of three transmitter/receiver sites in Queensland, Northern Territory and Western Australia, and a central control centre in South Australia. With an unclassified range of between 500 nautical miles (minimum) and 3000 nautical miles (maximum), the system uses HF Pulse Doppler reflected off the ionosphere to detect both air and maritime targets in the Indonesian archipelago. While having outstanding early detection capabilities, the system must be integrated with a control Radar (AEW&C or Microwave Radar) to provide engagement-quality position data.

Training

The ADF maintains a vigorous combined and joint exercise cycle with all allied nations. A joint and combined division-size exercise is held every three years. Australian ships and aircraft regularly participate in RIMPAC, Cope Thunder and Red Flag exercises. The ADF is a well-trained and constantly exercised force.

This means Australian air power is capable of conducting massed, long-range, combined missions using sophisticated coordination, weapons and delivery techniques.

Equipment

The ADF mostly obtains equipment from the US. Most ADF equipment is still in service with the US forces including such items as F/A-18s, P-3s and Oliver Hazard Perry class FFGs. Weapons are primarily of US origin and include AMRAAM, HARM, GBU 10,12 and 24 as well as Sea Sparrow, Improved Standard and Block C Harpoon.[19]

This platform and weapon mix allows the ADF to remain at the leading edge of technology. It also ensures, under the ANZUS treaty, that spares and weapons will more than likely be available in a time of crisis.

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[18] *1998-99 Defence Budget Brief,* Resources and Financial Programs Division, Canberra, May 1998, p 19.
[19] *ibid.,* p 21.

Tactics

Traditional force-on-force tactics are similar to US tactics. This is hardly surprising considering the equipment and weapon similarities and the large amount of combined and joint exercising. However, the ADF does retain the capability to employ small force, asymmetric tactics at all levels. This combination allows Australia to effectively operate either in coalition or unilaterally.

Threat Capabilities (Threat = Capability + Hostile Intent)

In order to be a credible threat a state must possess both the capability to conduct an attack against Australia and the hostile intent to carry out an attack. Warning of both capability and intent varies. Australia's commitment to other South-East Asian nations expands this equation to those with the capability and intent to attack Australia's allies. In many cases, the capability to attack already exists, all that is needed is the intent.

Capability Requirements

Australia's maritime environment demands that a credible threat possess strong, offensive naval and air forces combined with amphibious and merchant marine capability. The distance through the Indonesian archipelago requires 'Replenishment at Sea' (RAS) and Air-to-Air Refueling (AAR) capabilities, or forward bases in order to sustain continuous offensive operations. RAS was a great Japanese weakness during World War II; the lack of it forced the Japanese Navy to return to port for repairs, refueling and rearming after each engagement.

Capability Warning

Sustained economic growth in the region has fueled significant increases in defence budgets and military modernisation programs. Most ASEAN countries have made steady progress over the last decade in converting their militaries from largely ground-based forces designed for counter-insurgency and internal security operations, to more balanced, conventional forces, typically with increased emphasis on the ability to monitor and protect offshore resources and interests.[20] An attack on the Australian mainland would require the lodgment and support of substantial land forces. That judgment remains valid. Indeed, notwithstanding region-wide military modernisation programs, no neighboring country is developing the types of forces capable of mounting a major invasion of the Australian mainland.[21]

Hostile Intent

It will be very difficult to predict the time at which an adversary considers or decides to use armed force against Australia. It is also very difficult to take military precautions against the possibility of attack before such intentions become apparent. In planning the structure and activities of the ADF, Australia cannot assume that it would receive adequate warning of an attack on the mainland, or a threat to Australian

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[20] *Australia's Strategic Policy 97,* Department of Defence, Canberra, 1997, p 37.
[21] *ibid.,* p 37.

interests. Any warning signs would likely be ambiguous and difficult to respond to overtly for fear of provocation or escalation.[22] However, the ADF could respond covertly, increasing the stockpiles of PGMs for example, without increasing provocation.

Possible War Objectives

A country may either attack Australia or attempt to control it for two probable objectives. First, access to resources. Resources were the reason that the Japanese invaded the countries of South-East Asia during World War II. Indonesia's and Australia's primary resources include petroleum, tin, natural gas, nickel, timber, bauxite, copper, fertile soils, coal, gold and silver. Additionally, Australia has reserves of lead, zinc, diamonds and petroleum.[23] A resource raider may only seek to control various resource-rich areas for a period, then withdraw or claim rights to mine the sea floor inside the Australian Economic Exclusion Zone. In the future, vacant land and space may be the greatest resource in South-East Asia. Australia's low population density of only 2.0 persons per square kilometre (compared with India at 325 per square kilometre) may make it a prime target for over-populated nations in the future. The second objective may involve actions designed to increase national power. A large power may restrict trade or seize important territory on the world trade routes to influence world trade and increase national prestige.

PAST AIR CAMPAIGNS

Theoretical Basis

Air power doctrine presents pictures of air campaigns and their roles and functions. However, 'which' campaign is conducted at 'what time' is less clearly defined. In an effort to understand the 'what and when' of air campaign planning it is necessary to review the past in order to discover any 'fundamental truths' in this art. The understanding of which campaign is used and when has important implications for the employment of air power.

The first of the major warfighting phases is the 'Halt Phase', where the enemy is stopped from advancing. This implies a relative defeat for enemy. The second phase is the 'Hold Phase' during which time the enemy is fixed, and his forces stopped from building for a counter-attack, while friendly forces build for a counter-attack. The final combat phase is the 'Counter-Attack Phase', which drives the enemy back until friendly objectives are met. The major air campaigns associated with these warfighting phases are:

    a.   Control of the Air (Air Superiority);

    b.   Air Strike (Strategic Bombardment, Maritime Strike); and

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[22] *ibid.,* p 38.
[23] Http://www.odci.gov/cia/publications/factbook dated 3 January 1999.

   c.   Combat Support (Interdiction, Airlift and Close Air Support).[24]

In today's environment, the same multi-role aircraft may be capable of performing Air Superiority, Air Strike, Interdiction and Close Air Support (CAS).[25] More than ever, it is important for planners and operators to have a complete understanding of what needs to done in each phase of war. In all wars, the first phase is to halt the enemy's advance.

Halt Phase Air Campaigning

Major maritime halt phase operations that used air power was the Battles of the Coral Sea and Midway:

The Battles of the Coral Sea and Midway in 1942

The Battles of Coral Sea and Midway were naval 'halt' phase operations. The key to both battles was Intelligence, Surveillance and Reconnaissance (ISR). In the Coral Sea, US reconnaissance aircraft detected the Port Moresby invasion fleet, and through luck the Japanese carrier forces. At Midway, the US had the advantage of breaking the Japanese naval codes and conducting superior ISR through seaplane and land-based reconnaissance. The battles were both maritime strike; both sides launched escorted strikes whose focus was the opposition carriers (the main offensive forces). The strategic strike on Tokyo by Doolittle's B-25s, weeks before, in essence firmed the Japanese resolve to take Midway and engage the US Navy in a major confrontation. The major components of the naval 'halt' phase were ISR and maritime strike with strategic strike acting as shaping tool.*[26]*

Air Power Campaigns During the Halt Phase

Halt phase operations are by nature short decisive battles. Air power must be projected against the enemy's main offensive forces: armies in the case of Marne, Stalingrad, New Guinea, Korea and Vietnam; naval forces in the Pacific; and the Luftwaffe over Britain. CAS, close interdiction, maritime strike and Vital Asset Defence (VAD) are the force projection campaigns in the halt phase. ISR is of utmost importance; successful allied halt phase operations have relied on superior ISR. To conduct halt phase operations air parity is required. Strategic strike has been used in most halt phases as a shaping or distracting measure.

Hold Phase Air Campaigning

Hold phase campaigning is characterised by the lack of major advances as both sides enter relatively defensive phases attempting to build up for a counter-attack. Accordingly, the examples of hold phase operations tend to reflect periods rather

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[24] AAP 1000, *The Air Power Manual,* 2nd Edition, Australian Government Publishing Service, Canberra, 1994, p 41.

[25] F/A-18s (and in future JFX) are capable of simultaneous multi-role missions, a USN F/A-18 was the first aircraft to engage and destroy an enemy aircraft while in the Air Superiority phase of its mission and proceed to drop bombs as part of its Air Strike mission during the Gulf War.

[26] Reynolds, C.J., *The Carrier War*, Time Life Books, Alexandra, Virginia, 1982, p 76.

points in time. The main objectives for air power are to interdict enemy buildups of personnel and supplies while protecting allied buildup efforts. Enabling campaigns are air superiority, interdiction, airlift and strategic strike.

A good example of a maritime hold phase operation is the Pacific Theatre during 1943; while the Gulf War highlights the principle of parallel attack and strategic paralysis.

The Pacific Theatre 1943

On land, air forces were slowly built up and tactical problems overcome. General Kenney's 5th Air Force performed CAS, land and maritime interdiction, offensive counter air and ISR. Although many new techniques (such as low altitude skip bombing) had to be assimilated along the way, a competent and capable force emerged in early 1944 that easily overwhelmed the Japanese Army and remaining Japanese Naval Aviation elements in the South-West Pacific.[27] Naval aviation primarily focused on air superiority, maritime interdiction (434 merchant ships sunk in 1943), maritime strike, and CAS during amphibious operations. During this period, Admiral Mitscher introduced the 'Fighter Sweep', a new tactic where fighters swept ahead of bombers and torpedo planes to clear the sky of defending aircraft.[28]

The Gulf War

Operation Desert Shield was a passive holding phase and Operation Desert Storm [air campaign] an active holding phase. ISR and Information Warfare (IW) campaigns were the first and probably the most important of Desert Shield. VAD was established to protect the counter-attack resources, new procedures and tactics were developed to accommodate coalition warfare and to counter the specific Iraqi threats and systems. The active holding phase was the air campaign of Desert Storm. The strategic attack operations closely followed Warden's 'Five Rings' concept, attacking leadership, essential production, infrastructure, transportation, and fielded military forces.[29]

Holding Phase Air Campaigns

During the holding phase it is vitally important to build-up your resources while destroying the enemy's. Predictably, ISR, VAD and air superiority campaigns are the prime defensive campaigns. Interdiction, ISR, BAI, SEAD and IW campaigns combine to form the offensive campaigns. Strategic attack is used to continue to disrupt the civil-industrial-military complex and to force the enemy to move air defence weapons to protect cities and infrastructure. Attacking fielded forces, leadership, transportation nodes and infrastructure simultaneously can produce strategic paralysis among the leadership. The constant attack on fielded forces with heavy yield weapons produces mental confusion and physical fatigue over time.

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[27] *ibid.,* p 132.

[28] Winton, J., *War in the Pacific,* Sidgwick and Jackson Ltd., London, 1978, pp 112–118.

[29] Hallion, R.P., *Storm over Iraq,* Smithsonian Institution Press, Washington DC, 1992, p 150.

Counter-Attack Air Campaigns

During the counter attack phase, air power must initially assist ground forces in their breakout operation and pave the way for the exploitation of the enemy retreat. The major maritime counter-attack phase in which air power played a role was in the Pacific Theatre during 1944-45.

The Pacific Theatre 1944-45

US Navy air power's primary role was war at sea, firstly to gain air superiority and then to inflict significant damage on the Japanese fleet. Both naval and land-based air power conducted interdiction missions throughout the campaign. Naval aircraft attacked merchant shipping in and around the islands while land-based aviation concentrated on land interdiction. The culminating campaign of the war saw both naval and land-based aircraft engaged in strategic campaigns. Land-based air power firebombed Japanese cities and industry, while naval-based aircraft pressed home the blockade and attacked port and harbor facilities.

The Gulf War

The major campaigns conducted during Operation Desert Storm were ISR and interdiction. CAS was planned; however, due to the rapid decay in enemy resistance, ground forces were able to deal with resistance by the use of organic weapon systems. The interdiction campaign was fought in two phases. The first phase at the start of the counter attack phase targeted the reserve heavy divisions (including the Republican Guard) in order to destroy their ability to manoeuvre against coalition forces. The second phase was intelligence-initiated when the general retreat was observed by ISR. During this phase air power pursued and destroyed the retreating army.[30]

Air Campaigns during the Counter Attack Phase. Counter attack campaigns include ISR, maritime strike in depth to disrupt naval forces before they can become offensive, maritime interdiction (blockading), VAD and air superiority.

Lessons Learned

The aim of this section was to review maritime air campaigns of major conflicts and test links to war phasing to discover if there is any underlying truths to air campaign planning. Reviewing practice against theory reveals the following:

a. ISR is probably the oldest and most important component of air strategy of any conflict.

b. Air superiority is not the first requirement of a conflict - the halt phase requires that air power be directed against the primary offensive forces of the enemy. These forces may be air, land or sea forces.

c. Strategic strike can shape the enemy's focus of operations or distract him from his objectives.

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[30] *Gulf War Air Power Survey,* Air University, USAF, Maxwell AFB Alabama, pp 140–142.

d. After halting the enemy, air power must become both offensive and defensive during the hold phase. VAD and CAS must protect resources while air superiority, interdiction and BAI aim to isolate the enemy from his resupply. In a protracted conflict, strategic strike can remove the source of supply. The most successful hold phase operation (Desert Shield/Storm) caused strategic paralysis by isolating C^2 and attacking lines of communication, organic essentials such as electrical power and POL, and the fielded forces.

e. Once the enemy is in retreat air power must destroy the forces that have broken contact.

f. Strategic strike can shape the peace process.

g. Air power can significantly affect the enemy's mental and physical ability to resist.

h. Air supremacy is not required before moving into the counter attack phase; however, local air superiority is required to allow resupply and manoeuvre of friendly forces.

i. Air forces use the hold phase to re-organise, introduce new equipment, procedures and tactics.

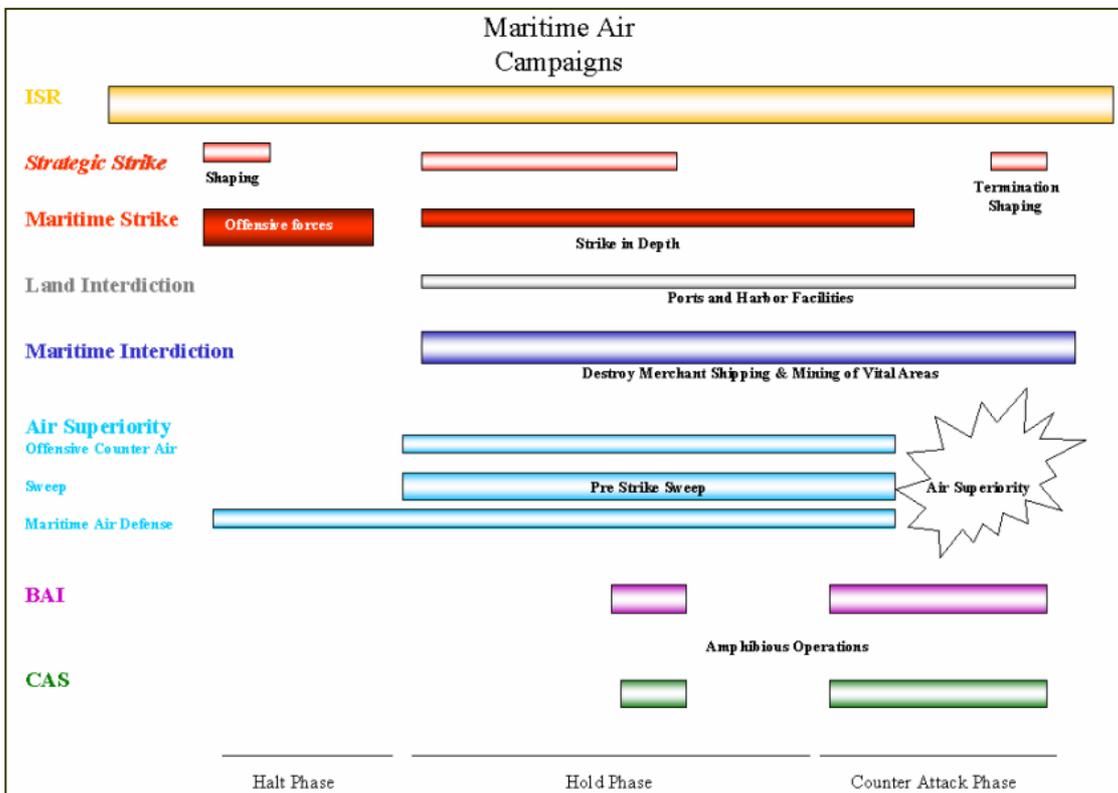A diagrammatic view of these conclusions is in Figure 3.

Figure 3: Maritime Air Campaigns

THEATRE STRATEGY

Maritime Strategy

The principle defensive strategy Australia will employ is a maritime strategy. Destruction of the enemy's maritime capabilities will ensure that they cannot either attack or sustain forces on the Australian mainland or the Indonesian archipelago. The adversary's reliance on maritime forces creates important centres of gravity.

The two classical maritime theorists, Mahan and Corbett, had differing views on how to achieve control of the lines of passage and communication. Mahan's fundamentals of maritime strategy were:

a. Command of the sea. The purpose of naval strategy is to gain control of the sea, ensure access to lines of communication while disrupting or denying the enemy access.

b. Control of interior lines of communication and strategic points that command interior lines is critical.

c. Engage the enemy in a culminating battle to crush the enemy fleet.

d. Concentrate forces to build a battle fleet. Reject commerce raiding - 'it couldn't win command of the sea.'

e. Use the navy offensively.[31]

Julian Corbett on the other hand had views more useful to a small defence force:

a. Joint forces must be used together to achieve the political objective.

b. Command of the sea must be a military strategy achieved by the destruction of the enemy's fleet.

c. The object of naval warfare must always be directly or indirectly either to secure command of the sea or prevent the enemy from doing it.

d. The centre of gravity of a maritime nation is to prevent commerce, controlling maritime communication and deny the use of the sea-lanes.

e. Commerce and finance stand to lose in war, their influence for a peaceful solution will be great.

f. Control of the sea means that the enemy can no longer attack our lines of passage and communication effectively, and that he cannot use or defend his own.

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[31] Mahan, A.T., *The Influence of Sea Power upon History 1660-1805,* Bison Books, London, 1980, pp 31-67.

g. Defence is a stronger form of war than offense! Both defence and offense are mutually complimentary not exclusive. A smaller force defending can be more aggressive in a counter attack and cripple a larger attacker, then the offensive passes to the defender.

h. Impose your will on the enemy.

i. Let the fight come to you.[32]

Combining selected elements of the two strategies that are relevant to the ADF and Australia's strategic circumstances leads to the following basic strategy:

a. The object of naval warfare must always be directly or indirectly either to secure command of the sea or prevent the enemy from doing it.

b. Control of interior lines and strategic points (Timor, PNG, Cocos and Christmas Islands) that command interior lines is critical.

c. Joint forces must be used together to achieve the political objective.

d. The centre of gravity of a maritime nation is to prevent enemy commerce, control maritime communication, and deny the use of the sea-lanes.

e. Defence is a stronger form of war than offense! Both defence and offense are mutually complementary, not exclusive. A smaller force defending can be more aggressive in a counter attack and cripple a larger attacker, then the offensive passes to the defender.

f. Let the fight come to you.

g. Impose your will on the enemy.

h. Commerce and finance stand to lose in war, their influence for a peaceful solution will be great.

Maritime lines of communication are the centre of gravity. These lines of communication consist of:

a. merchant shipping,

b. naval replenishment vessels,

c. offensive naval vessels,

d. amphibious vessels,

e. port facilities, and

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[32] Corbett, *The Theoretical Study of War - Its Use and Limitations,* pp 1-10.

f.   communication links and facilities.

Other vital elements in a maritime strategy include:

a.   the need to maintain air superiority over both maritime and land components,

b.   the need for organic naval air power or long-range land based aircraft with the ability to air-to-air refuel (AAR), and

c.   the need to conduct ISR of the lines of communication and the occupied territories.

These vital centres and elements are vulnerable. Destroying components of the enemy's centre of gravity will make the enemy's war objectives difficult or impossible to achieve.

Attrition Warfare

Attrition warfare was practiced by Napoleon, by all sides during the 19th century, and by both sides during World War I. It was also practiced by the allies during World War II and by nuclear planners during the Cold War. The main aim of attrition warfare is to create and exploit:

a.   destructive force using weapons that kill, maim and otherwise generate widespread destruction;

b.   the ability to minimise the concentrated and explosive expression of counter force; and

c.   the speed to rapidly focus destructive force or move away from the adversary's destructive focus.[33]

The payoff in this type of warfare is frightening and debilitating attrition via widespread destruction as the basis to break the enemy's will, and to seize and hold objectives. The ultimate aim is to compel the enemy to surrender and sue for peace.[34]

> **Implication:** Clearly, the ADF does not have the necessary firepower to engage in an attrition war at sea.

Manoeuvre Warfare

The Mongols, Jackson and Grant during the US Civil War, Hitler's generals, and Patton and MacArthur, all used manoeuvre warfare. Manoeuvre warfare aims to create, exploit and magnify:

a.   ambiguity by creating alternative or competing impressions of events as they may or may not be,

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[33] Boyd, J., *A Discourse on Winning and Losing,* Air War College, Alabama, 1998, p 112.

[34] *ibid.,* p 112.

b. deception by creating an impression of events as they are not,

c. novelty associated with events or ideas that are unfamiliar or have not been experienced before,

d. fast transient manoeuvres with abrupt changes from one event to another, and

e. a large expenditure of effort or eruption of violence focused into the features that permit the enemy to exist (centre of gravity).[35]

The payoff in manoeuvre warfare is disorientation which creates a mismatch between events the enemy observes and events he must react or adapt to; and disruption, an overload of threatening events beyond the enemy's capacity to adapt or endure. The aim of manoeuvre warfare is to generate many non-cooperative centres of gravity, as well as disorient, disrupt, or overload those the enemy depends on. It is used to magnify friction, shatter cohesion, produce paralysis and bring about enemy collapse.[36]

> **Implication:** The ADF is capable of and able to conduct (air-naval) manoeuvre warfare at sea.

Guerilla and Insurgent Warfare

The Mongols and most revolutionary leaders practiced guerrilla warfare. Although most guerrilla warfare principles cannot be directly related to maritime warfare, the following ideas of T.E. Lawrence (of Arabia) are applicable:

a. forces must 'be an idea or thing invulnerable, without front or back, drifting about like gas' (inconspicuous and fluidity of action), must be able to attack in depth;

b. tactics 'should be strike and run, not pushes but strokes', with 'use of the smallest force in the quickest time at the farthest place'; and

c. should be a war of detachment (avoiding contact and presenting a threat everywhere) and environmental background (vast desert or ocean) as a basis for 'never affording a target' and 'never on the defensive except by accident and in error'.

Lawrence stresses clouded, distorted signatures, mobility and cohesion of small groupings as a basis to infiltrate an amorphous yet focused effort into or through adversary weakness.[37]

> **Implication:** The ADF is capable of and able to conduct (air-naval) guerrilla warfare at sea.

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[35] *ibid.,* p 115.

[36] *ibid.,* p 115.

[37] *ibid.,* p 122.

ADF Air-Sea Warfare

Selecting the most appropriate elements of manoeuvre and guerrilla warfare principles, the use of Australian air power should achieve:

a. fast transient manoeuvres with abrupt changes from one event to another;

b. a large expenditure of effort or eruption of violence focused into the features that permit the enemy to exist (centre of gravity);

c. deception by creating an impression of events as they are not;

d. novelty associated with events or ideas that are unfamiliar or have not been experienced before;

e. tactics 'should be tip and run, not pushes but strokes', with 'use of the smallest force in the quickest time at the farthest place'; and

f. 'never affording a target' and 'never on the defensive except by accident and in error'.

AIR-SEA CAMPAIGNS

Halt Phase

The first campaign of the Air War is always ISR. The focus of this phase is the enemy's offensive forces. The use of JORN combined with AEW&C and maritime surveillance (P-3C) provides an outstanding overt capability. Submarines and Special Forces (SF) are capable of providing limited covert ISR of selected points in the lines of communication. The next campaign is generally an Air Strike campaign to shape the adversary's plan or force him to redeploy forces for protection. The Halting Battle must be conducted when the enemy is most vulnerable; when the advance has started to stretch logistic support; when the enemy is conducting an amphibious operation; or when forces have concentrated without sufficient air defence. This battle will involve sweep, and maritime strike combined with maritime air defence if surface forces are involved.

Holding Phase

During the holding phase, air campaigns will destroy enemy logistics being built-up for a counter attack. During this phase, the focus is the enemy's lines of communication. The Air Control campaign will focus on air superiority, maritime air defence, vital area defence (of ports and airfields) and offensive sweep. The Air Strike campaign will conduct maritime strike, maritime interdiction, land interdiction, offensive counter air and limited strategic strike. Support for Combat Forces will protect allied forces through BAI, CAS, ISR, and ASW.

Table 2 - Air Campaigns in a Maritime Strategy

STRATEGY	CAMPAIGNS	METHODS	FOCUS
Secure command of the sea or prevent the enemy from doing it	Air Control	Fast transient manoeuvres with abrupt changes from one event to another	Merchant shipping
Control of interior lines and strategic plans	Air Strike	A large expenditure of effort or irruption of violence focused into the features that permit the enemy to exist (centre of gravity)	Naval replenishment vessels
Use Joint Forces	Support for Combat Forces	Deception by creating an impression of events as they are not	Amphibious vehicles
Let the fight come to you		Novelty associated with events or ideas that are unfamiliar or have not been experienced before	Port facilities
The centre of gravity of a maritime nation is to prevent commerce, controlling maritime communication and deny the use of the sea-lanes		Tactics 'should be tip and run, not pushes but strokes', with 'use of the smallest force in the quickest time at the farthest place'	Communications links and facilities
Defence is a stronger form of war than offense! Both defence and offense are mutually complementary not exclusive		'Never affording a target' and 'never on the defensive except by accident and in error'	Air superiority assets
Commerce and finance stand to lose in war, their influence for a peaceful solution will be great			

The Counter Attack Phase

In a maritime counter attack phase, air campaigns will strike in greater depth. Weakened offensive forces and retreating units are the focus of operations. Air Strike will attack offensive naval forces in depth, and continue maritime and land

interdiction. Completion of the Air Control campaign should allow diversion of assets to the air strike campaign. An air control maintenance campaign will ensure air superiority is maintained. If coalition land forces are involved in amphibious operations then CAS and BAI campaigns are required during this phase as part of the Support for Combat Forces campaign.

The termination sub-phase is important because it will extract peace of favourable terms by the use of a focused Air Strike campaign.

EMPLOYMENT OF AUSTRALIAN AIR POWER

General Employment Principles

The employment of a small proficient force against a numerically superior adversary must be carefully analysed. General employment principles of the force in relation to the principles of manoeuvre and guerilla warfare are explored below.

a. ***Fast transient manoeuvres with abrupt changes from one event to another.*** Fast transient manoeuvres imply multiple events and tightly sequenced or near simultaneous events. Abrupt changes permit different target categories within the sequence, which reflects the principle of parallel attack. This effect is magnified by the transient use of multiple Forward Arming and Refueling Point (FARP) bases (Cocos and Christmas Islands, Timor and Malaysia-Singapore).

b. ***A large expenditure of effort or eruption of violence focused into the features that permit the enemy to exist (centre of gravity).*** The general principle of massive retaliation creates shock, fear and isolation in the minds of the enemy. This eruption of violence can be achieved by time on target compression with smart weapons. Targeting the centre of gravity is vital for a small force with limited resources. This implies an emphasis on ISR, sorting the group and accurate targeting.

c. ***Deception by creating an impression of events as they are not.*** Doubt and multiple alternatives create deception. Doubt is caused by incomplete ISR. This leads to the notion of removing enemy ISR as a precursor to creating deception. Using sweep and strike missions to destroy enemy ISR capability will enable deception. Multiple alternatives implies creating situations that have alternative explanations by having both overt and covert forces, using different mediums, engaged in the same strike missions. For example, using both overt air-launched and covert submarine-launched Harpoons in a maritime strike will deceive the enemy surface commander as to the source and strength of allied forces within his TAOR.

d. ***Novelty associated with events or ideas that are unfamiliar or have not been experienced before.*** In order to create novelty, it is necessary to know what is considered 'normal'. Observing the enemy's work-up and exercise mission profiles in the lead-up to conflict will allow the ADF to know what the enemy

expects to encounter in war. The implication is that ISR must precede conflict. Once planners know what is expected, it is a simple task to plan the unexpected. Once executed, tactics must be continually varied. Novelty will be enhanced by varying package composition, types of joint forces employed, weapons employed and aircraft launch and recovery points.

e. ***Tactics 'should be strike and run, not pushes but strokes', with 'use of the smallest force in the quickest time at the farthest place'.*** 'Strike and run' tactics imply fast attack immediately followed by withdrawal. This means no re-attacks or subsequent BDA assessment. Further attacks on the same force should be separated by sufficient time to be considered separate engagements. Attacking with the smallest force required to inflict the required percentage kill maximises probability of covert approach and minimises the risk. Striking at the farthest place maximises the engagement window before arrival at the front and maximises the surprise and the defensive problems for the enemy. Striking at the farthest place also means rejecting self-imposed geographical boundaries on the conflict (such as establishing exclusion zones).

f. ***'Never affording a target' and 'never on the defensive except by accident and in error'.*** This principle implies a low- or no-risk strategy. When missions are detected early, they should abort to afford maximum asset preservation. Additionally, a low-risk strategy maximises enemy frustration, confusion and isolation, while giving the enemy the impression that the ADF is only going to engage when it has the advantage.

ISR Concept of Operations

Use JORN as the primary detection sensor. Only use manned ISR platforms (AEW&C and LRMP) to sort and pinpoint targets as part of an attack. Prioritise search on the approaches to interior lines and strategic points. Apply data fusion from Sigint, Humint, satellite, surface, sub-surface and Radar sources to form a coherent picture of enemy operations.

Strategic Strike Concept of Operations

Halt Phase

Shape enemy forces or objectives by striking leadership, communications or infrastructure targets on the enemy's home ground from strategic points (Cocos & Christmas Is) or allied bases.

Hold and Counter Attack Phases

Periodically conduct parallel strikes on civil and maritime leadership, communications and infrastructure targets, second echelon and reserve maritime forces. During the termination sub-phase, strike civil-military leadership target sets in order to extract peace on favourable terms.

Maritime Strike Concept of Operations

Halt Phase

Wait until the enemy has extended his lines of communication and sustainment. Attack at a time or place when the enemy is concentrated, is restricted in operations or ability to maneouver and is focused on other activities (for example, during RAS or amphibious landing). Use combined forces of surface, sub-surface and air attack simultaneously to overwhelm enemy. Use techniques (destroy enemy ISR before the attacking force is fully detected) to disguise the number and type of forces used. Use Harpoon (ambiguous launch platform) and HARM targeting many platforms to create widespread damage; continue attacks until enemy withdraws.

Hold Phase

Continue to attack fielded naval forces. Concentrate attacks on resupply vessels and strike in depth at naval forces enroute to JFAO or returning to port facilities. Maximum force should used on single entities to ensure destruction. Remove sources of naval air power (fixed and rotary wing) through surface, sub-surface and airborne use of PGMs and sweep missions.

Counter Attack Phase

Attack concentrations of enemy naval forces before they can engage allied resources.

Maritime Interdiction Concept of Operations

Hold Phase

Use sub-surface and airborne PGMs (Mk 48 torpedo and GBU 10, 12 & 24) to destroy unescorted enemy merchant shipping at all points on the lines of communication. Use maritime strike concepts to engage escorted merchant ships.

VAD Concept of Operations

Initially target enemy AEW&C and AAR assets (vital centres). Attack enemy at range while (or before) they are engaged in AAR. Protect allied naval vessels only when they are vulnerable to air or cruise missile attack. Attack enemy force enroute rather than conduct point defence (use forces offensively rather than defensively).

Offensive Counter Air Concept of Operations

Long-range offensive counter air missions should be flown against AEW&C, LRMP and AAR bases. When the early warning and AAR capabilities are destroyed, missions should engage strike bases and finally fighter bases.

Sweep Concept of Operations

Sweep operations will target ISR capabilities initially, followed by AEW&C and AAR assets before engaging enemy fighters. This can be achieved by decoying

fighters, running them out of fuel, or timing strikes for observed launch and recovery cycles. Shipborne AAW radars can be taken down with HARM. Sweep and SEAD form a complementary multi-mission mix for F/A-18s armed with AMRAAM and HARM.

Land Interdiction Concept of Operations

Land interdiction must be focused on targets that directly form part of the enemy's centre of gravity, such as naval headquarters, weapons and POL storage, communication facilities, harbour and port facilities. Joint use of simultaneous overt air strike with covert SF strikes will cause confusion and novelty while covering SF withdrawal.

BAI & CAS Concept of Operations

BAI and CAS operations may be required either to take or defend strategic points (Cocos and Christmas Island, Timor and PNG/Irian Jaya). The distances to the target areas and necessity for local air superiority dictate the need for a Sweep-SEAD force combined with AAR and AEW&C assets for every BAI or CAS mission. Sweep-SEAD forces could remain on station for extended periods with AAR while BAI and CAS forces cycled to a FARP base. AAW ships may be able to provide extended air superiority for island operations areas.

Summary

This section explored the essence of maneouvre and guerilla warfare at sea and how it could be translated into phase and mission objectives. This translation embodies the application of general principles and role specific methods. The solutions proposed are an example of one combination within a vast matrix of strategy, warfighting methods and foci of operations. The matrix is the key to asymmetric warfare at sea.

CONCLUSION

Strategic geography confers on Australia significant defence advantages. However, strategic geography also places a burden on the ADF to be able to project power in order to defend Australia's maritime lines of communication. Additionally, with the lack of a hostile and capable regional threat, the ADF must structure its strategy and concepts of operation on scenarios.

Australia has bilateral and multilateral defence agreements with all its near neighbors. No country in South-East Asia currently possesses the capability or intent to attack Australia. Therefore, any threats to Australia would necessarily have to project maritime power across the vast expense of ocean and archipelagic waters in order to attack Australia or disrupt the world trade routes through South-East Asia.

Although being relatively self-reliant, Australia owes much of its high standard of living to trade. Any threat to trade will threaten Australian living standards, which will invoke a determined national stance against any aggressor. Australia's array of

alliances and treaties gives it a wide range of basing options and weapons procurement and sourcing potential.

A small force like the ADF cannot engage in post-conflict, balance of power operations or sanctions policing duties. Therefore, the end states must be carefully analysed and policies synthesised to reduce the adversary's force structure to regional norms before conflict resolution. The theoretical basis of end states gives a good starting point for policy formulation - 'war must benefit the state' and 'peace on favourable terms'. End states in practice have rarely achieved all the desires of the victors. The main reason for this situation is either under- or over-destruction of the adversary's infrastructure and military forces at conflict resolution. Balance and timing are keys for successful termination and withdrawal on the victor's terms.

The capability and size of the ADF is not large enough to deter an adversary capable of successfully projecting power across more than 3000 kilometres of ocean and subduing a country of 275 million. However, the dispersion of forces and lengthening of lines of communication place any potential adversary at high risk of 'high tech' maritime manoeuvre and guerrilla warfare. Australia maintains forces equipped, trained and capable of conducting manoeuvre and guerrilla warfare at sea.

History indicates that Australia's national commitment in support of international conflicts is substantial and enduring. The Australian economy has displayed the capacity to increase defence outlays to 35 per cent of GDP when mobilised. In current terms, that would be an increase from $10 billion to $154 billion. In order to defeat an enemy in a quick and efficient manner, planners must heed the successes of history and combine them with the realities of the present then project them into future.

Past maritime air campaigns hold the key to the basics. During the halt phase, air campaigns must focus on ISR, strategic strike to shape the adversary's plans and strike against the strength of the enemy's offensive power (more than likely his naval assets). In the hold phase, air campaigns must protect friendly resources through VAD, BAI and CAS, while destroying the enemy's resources through sweep, offensive counter air, maritime and land interdiction. To exacerbate the reduction in resources, the enemy must be forced to use resources through maritime and strategic strike campaigns. Counter attack air campaigns attack the naval assets in depth, continuing interdiction and strategic strike campaigns.

A theatre strategy largely based on Julian Corbett's analysis of sea power forms the first component of the ways of war. This strategy emphasises using joint forces, stopping an adversary from achieving control of the sea, using defence as the stronger form of warfare, allowing the enemy to stretch his lines of communication (which is the centre of gravity), and using an offensive defence. From Mahan, the strategy borrows protecting the internal lines and strategic points. The second element in the ways of war is the type of warfare. Clearly, successful attrition warfare is impossible given the size of the ADF and capabilities possessed by any power large enough to threaten Australia. However, the ideological foundations of both manoeuvre and guerilla warfare at sea can be converted into plausible concepts of operations.

Air campaigns should follow historical models using manoeuvre and guerilla methodology focused on the enemy's centre of gravity. They must be planned to

achieve the aims of war or the required end state and timed to achieve only the required damage before termination of the conflict.

Employment of Australian air power must be focused but flexible, aggressive while avoiding risk, massed for attack while appearing to be detached and distant, only attacking at the enemy's vulnerable period and unrelenting in pursuit.

The study of Australia's strategic environment, which includes strategic geography, the ADF and threat capabilities, reveals the size of the problem. The study of end states analyses the policies necessary to ensure peace on favourable terms while minimising post-conflict engagement. The study of history analyses how it has been done successfully in the past. Analysing strategic theory allows us to synthesise a useable theatre strategy. Using small fast forces against a larger enemy ideologically leads toward manoeuvre and guerilla warfare. Synthesising strategy, and the type of warfare with the present, yields the concept of operations for the employment of Australian air power in a maritime strategy.