Army

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Serving the Nation

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On the morning of 4 September 1943, soldiers from the 9th Australian Division disembarked from landing craft and waded ashore on marshy landing sites some 15 kilometres east of the town of Lae in occupied New Guinea.

Screened by five destroyers whose naval gunfire hammered away at the tree line ahead of the assaulting Australians, the 9th Division's landing near Lae was a relatively bloodless action that had the distinction of being the first major amphibious landing conducted by Australians since Gallipoli.

The 7th Australian Division air-landed at nearby Nadzab airfield, and through dense jungle, assaulted Lae from the west. The two Australian divisions then raced each other to Lae, their rapid overland advance delayed by rivers swollen with monsoonal rain and a determined enemy.

The application of decisive joint operations on the ground and in close quarters fighting saw Lae fall to the Australians on 15 September—marking the start of a series of successful operations that extended along the north coast of New Guinea.

Perhaps what is most remarkable about the capture of Lae was not its role in the liberation of occupied New Guinea, but the speed and effectiveness of the 9th Division's transformation to meet the circumstances of the day.

For most of 1941 and 1942, the 9th Division had been in North Africa, fighting major engagements at Benghazi, Tobruk and El Alamein against the forces of Field Marshal Erwin Rommel's *Afrika Korps*. Then at the start of 1943, it was recalled to Australia and rapidly adapted for amphibious

operations and jungle warfare in the Pacific littorals against the forces of Imperial Japan. Lae was its first major action in the new theatre—and it was a resounding success.

This volume of *The Australian Army Journal* coincides with the 80th Anniversary of the joint forcible entry operations at Lae. Operation Postern, as it was known, serves as a timely reminder that our Army has always adapted to our nation's changing strategic circumstances, and indeed the changing character of war.

An understanding of our history helps to prepare our Army for the challenges of the future. We can learn a great deal from the hard won experience of those whom have gone before us. Our history can inspire confidence in uncertain times.

Today, our Army is transforming—optimising for littoral manoeuvre operations by the sea, land and air as part of the integrated force. We must continue to adapt, drawing upon what we have learned from our history of conducting littoral manoeuvre in our region and beyond.

This issue brings together and applies the focus of distinguished historians on Australian operations in the littorals of German New Guinea (1914), Gallipoli (1915), Lae (1943), Borneo (1945) and East Timor (2006)—among others. Common to all is the challenge of achieving balance between war's enduring nature and its ever-changing character.

Our Army must harness the capacity of its intellect and innovative nature. *The Australian Army Journal* is an important way in which you can engage in contest of ideas and the professional discourse on the future of our Army, a national institution, a profession and fighting force.

Reflecting on our past ensures that we continue to learn from the service and the sacrifice of those who came before us—and all that they created, for our Army and our nation.

LTGEN Simon Stuart, AO DSC
CHIEF OF ARMY

AAJ Littoral Manoeuvre Collection

John Nash

This *Australian Army Journal* (AAJ) edition started life as a themed collection of papers concerned with the topic of littoral manoeuvre. This is a priority research area for The Australian Army Research Centre after the release of the Defence Strategic Review (DSR). It is for this reason that two papers in this edition are written by AAJ Board members (Peter Dean and Rhys Crawley). This change from an edited collection of papers to an AAJ represents a return to the AAJ as a biannual publication in the post-COVID era. The *Australian Army Journal* was first published in 1948. This represents 75 years of intellectual engagement on issues of vital interest to Army and the practice and profession of land power. There is now no more pressing a topic to the modern Australian Army as that of littoral manoeuvre.

Since the release of the 2023 DSR, the new area of focus for the Australian Army has been on all things littoral, including the concept of 'littoral manoeuvre'. While the concept is not new, the context of the DSR and attendant reduced warning time for Australia has given discussions around littoral operations and littoral manoeuvre new and more urgent life. The DSR also recognises that Australia's defence lies in the collective security of the Indo-Pacific region, Australia's core 'strategic geographical framework' since the 2013 *Defence White Paper*.[1] While the importance of a maritime approach to Australia's defence strategy has been emphasised for years, the DSR specifically directs that 'Army must be optimised for littoral operations in our northern land and maritime spaces and provide a long-range strike capability.'[2] It refocuses the discussion on the conduct of operations in the

near region, which is predominately littoral in nature. Naturally, the concept of 'littoral manoeuvre' has become prominent in conceptualising Army's future operations as part of an integrated Australian Defence Force (ADF). The idea of littoral manoeuvre—its history, modern understanding, and future—is the focus of this *Australian Army Journal* edition.

It would not have surprised many observers that the DSR once again acknowledges what other Defence reviews of the past have, that Australia is an island nation requiring a maritime strategy for its effective defence. However, the DSR has re-emphasised 'national defence' as the primary focus, achieved through a strategy of 'deterrence through denial'.[3] It is here that Army needs to prepare for littoral operations in the north, to deny attempts to coerce Australia or to attack its interests, which are often far from the nation's shores. This is not just material preparation, but cultural, organisational, and technological. Australia is reliant on its sea lines of communication, and these lines all pass through the Indo-Pacific region. In the language of the DSR, the ADF requires '*all-domain*, maritime capabilities for sea denial operations and localised sea control'.[4] The key concept to highlight is 'all-domain'. Sea denial and sea control are no longer concepts for the Royal Australian Navy (RAN) and Royal Australian Air Force (RAAF) alone: Army must be positioned to contribute to such operations in the future.

Definitions are important and the logical starting point for any discussion of complex military ideas. Many terms are thrown around when discussing littoral—including by the papers in this collection. This can be as simple as adding any number of different words to 'amphibious'—assault, operation, withdrawal, raid. Other terms are more esoteric, such as 'manoeuvre operations in the littoral environment (MOLE)', which although now obsolete doctrinally, often still sits in the back of discussions. Littoral and littoral manoeuvre are, quite naturally, established terms in Australian doctrine.

For instance, *Australian Maritime Doctrine* defines the terms as:[5]

> *littoral*
>
> *The areas to seaward of the coast which are susceptible to influence or support from the land and the areas inland from the coast which are susceptible to influence or support from the sea.*

and:

> *littoral manoeuvre*
>
> *The use of the littoral as an operational manoeuvre space from which a sea-based joint amphibious force can threaten, or apply and sustain, force ashore.*

These are fine starting points, but are just that: a beginning. As technology changes and influences doctrine, so too must definitions adapt or modify to new realities. For instance, the ranges and capabilities of modern sensors and weapons systems mean that ships and shore-based units have a hitherto unknown ability to influence events inland or far to sea, thereby theoretically extending 'littoral' space further inland than has traditionally been the case. Arguably, new and emerging technology has blurred the land/maritime divide.

A historical example from the opening of the 21st century helps illustrates why updating definitions is important. In October 2001, in the wake of the 9/11 attacks, the US and UK struck Al Qaeda and Taliban targets in Afghanistan with Tomahawk cruise missiles and carrier airstrikes from the north Arabian Sea off the coast of Pakistan. On 25 November, the 15th and 26th Marine Expeditionary Unit (MEU) of the United States Marine Corps (USMC) launched six CH-53E Super Stallion helicopters for an assault to establish a forward operating base (FOB) at an abandoned airfield in Helmand Province, known as FOB Rhino. Launching from USS *Peleliu* and USS *Bataan*, the helicopters received inflight refuelling as they travelled 371 nautical miles (688 kms) from the Arabian Sea to Rhino.[6] Just over a week later, Australia would join the fight by deploying two Troops of 1 Squadron Special Air Service Regiment (SASR), who flew into FOB Rhino and commenced operations in southern Afghanistan.[7] Coalition forces soon after moved into Kandahar, a further 190 km to the northeast, while aircraft carriers in the Arabian Sea provided close air support and strike. The point of this example is that despite what was effectively an amphibious assault and the provision of combat air power from the sea, few people would probably consider Afghanistan as a 'littoral' environment, even considering the decisive influence and support provided from the sea to the land. Clearly, continued discussion is required on what is and is not littoral, if such rigid distinctions can even be made. Like many strategic constructs, it will often change due to specific circumstances, and there is no one definition or solution. Perhaps it is better to think of an

Australian specific definition of littoral operations. This volume seeks to be a starting point for such conversations.

The Journal begins with an article written by Professor Peter Dean, Co-Lead of the 2023 DSR Secretariat where he served as senior advisor and principal author for the independent leads. His paper thus represents invaluable insight into Australia's land power and its utility in the Indo-Pacific region. It looks back at Australia's history of littoral operations in the region—a common theme of the articles in this Journal—and also looks forward on the lessons we should take away from this history and the context of the DSR. Following this, Matthew Scott's 'Tenets for Littoral Manoeuvre' provides a valuable way of conceptualising littoral operations as laying on a spectrum between discrete land operations and discrete 'blue water' naval operations. Importantly, he helps define what makes 'amphibious' a subset of littoral, namely, the ship-to-shore component of such operations. As several other papers highlight, Army will be expected to conduct operations in the littoral that do not have such a component, especially if they are to operate in a manner similar to the USMC Stand-in Forces, prepositioned in-theatre.

The historical studies in this volume explore various operations throughout time and space, dating back hundreds of years. We can, however, go back further in time; as far as the Peloponnesian War of the 5th Century BCE.[8] While appeals to classical history for authority are often shallow and sometimes ill-conceived, in this case we can learn lessons in the effectiveness of maritime power projection.[9] In the first half of the Peloponnesian War, Athens used its superior sea power to protect its vital sea lines of communication while outmanoeuvring the Spartans, isolating their territory and raiding with virtual impunity. Far from being nuisance raids, Athenian operations on the Peloponnesian littoral stretched Spartan resources and raised the possibility of revolt against them. After all, the Spartan army existed primarily to repress its slave population, the helots, who provided the workforce that allowed Spartans to concentrate on nothing else but being soldiers.

The worst possible eventuality for Sparta was a helot revolt, and Athenian operations around the Peloponnese raised that spectre. This came to a head in 425 BCE when the Athenians landed a force at Pylos, the modern day Bay of Navarino, an area in the heart of helot territory and so ripe for stoking insurrection. This forced the Spartans into a land and sea

confrontation. The Spartans landed a force of their elite hoplites on the island of Sphacteria at the entrance to the bay. The Athenian fleet soon after crushed the Spartan fleet and gained sea control over the area, isolating the Spartans on an island a mere 300 metres from the mainland at its closest point. The Athenians then landed on the island where they easily defeated the tired and supply-less Spartans, taking most of them prisoner and thus changing the course of the war. This is not hyperbole since afterwards, in an attempt to have their soldiers returned home, the Spartans granted numerous concessions, including handing over the rest of their warships and ending their raids into Athenian territory that had disrupted supply lines and damaged some Athenian agricultural land. Moreover, The Spartans asked for a formal peace treaty to end the war, an offer unwisely rejected by the buoyant Athenian democracy.

The point of this example is to highlight enduring lessons in littoral operations. The fact that it is literally an ancient example is also part of the point. There is no comparable technology to the modern age, yet the core principles of warfare are readily apparent. First and foremost is the importance of conducting operations that support a clear strategy. Athenian strategy was to wear Sparta down with a concentrated campaign of maritime operations, from trade interdiction through to raids and the potential stoking of rebellion within Sparta's home territory. This involved avoiding confrontation with the full Spartan army while simultaneously protecting vital sea lines of communication. The Pylos operation in 425 BCE was in full accordance with this strategy and led to a situation whereby they could have secured a favourable peace: the *way* in which they achieved the desired end state for their strategy. The second and most obvious lesson is that a land force operating in the littoral has little chance of surviving let alone succeeding in any mission without local sea control or effective sea denial. The natural corollary of this is that logistics is critical. Simply put, the Athenians could resupply their force, located on a hostile shore hundreds of nautical miles from their support bases, while simultaneously denying the Spartans the ability to resupply their forces, only several hundred *metres* from friendly shores. Noteworthy is that the closest Athenian support bases had been established after the outbreak of war. This reflects the operational level effect: continued campaigning established forward bases from which they could launch their attacks on the Peloponnesian littoral. This resulted in Athenian victory at Pylos and Sphacteria and the offer of a peace treaty from Sparta that would have ended the war in Athens' favour, achieving their main war goal.

This reinforces some universal principles of war. That operations need to be tied to strategy seems like a simple lesson but it needs to be constantly reinforced. Amongst wider considerations, sea control and sea denial are also integral parts of the logistics issue, so critical to littoral operations. In their papers, Rhys Crawley and Tom Richardson both highlight the absolute necessity of good logistics for success in the littoral. Their papers highlight how the requirements and challenges of building and maintaining a logistics train are different in the littoral environment. William Westerman's examination of Australian operations in Timor-Leste in 2006 demonstrates that even in a relatively permissive environment, the challenges can be many and are always varied. These papers highlight the requirement for reliable inter-theatre sea lift, but also the capacity for intra-theatre mobility. It may be that much of the 'manoeuvre' involved in future Army operations in the littoral environment is in support of dispersed operations, partially or entirely within a contested zone.

The question then becomes what missions will an Army littoral force be required to accomplish. Essentially, there are two core mission sets that can be envisaged for Army as a littoral manoeuvre force. The first is more akin to the amphibious operations that are discussed in this volume. That is, there may be territory in the littoral that needs to be taken off an adversary, or denied to an adversary landing force. In this sense, the manoeuvre aspect is using the littoral to position a force for offensive operations. This is unlikely to involve storming a beach ala Normandy or Tarawa, but could conceivably involve a heavy fight around a beachhead, more like Anzio or Balikpapan. Such an operation would no doubt occur in a heavily contested and non-permissive sea and air environment. This represents a high intensity scenario, conceivable but unlikely, perhaps even in danger of becoming a straw man construction. This is not to say there will not be scenarios involving elements of this role. It is easy to imagine a landing under some sort of fire, or having to penetrate a robust sea and air cordon to reach a desired landing zone, or that a landing force will have to engage in high intensity combat to expand or protect their landing. However, it seems unlikely that the Army will be called upon for such a drastic course of action in the near future, not least because it seems strategically difficult to imagine. After all, the DSR has called for deterrence by denial, so while this certainly does not rule out offensive action, it stretches the imagination to conceive of high intensity amphibious operations against a contested shore in a non-permissive air and sea environment. Nevertheless, this sort of role is one that often comes to mind when thinking of amphibious operations, so it is mentioned here in the context of the least realistic scenario for a littoral focused Australian Army.

This does not, however, simplify the littoral problem down to defaulting to the second possibility, using the littorals as an operational manoeuvre space rather than as a route from point 'a' to point 'b' as per an amphibious assault-type operation discussed above. This role is many faceted, hazardous, and as reliant on an integrated ADF as the 'storming the beach' possibility. As David Kilcullen highlights in this volume, Army will need to determine whether it will already be operating in an anti-access/area-denial (A2/AD) zone, or if it will be required to penetrate such a zone to get to the necessary littoral operating area. The Australian Army Research Centre has recently published research by Andrew Carr and Stephan Frühling on the idea of forward presence for the Australian Army.[10] Within, they discuss how Army might position forward in the region, both as a means of reassurance to allies and deterrence against a potential adversary, and the basis of a presence that could be expanded in time of heightened tension or conflict. This would follow a model similar to what Kilcullen highlighted as the USMC's approach. At the same time, a forward presence should not be assumed. Such a presence could be outside of the operational area required and so Army would be left contemplating entry into an A2/AD zone as per the working assumption of the Royal Marines.

There are subsets of missions within this operational manoeuvre focused role, with different scales of operations and requiring different skill and equipment sets. Less about moving Army from one place to another, there is a heavy focus on the ability to conduct inter- and intra-theatre lift. For the sake of discussion, four possible missions could include sea control/sea denial operations, long-range strike, provision of intelligence, surveillance, reconnaissance (ISR), and area denial. All of these fit within the scope of the DSR's deterrence by denial strategy. Long-range strike is clearly articulated as a role for Army in the littoral environment, potentially as part of an A2/AD scenario. The acquisition of precision strike missile (PrSM) for the High-Mobility Artillery Rocket System (HIMARS) will add an anti-ship capability to this system. Ash Zimmerlie explores some of the ways this might contribute to an Australian A2/AD system. The DSR also highlighted the need for 'an enhanced, all-domain, integrated air and missile defence capability' (IAMD).[11] Again, this will be a core component of area denial operations, in conjunction with the RAAF and RAN, with Army utilising the National Advanced Surface-to-Air Missile System (NASAMS) for this role. The base capability of NASMAS as well as the IAMD role are both a step-change up from legacy short-range systems (Rapier and RBS 70) employed for local air defence operations. In all scenarios it may be necessary for Army

to contribute to the ISR picture, using land forces to establish outposts to create ISR 'bubbles' that would feed into a common operating picture. Finally, it may be that Army needs to conduct area denial by occupying vital territory that an adversary might want to occupy itself. Such a scenario might see an Army littoral force facing down an enemy landing, the defensive side of the coin to the 'storming the beach' scenario.

In all cases, Army's littoral manoeuvre will be linked inextricably to naval and air operations. As Richard Dunley explores in his naval-focused piece, the littoral is a complex and potentially deadly zone for warships, with a multiplicity of threat vectors and hazards, both natural and military. This is important not just for how Army can support the Navy, but also how Army can capitalise on this operating environment to effectively combat a naval adversary. Army may find itself in a scenario where it needs to do both: deny enemy access while also aiding RAN operating space and the shelter of a friendly shore. It will also need the RAN and RAAF to help protect supply lines to and from forward deployed personnel.

Throughout the papers in this volume, history has been a guide of lessons learned and not learned, or in some cases overlooked. Importantly, the lessons of history are open to all and are being examined in great detail by a number of militaries. Of particular interest are the campaigns in the Pacific during World War 2, common case studies in various Western war colleges. The Chinese military has also studied these operations deeply, and for many years. They have taken many lessons from the different battles, especially key moments at Midway, Guadalcanal, and Okinawa.[12] Unsurprisingly, many of the lessons they have taken away accord with the thinking in this volume on what matters most in littoral operations: from the criticality of logistics through to the importance of a joint force operating together.[13] History also serves as an important baseline from which change over time can be measured. Perhaps most importantly, it does not necessarily mean that the operations of the Pacific War are the most important for the Australian Army to study. While the geography is practically the same, the geopolitics is not, nor is the technology. One might argue the highly contested air and sea environment of the Mediterranean in late 1942/early 1943 is more representative of the future contested operating environment in the Indo-Pacific than the landings in Borneo in 1945.

Army has perhaps the clearest strategic direction it has had in a decade, since the withdrawal from Afghanistan and closing out of the 'Global War on Terror'. The Army will become a littoral-focused force, capable of manoeuvre operations in the Indo-Pacific region. This will require new capabilities and a new mindset. From new vessels through to long-range strike capabilities, air defence, and more prolific and persistent ISR platforms, Army will need to combine these with more 'traditional' platforms such as protected mobility vehicles (PMV), infantry fighting vehicles (IFV), and combat reconnaissance vehicles (CRV) to maintain a robust combined arms fighting system. Nevertheless, this system will need to adapt to a new operating environment, more dispersed and more independent than has been the case. In the words of the Chief of Army, Lieutenant General Simon Stuart:

> To be truly future ready, we must continually adapt. There are changes in what our government expects of its Army and what the Integrated Force, and our Allies and partners need of us… There will also be changes to the scale and scope of our capabilities. The sequence and pace of delivery, how we're organised, how we train, and the resources that will be available to us. Things will be different, and along with the opportunities, there will be challenges.[14]

Nothing in this volume is prescriptive. It does not set down any one way of doing 'littoral', rather, it is an exploration of the many facets of what is essentially an old concept practiced throughout history. Like all military-strategic terms, 'littoral' is a construct, the meaning of which is debatable. What this series of papers aims to do is continue that debate, and to inform the discussion in Australia on what lessons can be learned from the past and what we might do in the future. The Army has an excellent opportunity to move past ideas such as the, not unfairly maligned, 'air-sea gap' and finally embrace the sea as a manoeuvre space. As part of an integrated Australian Defence Force, Army can manoeuvre for advantage using the vast littorals of the Indo-Pacific, and position itself for area denial and long-range strike operations. Working as part of the integrated force to achieve a truly all-domain effect, Army can be a strong arm of maritime power projection and a core asset in a deterrence strategy.

About the Author

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Endnotes

1   Australian Government, *National Defence: Defence Strategic Review, 2023, p. 6, 27*.

2   Australian Government, *National Defence: Defence Strategic Review, 2023, p. 7.*

3   Australian Government, *National Defence: Defence Strategic Review, 2023, p. 32.*

4   Emphasis added. Australian Government, *National Defence: Defence Strategic Review, 2023, p. 19.*

5   Royal Australian Navy, *Australian Maritime Doctrine, 2010, p. 198.*

6   Jay M. Holtermann, 'The 15th Marine Expeditionary Unit's Seizure of Camp Rhino', *Marine Corps Gazette, March 2016, originally published June 2002, P. W90.*

7   Having flown in from their staging base in Kuwait. One Troop would remain in Kuwait for contingency operations and to provide training to Kuwaiti force. The stay-behind Troop would rotate over time until most of the Squadron was committed to Operation Anaconda in late February/early March 2002. More on this can be found in the upcoming Volume 1 of *The Official History of Australian Operations in Iraq and Afghanistan.*

8   What follows is a short summation based upon a previous article, which has a more detailed examination of the strategic environment and sea power during the Peloponnesian War: Nash, John, 'Sea Power in the Peloponnesian War', *US Naval War College Review, 2018: Vol. 71: No. 1, Article 8:* https://digital-commons.usnwc.edu/nwc-review/vol71/iss1/8

9   The most egregious examples is that of the so-called 'Thucydides Trap', an ahistorical attempt at making history fit theory.

10 Andrew Carr and Stephan Frühling, 'Forward Presence for Deterrence: Implications for the Australian Army', *Australian Army Occasional Paper No. 15, Australian Army Research Centre, 2023.*

11 Australian Government, *National Defence: Defence Strategic Review, 2023, p. 19.*

12 For an excellent recent appraisal, which dives into original Chinese language sources, see: Yoshihara, Toshi, 'Chinese Lessons from the Pacific War. Implications for PLA Warfighting', *Center for Strategic and Budgetary Assessments, 2023.*

13 Yoshihara, 'Chinese Lessons from the Pacific War. Implications for PLA Warfighting', 2013, p. 69.

14 LTGEN Simon Stuart, AO, DSC, *The Cove:* https://cove.army.gov.au/article/chief-army-message-defence-strategic-review

The (Re)Rise of the Archipelagic Army: Geography, History, and the Ongoing Utility of Land Power in Australia's Littoral Arc—A Primer

Peter Dean

Introduction

The platform for the current direction in Australia's defence policy was set down with the release of the 2020 *Defence Strategic Update* (DSU). With this document, the then Morrison Government made it clear that Australia's strategic environment was rapidly changing, and along with it, the risks that the nation's defence policy must manage. The DSU noted the key drivers of this revision of the nation's strategic circumstances: intensifying great power rivalry between China and the United States; accelerating regional military modernisation; the deterioration of the 'rules-based order'; and the rise of 'grey zone' activities—including cyber operations, foreign interference, economic coercion, and disinformation campaigns.[1]

The DSU was accepted in a bipartisan manner by the then Labor opposition led by Anthony Albanese. After its election victory in May 2022, the new Labor government announced an independently led *Defence Strategic Review* (DSR). The starting point for the DSR was 2020's DSU; however, the *Force Structure Plan* (FSP) completed in 2020 and launched concurrently with the DSU was not reflective of the strategic assessment.

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The simultaneous, rather than sequential, nature of the development of the
DSU and the FSP meant that in 2020 there was a dissonance at the centre
of Australian strategic policy.

The DSR's fundamental role was, the new Prime Minister announced, to:

> prepare Australia to effectively respond to the changing regional and
> global strategic environment and ensure Defence's capability and
> force structure is fit for purpose, affordable and delivers the greatest
> return on investment.[2]

The terms of reference for the DSR noted:

> [M]ilitary modernisation, technological disruption and the risk of state-
> on-state conflict are complicating Australia's strategic circumstances.
> These strategic changes demand the Australian government
> re-assess the capabilities and posture of the ADF and broader
> Department of Defence.[3]

Both the DSU and the DSR reaffirmed the end of the principle of a 10-
year strategic warning time for major conflict in Australia's region and the
growing risk of major war. This will be the focus of this paper; however,
the utility of land power in the Indo-Pacific across the spectrum of conflict
must be acknowledged. While the threat of major war in Australia's region is
more acute than it has been for decades, it only remains a *possibility*. The
major risk of such a conflict, however possible, is why Australian, US and
Japanese strategic policy is now focused on deterrence by denial: aimed at
preventing any such conflict from occurring.

What we do know is that climate change—driven by global warming,
or global boiling as it is now being called[4]—adds further complexity to
Australia's defence equation. As the DSR states:

> Climate change is now a national security issue. Climate change will
> increase the challenges for Australia and Defence, including increased
> humanitarian assistance and disaster relief tasks at home and abroad.
> If climate change accelerates over the coming decades it has the
> potential to significantly increase risk in our region.[5]

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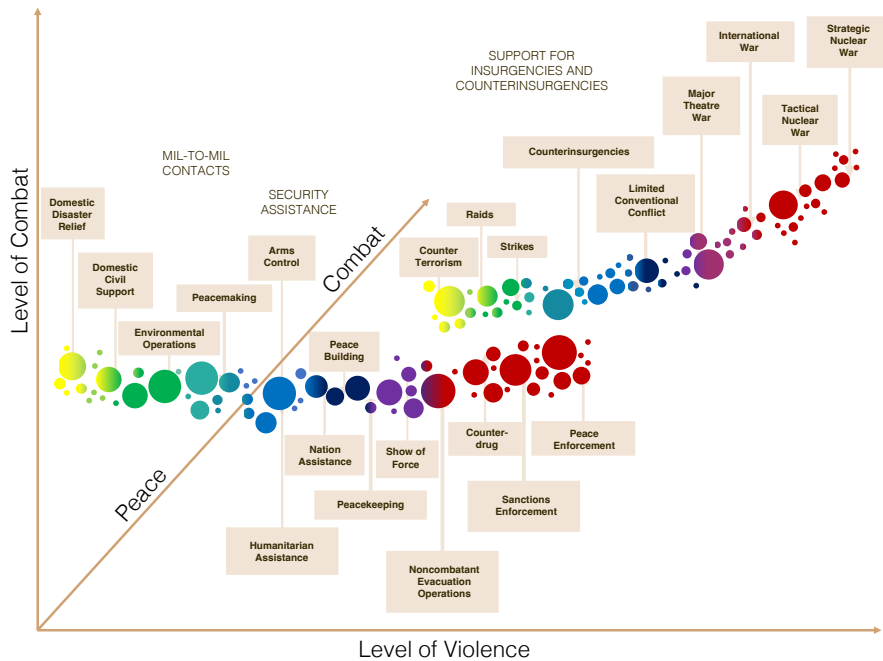
Figure 1. Combat violence spectrum

This means that operations at the lower end of the conflict spectrum, especially humanitarian and disaster relief (HADR) operations, will only increase in frequency. In these, as in all operations—as 'men live upon the land and not upon the sea'[6]—land power's role is central to all forms of missions, including delivery of aid, evacuation of personnel, risk mitigation and recovery operations.

Here geography—both physical and human—is key. Since 2013, Australia has conceived its strategic geography in terms of the Indo-Pacific.[7] Within this vast theatre two key subregions, South-East Asia and the South Pacific, are the most significant. The DSR notes:

> For military planning, in terms of our strategic geography, the primary area of military interest for Australia's National Defence is the immediate region encompassing the north-eastern Indian Ocean through maritime Southeast Asia into the Pacific. This region includes our northern approaches.[8]

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The physical and human geography of the Indo-Pacific and the subregions of maritime South-East Asia and the South Pacific are critical to understanding the role that Australian land power will play in operations across the spectrum of conflict, from military diplomacy and HADR operations through to major war. It is therefore critical to highlight the fundamental importance of the littorals in Australia's immediate region and the archipelagos against which the nation nests.[9]

Approximately 70 per cent of the world's population, 80 per cent of countries and virtually all centres of international trade are in littoral regions. Among the 63 most populated urban areas (with 5 million or more inhabitants), 72 per cent are located on or near the coast, with two-thirds in Asia. In the Indo-Pacific area, over three-quarters of the population live within 200 kilometres of the coast. In this zone reside 80 per cent of the region's cities, most of its vital infrastructure, and most of its trade, industry and military power.[10]

The more narrowly defined Asia-Pacific region contains 60 per cent of the world's population, reaching 4.7 billion in 2022.[11] By 2050, some 64 per cent of Asia's population will be urban, while Asia will be home to the largest share of people living in informal settlements, estimated to be 332 million in East and South-East Asia, and 197 million in Central and South Asia.[12] This means that the region's terrain comprises a series of complex interconnected geographies within which land forces must operate. These are characterised by increasing urbanisation of the population and the proliferation of peri-urban areas (the transition zone between rural and urban that contains a mixture of both) in South-East Asia and the Pacific that are exemplified by areas of adjacent high-density jungle, largely confined to coastal and littoral areas. Further, these subregions in South-East Asia and the South Pacific are also overwhelmingly archipelagic in nature. Urbanisation and the proliferation of peri-urban areas has been rapid and significant; it is estimated that globally by 2050 2.9 billion people will live in urban areas, equal to the total global population in 1950.

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**Figure 2. Urban population (as a percentage)—
Pacific island small states[13]**

Country	Population	% urban	Trend
Nauru	12,668	100%	⇄
Palau	14,797	82%	↑
Marshall Islands	32.640	79%	↑
Tuvalu	7,412	66%	↑
Fiji	541,393	58%	↑
Kiribati	74,878	57%	↑
Solomon Islands	185,298	26%	↑
Vanuatu	84,351	26%	↑*
Federated States of Micronesia	26,505	23%	↑**
Tonga	24,711	23%	↓†
Papua New Guinea		20%[14]	
Samoa	39,179	18%	↓

* although broadly similar in the past few years
**after a drop
†slight

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Figure 3. Urban population (as a percentage)—South-East Asia[15]

Singapore	100%
Brunei Darussalam	78.3%
Malaysia	76.7%
Indonesia	56.6%
Thailand	54.8%
Philippines	47.4%
Vietnam	36.8%
Lao People's Democratic Republic	36.3%
Timor-Leste	31.3%
Myanmar	31.1%
Cambodia	24.2%
Total	**50.3%**

The Indo-Pacific is also expected to become the largest contributor to global economic growth. Within that, Asia's share of global GDP is expected to exceed 50 per cent by 2030 and will contribute to approximately 70 per cent of global growth in 2023.[16] The key is where this economic and population growth is occurring. More than 77 per cent of South-East Asia's population lives by the coast. It is estimated that by 2025, 75–80 per cent of humanity will largely be clustered in urban centres in 'coastal areas'—the zone up to 150 kilometres inland. This is nowhere more concentrated than in the littoral areas of the Indo-Pacific, where most of the strategic infrastructure and population centres are located within 25 kilometres of the coast. Thus, the littoral regions and access to them are critical for any military operation across the full spectrum of conflict.

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Impacts of Climate Change on Geography and Security

A few examples at the lower end of the conflict spectrum illustrate this point. The impacts of climate change will see the number and frequency of HADR operations rise. A significant percentage of Pacific island nations have urban land areas that are 5 metres or less above sea level:

Figure 4. Pacific island nations—percentage of urban areas 5 metres or less above sea level

Tonga	17.5%
Fiji	8.3%
Solomon Islands	7.3%
Samoa	7.1%
Vanuatu	4.2%[17]
Papua New Guinea	3.8%
Timor-Leste	1.6%

This makes such nations exceptionally vulnerable to the impacts on climate change, particularly sea level rise and the frequency of adverse weather events. In South-East Asia, major low-lying mega-cities such as Jakarta and Bangkok are also susceptible sea level rise. The most recent Intergovernmental Panel on Climate Change (IPCC) report notes that Asia's urban areas are largely considered high-risk locations for projected climate change and extreme weather events.[18] The IPCC's assessment is that coastal cities, especially in South and South-East Asia, are expected to see significant increases in average annual economic losses between 2005 and 2050 due to the impacts of climate change induced floods.

The IPCC predicts that global boiling will become increasingly more likely and, if it continues to track into high-range predictions, will almost certainly lead to severe economic losses in East Asian cities due to climate impacts. Coastal city infrastructure is more at risk of climate change impacts due to its proximity to the ocean—especially key infrastructure such as power lines, transport by road and railway, and airports and harbours. It is almost certain that the ADF will be called upon to undertake increased numbers of climate change related

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deployments. In these operations, force projection assets, littoral manoeuvre, ships and aircraft are key, but ultimately they are supporting forces; land forces are critical because only troops on the ground can execute HADR and environmental operations in urban areas and among populations.

The broader, unknown question, for climate-related security risks is the longer-term impact of unchecked temperature changes and sea level rise on populations, resources and political outcomes. As the DSR notes:

> *If climate change accelerates over the coming decades it has the potential to significantly increase risk in our region. It could lead to mass migration, increased demands for peacekeeping and peace enforcement, and intrastate and interstate conflict.*[19]

Such occurrences will likely be linked to climate-induced impacts on agriculture and food production in Australia's region. This includes the potential for major declines in fisheries, aquaculture and crop production that will have major—and potentially devastating—impacts on food security. Food insecurity contributes to social unrest, which in turn can engender instability in insecure political systems, ultimately degrading regional security.

It is forecast that two of the hardest hit subregions in the Indo-Pacific will be South-East Asia and the South Pacific. There are predictions that fisheries output in South-East Asia will fall by 30 per cent by 2050, while during the same period this region's population is expected to grow by at least 12 per cent by 2035. The unfortunate result is that climate volatility is likely drive an increase in the demand for food in South-East Asia by 40 per cent by 2050.[20] Things are projected to be little better in the South Pacific. There, 2050 projections suggest that local food accessibility could be significantly reduced in Fiji, Papua New Guinea, Solomon Islands, and other Pacific islands.[21] For both regions, water security will also become increasingly fraught. In the Pacific Islands currently, only 55 per cent of people have access to basic clean drinking water—the lowest rate in the world. Papua New Guinea ranks ninth in the 10 lowest-ranked countries for access to potable water—the other nine being African countries.[22] In South-East Asia, environmental risks in the Mekong Delta and broader water issues place nearly 200 million people at risk of serious water-stressed conditions.[23]

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Archipelagos: the Nexus of Geography, History and High-End Operations

For Australia the defining geographical feature of the operating environment outlined in the DSR (centred on maritime South-East Asia and the South Pacific) is the archipelago—in essence, a series of interconnected littoral spaces whose defining feature is the relative ratio of land to water.

Archipelago: a group of islands closely scattered in a body of water[24] or more broadly 'a collection of islands (including parts of islands, interconnecting waters, and other natural features) so closely interrelated that they form an intrinsic geographical, economic, and political entity, or which historically have been regarded as such'.[25]

Littoral (from the Latin litus, meaning shore): a coastal region often defined as the space in the zone between the extreme high and low tides, consisting of a seaward area (open ocean to the shore) and a landward area (the area inland from the shore that can be supported from or defended from the sea). Littorals can also include 'large archipelagoes [sic] completely or partially surrounded by open ocean, such as the Malay (or Indonesian) and Solomons Archipelagos'.[26]

Military operations in archipelagic regions are characterised by several features. Unlike open seas, the distances between various land points are short. Accordingly, land-based systems for surveillance, strike and presence play a more prominent role than in open ocean areas. Archipelagos are especially conducive to the deployment of small surface and subsurface vessels, as well as being able to facilitate the operations of larger vessels. The proliferation of island land masses in close proximity (if accessible to a military force) means that fixed-wing aircraft, helicopters and autonomous systems can be used from both sea-based platforms and land-based facilities, allowing them to be deployed and redeployed quickly, increasing sortie rates.

In the immediate areas to Australia's north, north-west and north-east, the range of archipelagos form a series of interrelated, contiguous littoral zones. Of four archipelagic states in the world with populations over 60 million, three—Indonesia, the Philippines and Japan—generate an almost continuous archipelagic operating environment stretching from Australia's near north to the top of East Asia (the fourth is the United Kingdom).

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A further 20 nation states claim archipelagic status, including Fiji, Indonesia,
the Marshall Islands, Papua New Guinea, the Philippines, Solomon Islands,
Tuvalu, and Vanuatu.[27] Thus Australia is bordered to its north by archipelagic
states. Through these areas run all the major sea lines of communication
to and from Australia to the north, north-west and north-east. These
archipelagos are the maritime trade and military gateway to and from
Australia. In planning or conducting everything from HADR missions to major
war scenarios, archipelagos have, and will, dominate how Australia thinks
about and conducts military operations in its immediate area.

Mining the Army's History—Operations POSTERN and OBOE

The year 2023 is the 80th anniversary of the Australian Army's amphibious
landings at Lae in New Guinea. Operation POSTERN was the centrepiece of
the broader Australian campaign in New Guinea between February 1943 and
April 1944. This operation epitomises the dominant importance of littoral and
archipelagic warfare in Australia's north to Army's operations in the South Pacific.[28]

The 1943 New Guinea campaign included the division-sized assault at
Lae—the first major Australian amphibious assault since Gallipoli. This was
the largest operation of this type in the South-West Pacific Area (SWPA)
at this time and the largest joint and combined arms operation that the
Australian Army has ever fought. It was the first air, sea and land operation of
the Pacific War that included an amphibious assault, an airborne assault *and*
an air landing assault. It involved elements of the 3rd, 5th, 7th, 9th and 11th
Australian Divisions, No. 9 Operational Group from the RAAF, and the bulk
of the RAN. It was also one of the most successful Australian campaigns
ever fought and it represents the pinnacle of Australia's influence on Allied
coalition operations in the SWPA theatre.

These operations were, at their core, fundamentally joint and combined.
Without the close integration of land, air and naval power, of modern
communications, signals intelligence and joint logistics, the series of
operations across 1943–44 would not have been a success. Further, none
could have been undertaken if not for the close partnership with the United
States and the outstanding support of the people of Papua and New Guinea
who served both in and alongside Australia's military forces in the region.

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The Lae operations demonstrated the Australian Army's ability to adapt to war's changing character and deliver swift changes to force structure, force employment, doctrine and concepts of operations. The 2nd Australian Imperial Force (AIF) transformed itself from an Army attuned to desert warfare in north Africa to one able to perform complex amphibious and littoral operations in the SWPA. This change was unprecedented in the Australian Army's history, providing an outstanding example of top-down, bottom-up and horizontal adaptation in war. The rapid conversion evolved existing operational concepts and doctrine in combined arms operations into a new environment, yet also represented a 'disruptive' change in Army's structural and operational evolution in that, from a virtual standing start, it adopted a whole new way of warfare—littoral and amphibious.[29]

The Lae operations provided a number of lessons. Once the 9th Division AIF had been landed by the Allied naval forces, it became dependent on the US Army's Engineering Special Brigade of small watercraft for logistics and tactical manoeuvre. The greatest failing by the 9th Division and the Army at Lae was its underestimation of the required logistics organisation and its own lack of watercraft squadrons.[30] This fundamentally undermined the combat power of the division when it was forced to withdraw a pioneer battalion and several infantry battalions from the front line to shift supplies and reorganise the beachhead. It was also not lost on the General Officer Commanding 9th Division, Major General George Wootten, that one well-placed Japanese Army Air Force bomb could have brought the whole division to a halt. Compounding this problem was the lack of organic littoral watercraft, which meant that the division had to stop its advance in front of the increasing Japanese resistance and make a full-scale assault across the Busu River rather than using the littoral spaces to outmanoeuvre the enemy.[31]

Nonetheless, the operation was an outstanding success. From fighting a land campaign in a maritime environment during the operations over the Kokoda Trail and at Buna, Gona and Sanananda in 1942, in 1943 the Allies in the SWPA were conducting complex combined arms and joint operations utilising manoeuvre warfare to shatter the enemy's physical and moral cohesion. The magnitude of the assault's success was clear: it took only 12 days from the 9th Division's amphibious assault for Lae to fall, costing total casualties in I Australian Corps of 115 killed, 501 wounded and 73 missing.[32] By way of contrast, the battles for Buna, Gona and Sanananda had lasted 64 days and cost 6,900 casualties.[33]

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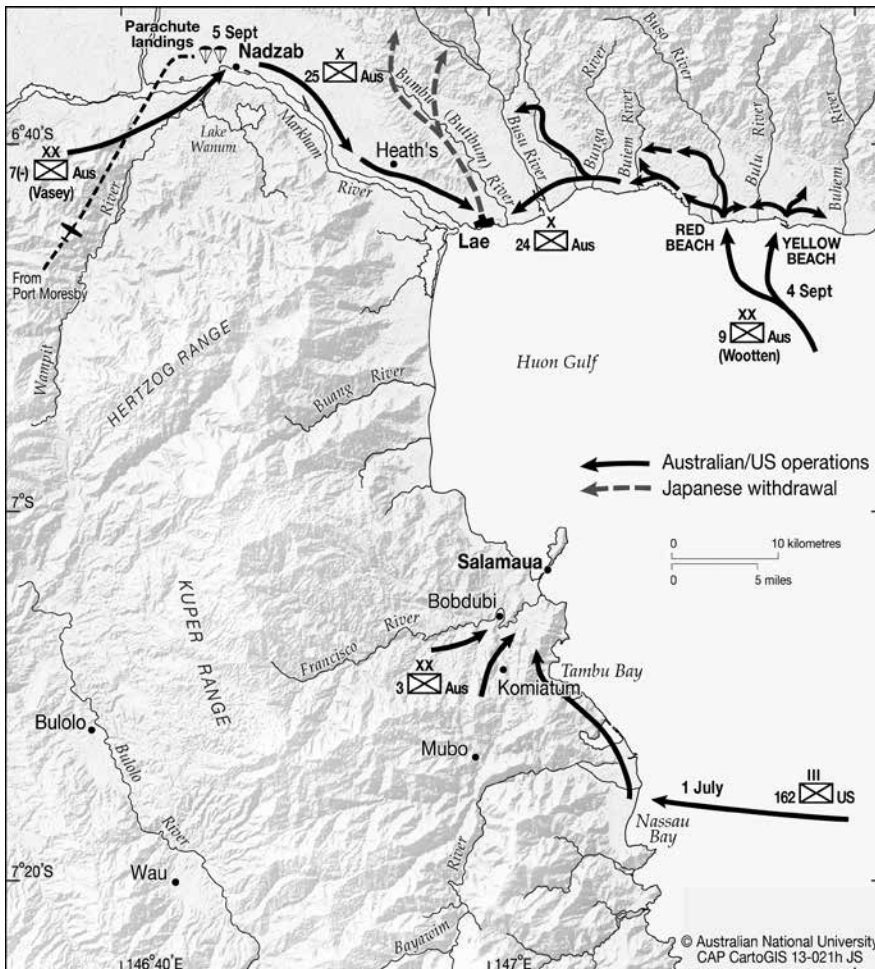
Figure 5. Assault on Lae, September 1943. Map by ANU Cartographics. (Source: reproduced courtesy of the author)

After this lightning victory at Lae, the Commander of Allied Land Forces SWPA, Australian General Sir Thomas Blamey, authorised the 9th Division to make a second amphibious landing at Finschhafen while the 7th Division leapfrogged up the Markham Valley on foot or by air insertion. After the successful, although not unproblematic, amphibious landing and seizure of the high ground at Sattelberg, the 9th Division was tasked to 'exploit along the coast'. By now the 9th Division were exceptionally tired, leading the Corps Commander, Lieutenant General Frank Berryman, to order a

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reduction in the 9th Division's tempo to 'ease the physical strain on the
forward troops' by 'drastically reduc[ing] the depth of the inland patrolling'
and leapfrogging units forward by sea.[34]
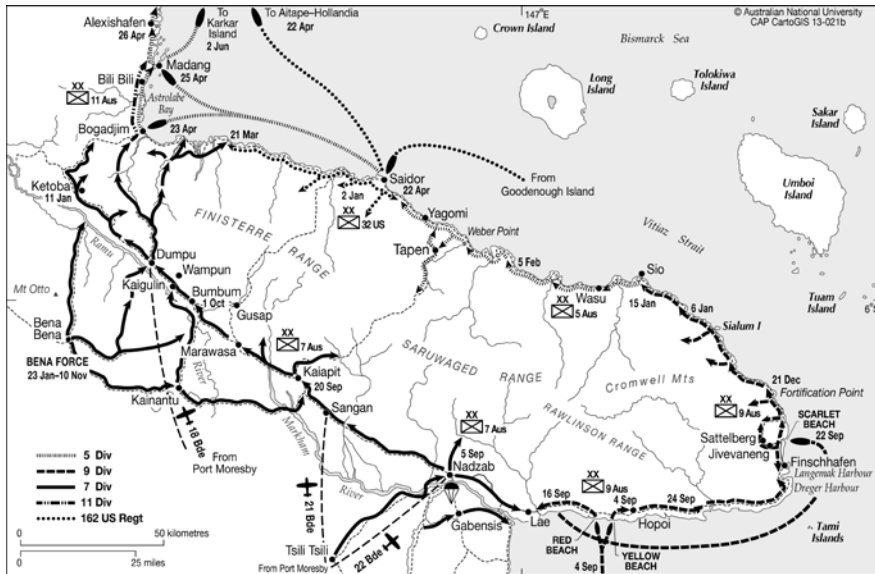
**Figure 6. Huon Peninsula operations, 1943. Map by ANU
Cartographics. (Source: reproduced courtesy of the author)**

The basic operational approach by the 9th Division in the Huon Peninsula was
to advance using one brigade, generally with as little as only one company
leading the coastal advance. Maximum use was made of tanks and artillery
and, where possible, units and supplies were moved along the coast via
landing craft.[35] To reduce Japanese rearguards, the basic tactical approach
was to make contact with Japanese blocking positions, pin them in place
with artillery, infantry and tanks, and then insert infantry and further armour in
their rear via littoral watercraft. This forced the Japanese to withdraw or be
destroyed in place. However, the division's advance was limited to the extent
to which its attached US Navy boat and shore regiment (from the Engineering
Special Brigade) could provide support to its operations.

Subsequently to this campaign, Army very quickly raised two Beach
Landing Groups, with each group capable of handling a division-sized
assault to improve its logistical and beachhead organisation. A further two
Army watercraft groups ensured that sufficient organic lift was available

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for operations across the archipelago. By 1945, the Army was operating over 1,800 small, medium and large littoral vessels. These craft were the lifeblood of logistics resupply and became the platform of choice for tactical manoeuvre by the Army in the South Pacific.

In the Army's 1945 assault in Borneo, the 2nd AIF's transformation in littoral and amphibious warfare was so advanced that it conducted the last of what US Marine Corps Colonel Joseph H Alexander described as 'storm landings'. Storm landings are long-range amphibious assaults designed to land into the heart of an enemy's defences, utilising overwhelming firepower through naval gunfire support, land- and carrier-based aviation, tracked armoured landing vehicles, and combined arms operations. This formidable strike-power was enabled through highly specialised equipment, tactics, techniques and procedures.[36]
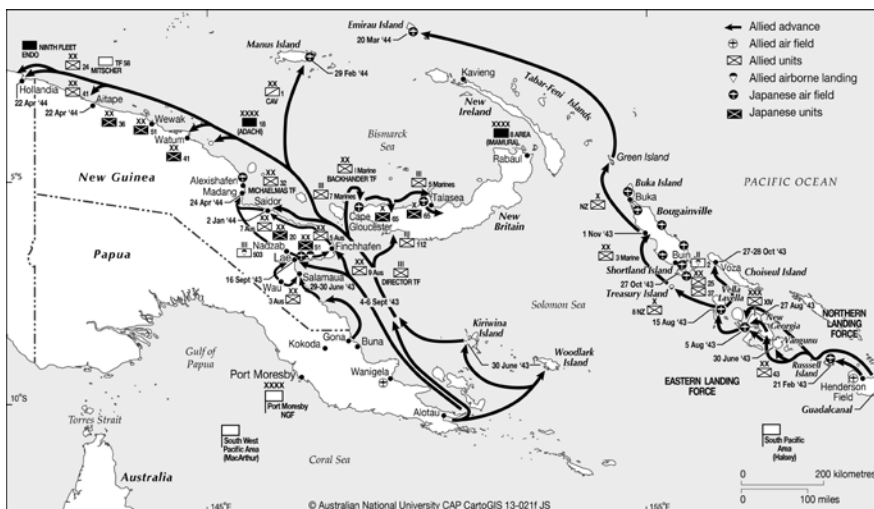
Figure 7. Allied operations in SOAC and SWPA, 1943. Map by ANU Cartographics. (Source: reproduced courtesy of the author)

Australia's operations were also one part of a much broader multi-theatre campaign plan. The 1943–1945 manoeuvres were truly multi-domain operations[37] and the orchestration of this combat power was founded on network-centric warfare using the latest technology. While perhaps considered modern principles, multi-domain operations and network-centric warfare approaches were employed by Army in 1943. The enduring lessons from this period have been analysed by the People's Liberation Army (PLA).

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As Toshi Yoshihara has outlined, the PLA 'have subjected the [Pacific War] maritime conflict and its campaigns to scrutiny' and:

> their writings frequently link the insights from the Pacific War campaigns to contemporary military affairs, including warfare in the information age, modern amphibious operations, shore-based firepower, and expeditionary logistics [and thereby] offer tantalising hints of the PLA's deeply held beliefs, assumptions, and proclivities about future warfare, such as the penchant for striking first and attacking the enemy's vulnerabilities. They also reveal the kinds of longstanding weaknesses that the PLA is seeking to reverse, including logistics.[38]

Further, these World War II campaigns demonstrate that the concept of anti-access/area denial (A2AD) warfare is not new. In the maritime domain, this tension is as old as clashes between ships and forts. In the Pacific War, the Imperial Japanese Navy and Imperial Japanese Army (IJA) adapted and innovated in response to increasing Allied dominance at sea and in the air. Using land- and carrier-based aviation, the Imperial Japanese forces developed a system of A2AD warfare that analysed how to oppose and defeat Allied amphibious landings. In the IJA, the debate was focused on whether to defend the shoreline, or establish in-depth defences to denude Allied offensive operations. After failed attempts at defence on the shoreline, and the eclipsing of Japanese carrier- and land-based aviation, the Japanese moved to defence-in-depth ashore to impose attrition on the Allies and hold the Allied naval covering forces in place.[39] Holding Allied naval forces over extended lines of communication in the main battle space was designed to allow Japanese Army and Navy aviation to utilise its main anti-access platform: the kamikaze. Kamikazes can, in modern parlance, be considered as autonomous manned anti-ship cruise missiles. On 21 October 1944, HMAS *Australia* was 'the first Allied ship to be hit by a suicide aircraft'—which killed the commanding officer and 29 crew and wounded 64.[40]

While the Pacific campaigns are part of Army's history and culture, they are a wellspring for lessons to be relearned and rediscovered—from tactics and administration to operations and strategy. These campaigns are fundamentally important because of the enduring impact of geography on military operations. Their study leads to some key takeaways for the operating environment today:

- The importance of joint operations. As noted, the SWPA operating environment is an archipelago. All major military actions in the South

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Pacific theatre occurred in the 'littoral zone', where air, land and naval assets operating together are essential for success. All major naval battles were fought over land features or in sight of land. These observations also extend to the Central Pacific area of operations from 1943—from the defeat of the Japanese amphibious force bound for Port Moresby in the Coral Sea, to the operations at Midway, Guadalcanal, Tarawa, Saipan, Leyte Gulf, the Philippine Sea, Okinawa and Iwo Jima.

- The length of time required to develop new capabilities. The time, effort and cost of reconstituting major capabilities and platforms—especially major warships and amphibious shipping—is much longer than that required to develop small littoral craft and to put them into production.

- The critical importance of land-based air power to sea control, especially in archipelagos that were avoided by naval carrier battlegroups due to the lack of sea room.

- The critical importance of sea control so as to use the ocean as a manoeuvre space for land forces.

- The critical importance of land forces for persistence and to seize and hold the vital terrain, especially ports and airfields as well as towns and major cities, logistical hubs and critical infrastructure.

- The need for a functioning institutional (administrative, structural) system for littoral and amphibious warfare and the development of a 'archipelagic army'—one that is as comfortable conducting jungle and urban operations ashore as it is manoeuvring and striking from the sea, and providing sea and air denial capabilities.

While these lessons are enduring, there are as many changes as there are continuities in this operating environment. This means that the Australian Army must also deal with some fundamental contemporary changes and challenges.

The SWPA was a region fought over largely by 'external' powers in a period still dominated by colonialism. Now, this region is home to sovereign states and vibrant economies that reflect the nature of our modern world. For instance, it is estimated that by 2050 Indonesia will be the fourth largest economy in the world.[41] Never have bilateral and multilateral regional partnerships been more key. In an era of strategic competition, the most effective means of prevention of war is the maintenance of a regional military balance that creates the conditions for all states to exert their sovereignty,

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free from coercion. Army-to-army contact, engagement, exercises and confidence-building measures are essential for Australia and all like-minded states in the region.[42] As 2020's *Army in Motion* states:

> [B]uilding relationships, capacity and resilience with other land forces… demonstrates credible and potent land power to deter adversaries … and to respond to disasters, crisis and conflict. This is critical for Australia's ability to support Allies and partners in the region and our support to helping maintain their sovereignty.[43]

Just as profound as changes to human geography in the region are the changes to our 'technological geography'. These challenges are, in some ways, the same yet different. While a World War II digger would, for instance, step onto a modern landing craft and be completely comfortable with its layout, operations and configuration, the digital landscape he would encounter would be completely new. Modern navigation and communications systems, the use of satellite and infrared et al. would be foreign to any member of the 2nd AIF. Trying to absorb the use of modern autonomous systems, artificial intelligence, quantum computing, robotics, hypersonics and human-machine teaming would be entirely alien. Similarly, the pervasiveness of command, control, communications, computers (C4) and intelligence, surveillance and reconnaissance (C4ISR) capabilities would vex the average soldier of the 2nd AIF.

Another significant factor is the growth of military lethality and precision guided munitions, as well as the re-rise of A2AD technology in a return to the long-running friction between access and denial—that is, between offensive and defensive firepower.[44] This latter point is demonstrated by the ever-increasing range of strike capabilities that expands reach and seemingly shrinks the previous benefits of geographical distance. Where once Australia was a far-off and 'safe' bastion, it is now within range of critical capabilities from the region's major powers.

The move to a multi-polar strategic environment and the rise of major power competition means that in any widespread major conflict there will be an open contest in all domains. Access and use of key domains by any belligerent is not assured, and control of the air, sea, land, cyber and space may well be temporal. This new reality will require relearning some old lessons and adapting some new ones. The impact of surveillance, reconnaissance and targeting over very long ranges is, however, nothing

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new. In the Papuan campaign of 1942, for example, and especially the
beachhead operations from September 1942 to January 1943, neither side
had air superiority or sea control.
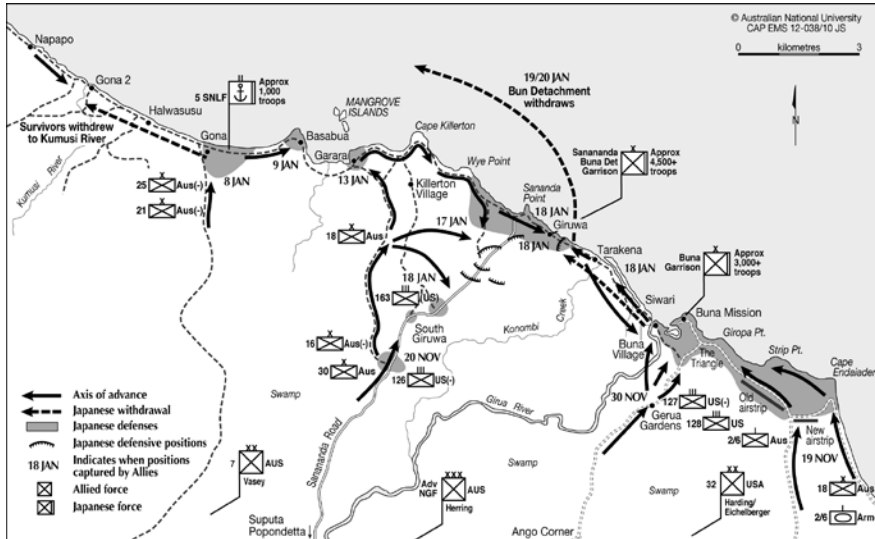
**Figure 8.The beachhead battles, northern New Guinea,
November 1942 to January 1943. Map by ANU Cartographics.
(Source: reproduced courtesy of the author)**

At best, both sides were able to achieve temporal air control, but it was
always contested. The lack of air control meant that neither side could
achieve sea control, thus confining the campaign to a gruelling attrition style
of operations: a land campaign in a maritime environment. Most significantly,
the limitations of sea control on logistics for the Army limited force flow
and constrained its ability to conduct combined arms operations.[45] It took
17 plane-loads, for instance, to move just one troop of two 25-pounder
artillery pieces to the beachheads area from Port Moresby, including only
306 rounds of ammunition per gun. It was also an operation limited by
the atrocious weather.[46] For the Japanese, this lesson led to a focus on
supporting and reinforcing their land forces through infiltration—small
barges and littoral craft were the means for logistics and reinforcement
and their eventual withdrawal. Such platforms proved effective as they
were low signature, low cost, mobile and fast moving, and used distributed
manoeuvre. While large-scale shipping access was important at the
operational and strategic levels, tactical littoral manoeuvre and supply was

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dependent on small craft. This is a lesson not lost on contemporary military forces in the Indo-Pacific region, who have adapted concepts and force structures to respond to these enduring operational challenges.[47]

Leading this intellectual reconsideration of littoral manoeuvre and the character of operations in the modern Indo-Pacific operating environment is the US Marine Corps. The Marine Corps has introduced numerous innovative warfighting concepts and stood up new Marine Littoral Regiments to carry them out. Its focus is on peer-to-peer warfighting, predominantly in the Indo-Pacific.[48] At the same time, the United Kingdom's Royal Marines and the Netherlands Marine Corps have introduced similar littoral warfighting concepts in recent years. The Royal Marines proposal employs two Littoral Response Groups: one based in Europe and the other in the Indo-Pacific. However, these are not problems for marine corps alone. The vast bulk of the fighting, amphibious, littoral and archipelagic operations in the Pacific War were conducted by armies (including the Australian Army) that had to adapt to, and adopt, the same or similar operational concepts. By 1945, the Australian Army had its own extant amphibious doctrine and tactics, techniques and procedures for archipelagic warfare.[49]

A Ship Is a Fool to Fight a Fort

This primer concludes with one of the most fundamental operational changes between the Pacific campaigns of World War II and today, which relates to the role of long-range land-based A2AD systems. This development has and is reshaping how modern high-intensity warfare could potentially play out in the Indo-Pacific. Weapons range was a key factor in determining the commitment and use of tactics to exploit and manoeuvre in the littoral. In 1942 at Rabaul, Australian forces melted back into the jungle or went into captivity because the absence of Allied air and naval power left them at the mercy of the Japanese naval force and landing force. At Port Moresby the same year, Australian militia units waited patiently for the outcome of the battle of the Coral Sea as their fate hung in the balance. If the Allied naval forces were defeated, the land force's weapons were completely outranged by an IJN task force comprising carrier aircraft, cruisers and destroyers. At Lae in 1943, the 9th Australian Division landed just over 12 miles outside of the main objective—just outside the range of Japanese artillery. At Tarawa, Okinawa, Iwo Jima and all the major amphibious landings later in the Pacific War, the

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IJA's coastal defence batteries could only engage Allied ships at very limited ranges and its anti-aircraft defence was measured in a small number of miles. The anti-access battle was at sea and in the air, while the land forces' area denial capabilities against air and naval forces were limited to the very close-in fight, and were almost always outranged and outgunned.

During World War II, air control provided sea control, while sea control allowed the manoeuvre of land forces to bypass the enemy or to strike at key points of one's choosing. Now, the proliferation of long-range surface-to-air, surface-to-surface and land-based anti-ship missile systems have the potential to be much more decisive, reshaping the role of land forces in the integrated force. Land-based systems are generally lower cost than naval or air platforms, can be replaced and reconstituted more easily, and have greater persistence that can be measured in weeks, months and years, as opposed to minutes, hours or days.

The provision of highly mobile land-based A2AD systems is now an essential competent of an integrated force. It gives the joint force commander an exponentially expanded range of options. This is because land power now has the potential to provide a major contribution to sea denial/control on the surface of the ocean for the navy to operate, or to provide air denial/control to allow access for air forces and/or the manoeuvre of land and naval assets. Land forces also now have the ability to provide highly distributed and networked mobile land-based forces capable of utilising camouflage, concealment and deception in highly complex archipelagic terrain. In the littorals and especially archipelagos, with their much higher concentrations of land area to water, this provides an expanded range of options to complicate intelligence, surveillance and targeting. In many respects, land systems provide an asymmetric advantage to major adversary fleet units that are optimised for naval and air attack and defence. If land forces are equipped with mobility on land *and* at sea, they can be quickly positioned and repositioned using infiltration methods. By employing autonomous systems, they also have the potential to generate mass at critical operational points at sea, in the air and on land.

In any war involving major powers that becomes protracted—and history shows us that attrition and protracted conflict are the norm among such powers—land-based systems are highly capable of reconstitution, are cost effective and are relatively easy to replace. Interlocking land-based A2AD

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systems, working in an integrated fashion with naval and air power, and supported by cyber and space capabilities, offer the foundation to any major denial campaign at the strategic and operational level of war, which will be critical to establishing temporary sea and air control to achieve operational effects. This is at the heart of the strategy outlined in the DSR. Thus, localised superiority in the archipelago is not dependent on air power or naval power to provide sea control. Rather, it is about localised superiority that can be provided from all domains. This includes enabling by land forces to create synchronised effects from key terrain.

In totality, mobile, low-detection land forces can deliver a distributed system of 'mobile forts' in the littorals and archipelagos that have the ability to open and provide access to air and naval forces. Perhaps, in the contemporary battle between access and anti-access, we may well need to (once again) learn from Admiral Horatio Nelson's reported dictum that 'a ship is a fool to fight a fort'[50]—especially one that is low detection and is constantly on the move in complex archipelagic terrain.[51]

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Tenets for Littoral Operations

Matthew Scott

Introduction

The intersection of land and sea both defines Australia's borders and characterises the Australian military's primary operating environment. With 90 per cent of the global population living within 1,000 km of a coastline (including 40 per cent living within 100 km), 90 per cent of international trade traveling between ports, and 95 per cent of global communication transmitted through submarine cables, littoral environments hold significant strategic importance.[1] Nevertheless, the conduct of littoral operations has not always been at the forefront of Australian military thinking. Despite Australia's extensive littoral experience during the Second World War, Defence White Papers from the 1970s to the 1990s focused narrowly on the northern approaches to continental Australia (known as the 'air-sea gap') while largely ignoring the land component of the littoral environment.[2] These 'Defence of Australia' policies emphasised the roles of the Royal Australian Navy (RAN) and Royal Australian Airforce (RAAF) while relegating the Army to rear security across northern Australia.[3] The shortcomings of this approach became clear when violence engulfed one of Australia's northern neighbours, East Timor, in 1999.

The Australian-led intervention into the country now known as Timor-Leste highlighted the need for expeditionary land forces capable of operating in Australia's near region. Subsequent White Papers responded to this

realisation by seeking to close the capability gaps that had existed under the 'Defence of Australia' policies, including by establishing the Australian Amphibious Force.[4] Although amphibious forces were a step forward, recent strategic updates have provided the impetus for the Australian Defence Force (ADF) to reconsider littoral operations in broader terms, including through the development of 'Army littoral manoeuvre' capabilities.[5] As General David Berger, the former Commandant of the United States Marine Corps (USMC) has emphasised through the Force Design 2030 initiative, littoral operations required broader concepts and capabilities than amphibious operations alone.[6] Like any opportunity for change, Australia's renewed interest in littoral operations brings with it uncertainty. What exactly are littoral operations? How do they differ from amphibious operations, if at all? How do littoral operations relate to maritime strategy? Answering these questions will set the ADF on the right path to overcome the challenges and exploit the opportunities that littoral environments provide.

While the ADF is increasingly using the term littoral operations to describe future capabilities and force structures, it is yet to establish a common understanding of what littoral operations are. Milan Vego has argued that 'perhaps the most important prerequisite of success in littoral warfare is a solid theory developed ahead of time; otherwise, it is not possible to organise and train forces properly'.[7] The crucial first step towards developing such a theory is to define littoral operations clearly and distinctively. Surprisingly, such a definition is not readily available, with littoral operations caught between the narrower concept of amphibious operations and the broader concept of maritime strategy. The second step to establishing an effective theory for littoral operations is to identify the most important considerations that should guide force design, planning, and operational execution. Much like the principles of war[8] or tenets of manoeuvre,[9] establishing tenets for littoral operations offers guideposts to support decision-making. By defining littoral operations in terms that are broader than, but also inclusive of, amphibious operations, and by seeking to achieve cross-domain mobility, cross-domain effects, unified command and control (C2), endurance and interoperability during these operations, Australia can exploit the opportunities that littoral environments provide.

Framing and Defining Littoral Operations

The concept of littoral operations offers the greatest value if it is broader than traditional definitions of amphibious operations (incorporating the latter as a subset) while remaining within the wider context of maritime strategy. If the ADF defines littoral operations so broadly that they mirror maritime strategy, then the former term is redundant. Likewise, if amphibious and littoral operations are equivalent terms, then using the latter terminology provides no value. Further, expanding existing amphibious definitions to incorporate the full spectrum of possible littoral operations risks diluting these important concepts. Fortunately, while the capabilities and force structures the ADF is developing are new, Australian operations in littoral regions are not. From Gallipoli to the South West Pacific Area, to Timor-Leste, Australia has a broad military history from which to draw the necessary lessons for the future. Establishing a definition for littoral operations that provides distinction from amphibious operations while nesting within the concept of maritime strategy would enable the ADF to frame littoral operations in a manner that exploits the full range of unique military opportunities. Figure 1 represents the author's proposed relationship between maritime strategy, littoral operations, and amphibious operations.

Figure 1. Proposed relationship between maritime strategy, littoral operations, and amphibious operations

While the concept of maritime strategy incorporates the littoral environment, it necessarily does not delve into the detail required to conduct successful littoral operations. On the other hand, amphibious operations are generally described in ship-to-shore terms that exclude a range of potential littoral actions. Current Australian doctrine recognises five types of amphibious operations (demonstration, raid, assault, withdrawal, and support to other operations), all of which feature a ship-to-shore focus.[10] The employment of a Navy-Marine Expeditionary Ship Interdiction System (NMESIS) inserted by C-17 aircraft to deny a key shipping lane offers an example of a potential littoral operation that

would not include a ship-to-shore component. Coastal defence operations and the expeditionary advanced base operations (EABO)[11] concept developed by the USMC offer further examples that are not necessarily amphibious but are certainly littoral.[12] Nevertheless, amphibious operations remain complex and should therefore remain a distinct and important subset within the broader concept of littoral operations. If littoral operations are narrower than maritime strategy but broader than amphibious operations, how then should they be defined?

Examining the key theoretical foundations for maritime strategy offers a useful start point for developing a meaningful definition for littoral operations. Given that littoral operations reside at the boundary between discrete land and naval operations, they necessarily form a subset of maritime strategy. Alfred Thayer Mahan, a key influence on US concepts of maritime strategy, argued that 'the use and control of the sea is and has been a great factor in the history of the world'.[13] Writing in the late 19th and early 20th centuries, Mahan sought to redress a perceived disinterest in sea power as a component of national power. Mahan contended that blockades and decisive naval battles were the key actions within successful strategies, arguing that 'nations, like men, however strong, decay when cut off from the external activities and resources which at once draw out and support their internal powers'.[14] By elevating the profile of naval operations, Mahan's work contributed to concepts of maritime strategy that value naval forces alongside those on land. Still relevant today, Mahan's work suggests that the ADF should continue to give the maritime domain due weight alongside the land domain when conceptualising littoral operations.

Whereas Mahan conceptualised land and naval operations as discrete options competing for primacy, Julian Corbett's *Some Principles of Maritime Strategy* recognised their critical interdependence. Corbett argued that habit and a lack of scientific thought had resulted in land and naval strategy being considered separately, whereas 'embracing them both is a larger strategy which regards the fleet and army as one weapon'.[15] By defining maritime strategy as 'the principles which govern a war in which the sea is a substantial factor', including determining 'what part the fleet must play in relation to the action of the land forces',[16] Corbett was able to integrate traditionally disparate land and naval concepts. He was particularly interested in integrating land and naval forces to conduct limited war, employing navies to isolate discrete areas while seizing limited objectives on land. Corbett recognised that strategic priorities may shift between naval and land forces, writing:

> *It may be that the command of the sea is of so urgent an importance that the army will have to devote itself to assisting the fleet … on the other hand, it may be that the immediate duty of the fleet will be to forward military action ashore.*[17]

While littoral operations are not confined to the conduct of limited war, Corbett's conceptualisation of strategies, which integrated both land and naval forces, suggests that an ADF definition for littoral operations must likewise value both land and maritime domains equally.

Although the theories of Mahan and Corbett shaped maritime strategy in the late 19th and early 20th centuries, concepts for amphibious operations pre-date both by several centuries. Amphibious operations have been conducted since at least as early as 490 BC,[18] albeit that formalised and cohesive amphibious doctrine did not emerge until the 18th century when, in 1759, Thomas More Molyneux published *Conjunct Expeditions.*[19] Reflecting on the failure of British forces to capture the French port at Rochefort during the Seven Years War, Molyneux identified that:

> *… the Littoral War where our Fleet and Army act together, hath ever been in so low esteem, that no one hath applied himself sufficiently to that fort of Study, to explore its real Virtues.*[20]

Molyneux offered a compelling assessment of the challenges and opportunities that littoral operations present:

> *[A] Military, Naval, Littoral War, when wi[s]ely prepared and discreetly conducted, is a terrible Sort of War. Happy for that People who are Sovereigns enough of the Sea to put it in Execution! For it comes like Thunder and Lightning to some unprepared Part of the World.*[21]

Molyneux's concepts are readily recognisable in modern amphibious operations; his work identifies the landing, operations ashore, and re-embarkation as key distinct phases while emphasising the importance of 'mass, surprise, and momentum'.[22] Not only did Molyneux's writing shape the subsequent conduct of the Seven Years War; his contributions 'can rightly claim paternity of amphibious doctrine'.[23] Like the theories presented by Corbett, Molyneux's work suggests that littoral operations should be defined in terms that best integrate both land and maritime forces.

Figure 2. Australian Army soldiers post security for an amphibious raid during a multinational littoral operations exercise as part of Rim of the Pacific (RIMPAC) 2022. (Source: Defence image gallery)[24]

While *Conjunct Expeditions* formed the first amphibious doctrine, the further development of littoral operations has continued over the subsequent centuries. Seeking to learn from the Allied experiences at Gallipoli, the USMC invested heavily in education, doctrinal development, and practical experimentation between 1918 and 1939 to refine concepts for amphibious landings and other littoral operations. The USMC formalised its amphibious doctrine in the *Tentative Manual for Landing Operations* issued in 1934. The operational complexity reflected in the *Tentative Manual for Landing Operations* (and subsequently demonstrated during the Second World War) highlights the need to retain amphibious operations as a distinct concept rather than diluting it with the wider opportunities presented by the littoral environment. Concurrent to the development of amphibious capabilities, the USMC developed doctrine for other forms of littoral operations, including the *Tentative Manual for Defense of Advanced Bases*, which in 1936 detailed coastal defence and the establishment of expeditionary advanced bases. While USMC doctrine during the interwar period did not use the term littoral operations as an overarching concept, it nevertheless recognised that military operations in littoral regions are not limited to ship-to-shore

actions. Accordingly, the ADF should define littoral operations in terms that incorporate amphibious operations as a distinct subset while also covering operations that do not fit traditional ship-to-shore constructs.

It was not until 2017 that littoral operations gained momentum as a distinct concept within the US military when it began deliberately using the term to shape thinking beyond ship-to-shore actions while developing contemporary operational concepts. Specifically, in *Littoral Operations in a Contested Environment* (LOCE) the US Chief of Naval Operations and the Commandant of the Marine Corps explicitly employed the term littoral 'to frame the content in a manner that is much broader than just amphibious operations'.[25] LOCE sought to develop 'additional, versatile force options; a wider application of existing doctrine; and the more flexible employment of current, emerging, and some potential capabilities'[26] for use in contested littoral environments. Recognising the increasing challenges that littoral operations present, LOCE argued:

> [T]he range of modern sensors and weapons extends hundreds of miles both seaward and landward, blurring the distinction between operations at sea and on land and necessitating an operational approach that treats the littorals as a singular, integrated battlespace.[27]

The approach taken by the US reinforces the need for the ADF to define littoral operations in terms that are broader than but still include amphibious operations.

Like the US, the UK has recognised that the littoral environment offers broader scope for military actions than just those considered under the banner of amphibious operations. The UK's 2022 'Maritime Operating Concept' highlights the importance of littoral operations by positioning 'littoral strike' as one of the four key organisational outputs.[28] Building on the Future Commando Force modernisation program,[29] the 'Maritime Operating Concept' lists the provision of 'an amphibious advance force able to ensure rapid entry to the fight' as just one necessary littoral capability amongst many.[30] *Joint Doctrine Publication 0-10 UK Maritime Power*, released in 2017, proposed that the definition of a littoral region should be expanded to include 'those areas of the sea susceptible to engagement from the land, from both land and air forces'[31] (although that change has not yet been

implemented in the *UK Terminology Supplement*).[32] The UK's decision to highlight the importance of littoral operations as a distinct military concept further reinforces the need for the ADF to establish a clear and concise definition that encapsulates the full scope of littoral operations.

While both contemporary concepts and historical operations demonstrate the breadth of opportunities that littoral operations provide, current formal definitions have failed to adequately articulate the concept. The term littoral has a scientific rather than military foundation: 'at its most basic, littoral relates to coasts and coastal regions, deriving from the Latin word for "shore"'.[33] Nevertheless, military littoral concepts have expanded beyond the shoreline:

> [I]n both seaward and landward terms, the notion and size of the littoral area evolves, driven by the technology that increases the range of weapons and mobility platforms that can affect and operate within these littoral areas.[34]

As militaries increase their ability to project force across the land and maritime domain boundary, the size of the littoral environment grows. Adding to the lack of clarity, many definitions (including the current Australian definition of 'littoral manoeuvre',[35] the US definition of 'littoral',[36] and the UK definitions of 'littoral manoeuvre' and 'littoral region'[37]) reflect only ship-to-shore concepts and therefore mirror amphibious operations. If littoral operations and amphibious operations are the same, having both terms only causes confusion. Clearly defining littoral operations in broader terms is therefore key to exploiting the opportunities that exist outside of ship-to-shore operations within a littoral environment.

Given the insights offered by Mahan, Corbett and Molyneux, as well as the US and UK militaries, how then should the ADF define littoral operations? The *ADF Glossary*[38] does not currently contain an authorised definition for littoral operations; however, the 2017 RAN publication *Australian Maritime Operations* suggests that 'littoral operations are those influenced by the interface between the land and the sea. These can encompass the entire spectrum of operations'.[39] This definition succeeds in framing a wider concept than just ship-to-shore operations; however, it is likely too broad to be genuinely useful. Army's now obsolete *Manoeuvre Operations in the Littoral Environment* (MOLE) doctrine published in 2004 described 'littoral' as 'that area defined by the close proximity of the land, sea and air, where the operational effects of land, sea and aerospace power would overlap'.[40]

By highlighting the cross-domain effects that characterise littoral operations, the MOLE definition offers a strong starting point. Building on the RAN and MOLE definitions, and recognising the lessons gleaned from historical theorists and allied militaries, the ADF should define littoral operations as:

> *Operations conducted in areas defined by the close proximity of the land and sea where the greatest military advantage is achieved by treating land and water as a cohesive, interrelated battlespace.*

By adopting this definition, the ADF can establish a common understanding of littoral operations that will support their successful conduct.

Establishing Tenets for Littoral Operations

A conceptual framework underpinned by the establishment of a clear definition of littoral operations can be further enhanced by establishing a list of tenets to guide planning, force structures, and the execution of operations. Such a list of tenets would guide ADF efforts to exploit opportunities and minimise challenges within the littoral environment. Existing doctrinal lists such as the principles of war[41] and tenets of manoeuvre[42] have demonstrated the utility of this approach. These existing lists were established on strong historical footing, yet they have been incrementally adjusted over time through further organisational experience. Accordingly, the ADF should establish tenets for littoral operations based on lessons from the past, while further developing this framework into the future. British statistician George EP Box's often-quoted observation that 'all models are wrong, but some are useful'[43] reinforces that a list of tenets cannot guarantee success but that they can nevertheless offer a useful model for conducting littoral operations. The measure of a list of tenets is their usefulness rather than their ability to provide certainty. A review of historical operations and recent US littoral concepts suggests that cross-domain mobility, cross-domain effects, unified C2, endurance, and interoperability offer a sound foundation for the ADF to employ as five tenets for littoral operations.

Tenet 1: Cross-Domain Mobility

The opportunity to employ cross-domain mobility, transitioning between the movement of forces on land and on water, offers unique advantages during littoral operations. Cross-domain mobility allows forces to bypass surfaces

in one domain by exploiting gaps in another. Whereas land operations treat the water as an obstacle, and naval operations view land as a barrier, littoral operations are most effective when both are employed as manoeuvre space. The USMC Force Design 2030 initiative has identified mobility within littoral regions as 'a competitive advantage and an operational imperative', with experimentation highlighting a need for 'operational and tactical mobility to provide joint force commanders a capability that operates with minimal dependence on theatre lift assets'.[44] Forces that can seamlessly transition between movement on land and movement on water (including for shore-to-shore manoeuvre) have a significant advantage during the conduct of littoral operations.

From a historical perspective, the Australian 9th Division's advance to Lae, New Guinea, in 1943 highlights the impact that a lack of cross-domain mobility can have on littoral operations. Having redeployed to New Guinea following 'an arduous desert campaign in the Middle East which included the eight-month defence of Tobruk against Rommel's Afrika Korps',[45] the 9th Division successfully executed the first large-scale Australian amphibious assault since Gallipoli. Following the amphibious assault, the 9th Division was to 'advance through rugged country to the major Japanese stronghold of Lae where it would link with the 7th Division to capture the town and its crucial airbases, probably in the face of stiff opposition'.[46] Despite generating initial tempo against the defending Japanese, the 9th Division's momentum was significantly impeded by an inability to move 'troops in bounds along the coast and so avoid the slogging march along the coastal flats'[47] and by its inability to cross the swollen Busu River.[48] After a five-day delay the advance continued,[49] but not before allowing 'the Japanese to adapt their plans to not only oppose the 9th Division's advance, but also conduct an effective withdrawal to the north of Lae'.[50] Had the 9th Division been capable of cross-domain mobility, the watercourses around Lae would have offered an opportunity rather than an obstacle.

Tenet 2: Cross-Domain Effects

The close proximity of the land and sea, as well as the interrelations between land and maritime effects, make cross-domain effects an obvious tenet of littoral operations. Cross-domain effects refer to the ability of a force to deliver effects outside of the domain where that capability resides, including fires; intelligence, surveillance and reconnaissance (ISR); and information warfare. The ability of an anti-shipping missile system to engage targets

in the maritime domain from the land domain is an example of a cross-domain effect. Littoral operations are more potent when effects can be applied across domain boundaries to enable land, air, and maritime forces to threaten adversaries while shielding their own capabilities. The previous Commandant of the USMC, General Berger, highlighted the need for a force that can 'provide critical links for highly lethal naval and joint fires kill chains'.[51] His predecessor General Robert Neller emphasised the need to 'integrate Navy and Marine Corps lethal and non-lethal effects from afloat and ashore'.[52] Cross-domain effects enable forces conducting littoral operations to achieve both dispersed and disproportionate impacts.

The 1555 siege of Porto Ercole in Tuscany by Imperial Florentine land and maritime forces during the Habsburg-Valois War demonstrated the impact of cross-domain effects during littoral operations. Prior to the capture of the island of Porto Ercoletto, cannons emplaced within the French-Sienese fort prevented Imperial Florentine naval forces from entering or blockading the harbour to support the ongoing siege.[53] Much like modern ground-based anti-shipping missiles, the ability of these land-based fires to target the maritime domain achieved a disproportionate effect. The seizure of the fort through a special operation proved to be the 'turning point in the siege'.[54] With the threat of land-based cannon fire from the fort removed, the Imperial Florentine fleet was able to block access to the harbor from the sea and offload cannons to support the subsequent operations on land. [55] With the necessary maritime conditions set, Imperial Florentine land forces were able to resume the offensive and force the surrender of the French-Sienese garrison.[56] The ability of the fort at Porto Ercoletto to apply cross-domain fires had been decisive; with the fort intact, neither naval nor land operations against Porto Ercole could succeed. Once these cross-domain effects were neutralised, the French-Sienese garrison quickly fell.

Tenet 3: Unified Command and Control

Given that militaries conduct littoral operations where multiple domains intersect, operational C2 must be genuinely unified across domains to exploit all of the available opportunities. Without this unified perspective, forces will likely regress to focusing on their traditional domain and will, therefore, miss critical opportunities. While examining the differences between littoral warfare and open ocean naval operations, Milan Vego has argued that C2 should 'be centralized at the operational level', while tactical C2 should be highly decentralised, should employ 'mission command', and should

seek a 'simple and streamlined littoral command structure, with the fewest possible intermediate levels'.[57] The US LOCE concept likewise recognises the need for unified C2, stating that 'task organizations will fight with unity of command, employing networked, sea-based and land-based capabilities as well as common doctrine and operating principles'.[58] Seeking to achieve the necessary unity, the USMC *Tentative Manual for Expeditionary Advanced Base Operations* (TMEABO) has recently introduced the term 'Littoral Force Commander' to refer to 'the officer who commands all forces within a littoral operations area'.[59] While the need for unified C2 may appear obvious, history has demonstrated the need for militaries to actively ensure that it is genuinely achieved if they are to avoid failure.

From a historical perspective, a wide range of examples illustrate the importance of unified C2 during littoral operations. One of the most significant examples is the failed 1757 British raid on Rochefort during the Seven Years War, which resulted in the writing of the first amphibious doctrine. British forces surprised the French at Rochefort with the arrival of 'thirty-one ships of war, forty-nine transports, and ten battalions of soldiers'.[60] Nevertheless the British land and naval commanders were unable to agree on a plan, resulting in the raiding party wasting the opportunity and withdrawing. The failure of this raid 'can be attributed in part to the fact that the question of command responsibilities had not been settled before the operation'.[61] With no single commander able to exercise unified C2, the conflict between land and naval considerations could not be overcome. Thomas Molyneux's subsequent publication of *Conjunct Expeditions* played a key role in ensuring that the British would not repeat this mistake: 'much was learned from Rochefort, for confusion concerning command responsibilities is not evident in subsequent amphibious campaigns of the Seven Years War'.[62]

Tenet 4: Endurance

Forces conducting littoral operations are continuously exposed to adversary multi-domain effects, therefore their success or failure is predicated on their level of endurance. Achieving this endurance requires forces to optimise their survivability, maintain sustainment and maximise resilience. The proliferation of modern sensors and long-range strike capabilities has made this a significant challenge, requiring mass and dispersion to be deliberately balanced to assure survivability.[63] As General Berger has highlighted, 'wargame after wargame suggests, fixed land bases and high-signature land forces will be vulnerable

to long-range precision weapons. Large naval vessels will likewise initially face considerable risk'.[64] Sustaining dispersed littoral forces increases the exposure of logistical nodes and distribution networks to multi-domain threats, necessitating further deliberate balancing of competing risks. The challenge of sustaining littoral operations is so significant that the USMC has recognised that in a 'distributed and contested environment, logistics is the pacing function for the Marine Corps'.[65] Endurance in many littoral environments is further challenged by tropical heat or glacial cold; while the rapidly increasing urbanisation of littoral areas 'will mentally and physically deplete soldiers at an exponentially faster rate than combat in other environments'.[66] Absent the survivability, sustainability and resilience necessary to maintain endurance in a littoral environment, any capabilities a military force can otherwise offer become irrelevant.

The failure of Argentinian forces to execute a littoral defence and retain the Islas Malvinas (Falkland Islands) during Operación Azul highlights the importance of endurance during littoral operations. Despite achieving a successful coup de main on 1 April, by 11 June 1982 the last of the Argentinian defenders had surrendered.[67] Shortfalls in both sustainment and resilience undermined the endurance of the Argentinian defence:

> *The conscripts sent to defend the Falklands were poorly trained and led, did not adapt well to the harsh South Atlantic winter, lacked motivation and were not supported well logistically.*[68]

The resilience of the Argentinian defence suffered most from a lack of long-term professional soldiers. The Argentinian military relied on intakes of short-term conscripts to generate combat power—there was 'no such thing as a "regular" private soldier'.[69] The failure to overcome the British blockade further undermined the endurance of the defences, depriving defending forces of weapons, ammunition, and equipment[70] while forcing a reduction in ration allocations.[71] Unable to achieve the sustainability or resilience required to persist against an enemy that exploited all of the converging domains, Argentinian forces were unable to secure their initial gains.

Tenet 5: Interoperability

The inherent complexity generated by the convergence of domains during littoral operations makes joint and coalition interoperability not just a force multiplier but an essential tenet. Historians have described littoral operations as 'inherently joint (multiservice) and often combined (multinational)'[72] and as requiring 'nothing short of the acme of combined arms and joint warfare'.[73] Interoperability requires more than varied services and nations simply working alongside each other; abilities to effectively communicate, share intelligence, integrate fires, and share sustainment are all critical. Further, not only does interoperability support the ability of forces to achieve cross-domain effects and maintain endurance but also it ensures that forces are flexible enough to exploit the wide range of littoral environments. Interoperability can ensure that 'the enemy is put at a great disadvantage against a multidimensional threat for which he might not have an effective counter';[74] however, it also requires 'sustained engagement with regional allies to maintain access and ensure support while operating in the regional littorals'.[75] While joint and coalition interoperability are essential for littoral operations, this integration does add further complexity to an already complex environment.[76] Despite these inherent challenges, the successful conduct of littoral operations requires forces capable of effectively supporting and being supported by joint and coalition partners.

Reinforcing the importance of interoperability, only good luck prevented Australia's first amphibious operation of the Second World War, Operation DRAKE, from becoming a disaster. Commencing on 22 October 1942, Operation DRAKE sought to clear Japanese special naval landing forces from Goodenough Island to the east of the New Guinea mainland.[77] In addition to the landing force lacking any previous amphibious training, the last-minute planning of the operation prevented rehearsals between the land and naval components.[78] Unable to move closer to shore, naval vessels disembarked the landing force 150 metres or further from the beach, 'leaving the infantry to wade through shin-deep water in the darkness and heavy rain'.[79] Once the landing was complete, the assigned naval forces immediately departed, leaving the force ashore with only the stores that they had already landed. While the absence of Japanese opposition during the landing mitigated the effects of these shortfalls, the lack of interoperability continued to disrupt the land force as the operation progressed.

Both joint and coalition interoperability limitations hindered the support available to the Australian attack. Naval gunfire was not available due to a lack of artillery observers; air cover from the US Army's 8th Fighter Group could only be provided during daylight hours; and 'with no air liaison officers, the 2/12th's air support requests had to be coordinated through the Milne Bay headquarters'.[80] Demonstrating the friction this lack of interoperability caused, 'when fighter support was expected for one attack, only Japanese aircraft appeared overhead, while a subsequent attack had to be delayed when the US fighters arrived 30 minutes late'.[81] Failing to cut off the Japanese forces as intended, the 2/12th Battalion completed their attack 'only to find the Japanese had escaped from the island in darkness using two Daihatsu [landing craft] which had been delivered earlier by Japanese warships and concealed from Allied aircraft'.[82] Not only did the lack of interoperability allow the Japanese forces to escape; it may also have resulted in a catastrophic failure had the initial landing been opposed.

Validating the Definition and Tenets

Testing the proposed definition and tenets through the analysis of historical littoral operations offers an opportunity to validate their usefulness as a cohesive framework rather than as isolated considerations. Amphibious operations provide many of the historical lessons for littoral operations; however, they are insufficient on their own to provide the full picture. Like any list of military principles, the proposed tenets for littoral operations are by no means deterministic or final. The imperfect nature of such lists necessitates ongoing refinement driven by further experience. Nevertheless, historical case studies suggest that the proposed definition is valid, and that the five proposed tenets for littoral operations are sufficiently important to the successful conduct of littoral operations to offer a useful starting point. Considered together, the Dardanelles naval campaign, Operation RIMAU, Operation OBOE II, and Operation JACKSTAY demonstrate the impact of the proposed tenets across a wide range of littoral operations.

Failing to Achieve Cross-Domain Mobility, Cross-Domain Effects, and Endurance: The Dardanelles Naval Campaign

The disastrous 1915 Dardanelles naval campaign demonstrated the risks that arise when military operations fail to treat both the land and maritime components of littoral regions as a cohesive space. The campaign sought

to separate Turkey from the Central Powers, relieve pressure on the Russians, secure the neutrality of the Balkan states, and enable allied forces to concentrate on the western front.[83] At the beginning of the campaign, Turkish land defences were comparatively weak; 'if a large military force had then been available, the gallant but appalling events of the landing two months later would never have occurred'.[84] The need to integrate land forces as part of any attempt to seize the Dardanelles was well known. Helmuth von Moltke the Elder had written in 1836 that 'if artillery equipment were to be arranged in the Dardanelles, I do not believe that any fleet in the world might venture to sail up the strait'.[85] The British Admiralty Foreign Intelligence Committee, General Staff and naval planners had all reached the same conclusion.[86] Nevertheless, when Lord Kitchener suggested that no land forces were available, Winston Churchill elected to attempt a naval operation anyway.[87]

The deliberate decision to attempt to force the Dardanelles using only naval forces undermined any opportunity to achieve effective cross-domain mobility. The only forces able to transition between the sea and land were small Royal Marine and Royal Navy landing parties assigned to vessels within the Allied fleet. Among the members of these ad hoc landing parties was Lieutenant Commander Eric Robinson, who was awarded the Victoria Cross for his efforts to destroy artillery pieces while his white naval uniform drew fire from Turkish defenders.[88] Landing parties relied on small, slow-moving picket boats and cutters to reach the shoreline. Unable to execute anything more than short-duration raids, these landing parties were effectively confined to the maritime domain rather than achieving genuine cross-domain mobility. Despite a small number of limited tactical successes, the landing parties employed in the Dardanelles failed to achieve any operational effect on land and therefore were unable to offset the operational failures of the fleet.

Naval forces attempting to force the strait were unable to generate the cross-domain effects necessary to mitigate the absence of land forces. Naval gunfire alone was insufficient to neutralise the Turkish coastal defences, which in turn prevented the Allied fleet from countering the threat of contact sea mines. Naval guns were largely designed to engage other naval targets through 'long-range, flat-trajectory fire'.[89] Turkish coastal guns, on the other hand, were specifically designed to engage targets in the maritime domain from their positions on land, thereby achieving cross-

domain fires. Significantly enhancing their endurance, the Turkish defences integrated both hardened coastal gun positions and 'also an assortment of field guns, mortars and howitzers … scattered in the hills and gullies either side of the Strait'[90]. Despite the known risks, the Allied fleet commenced the attack on 19 February 1915, seeking to attrit the coastal defences at long range before closing with their targets to apply decisive fire.[91] A German officer described these engagements:

> *The fighting on the following days always follows the same pattern: the fleet opens fire from a great distance; the Turkish batteries hold out; the ships draw near; counter-attack by the defenders, withdrawal of the attackers.*[92]

These tactics failed to neutralise the coastal defences and instead brought the fleet into range of the Turkish cross-domain effects.

Figure 3. At the water's edge lies Sapper Fred Reynolds, 1st Field Company Engineers, one of the first to fall on the Gallipoli Peninsula following the failure of the initial attempt to force the Dardanelles in 1915. (Source: AWM J03022)[93]

Unable to effectively apply their own cross-domain fires to neutralise the Turkish coastal guns, the attacking fleet instead attempted to employ small landing parties and minesweepers to regain the initiative. Despite these

efforts, the structure of the Allied force undermined the endurance necessary to penetrate through the Dardanelles defences. Small landing parties fought to seize and demolish the coastal emplacements; however, they lacked the mass necessary to overcome the well-entrenched and well-supplied Turkish and German defenders.[94] Turkish cross-domain fires quickly sapped the will of the Allied minesweeping crews, highlighting their lack of resilience. Rather than military personnel, minesweepers had been crewed by civilian members of the Royal Navy Reserve Trawler Section; 'as tough as the trawler men were, not surprisingly, they baulked at the job when they came under fire from the shore guns'.[95] Unable to achieve cross-domain effects or to maintain endurance, the Allied operation culminated on 18 March 1915.

Suffering the combined effects of coastal fires and sea mines:

> … the final result of the day's action was a massive expenditure of shells; the loss of more than 700 sailors; three battleships sunk and three more so seriously damaged … that they would require dockyard repairs.[96]

Having failed to pass through the Dardanelles, the Allied fleet abandoned the original objectives and reverted to a blockade.[97] The fleet not only 'failed at a huge cost in men, material and national prestige';[98] it ceded the initiative. German Marshal Otto Liman von Sanders arrived at Gallipoli one week later to lead the further reinforcement of the Turkish defences.[99] The Allies' inability to achieve the tenets of littoral operations left their attempt to seize the Dardanelles unlikely to succeed, instead unintentionally setting the conditions for their subsequent failure at Gallipoli.

Failing to Achieve Unified C2 and Interoperability: Operation RIMAU

In 1944, a group of British and Australian soldiers from Z Special Unit attempted a daring island-hopping raid to destroy Japanese shipping in Singapore. Although Operation RIMAU was a special operation, the exploitation of both land and maritime domains to manoeuvre through Japanese-occupied territory offers lessons for all littoral operations. The initial plan for Operation RIMAU would see the raiding party transported by submarine to establish an island rear base near their objectives.[100] After capturing a local 'junk' vessel to transport the party closer to Singapore, 'Sleeping Beauty' motorised submersible canoes would be used to attach limpet mines to Japanese shipping.[101] Finally, the raiding parties would rendezvous at the rear base for submarine extraction.[102] On 11 September 1944 HMS *Porpoise* departed Garden Island with the raiding party on board,

arriving at the planned rear base on Merapas Island on 23 September.[103] On 28 September HMS *Porpoise* captured the junk Mustika, detaining the crew on board for transport to Australia, and completed the cross-loading of stores.[104] The success of the operation was short-lived. Lacking unified C2 or interoperability, Operation RIMAU failed to achieve its objectives and resulted in the deaths of all members of the raiding party.

Figure 4. A pair of one-man submersible canoes, known as Sleeping Beauties, are transported during Z Special Unit training. Fifteen Sleeping Beauties were employed for littoral mobility during Operation RIMAU. (Source: AWM P01447.001)[105]

On 30 September 1944 the raiding party commenced reconnaissance from islands near their objectives while HMS *Porpoise* began the return journey to refuel and resupply in Perth.[106] When the submarine docked in Perth its captain, suffering the effects of prolonged stress, resigned his command. An alternative submarine, HMS *Tantalus*, was rapidly prepared and dispatched as a replacement.[107] In the absence of unified C2, the opportunity to align the priorities of the new submarine's captain with those of the raiding party was lost. Disaster struck the raiding party on 9 October 1944. As the *Mustika* sailed between islands, an observation post manned by local auxiliaries identified that the occupants were not indigenous Malays and

attempted to board the vessel.[108] With their cover compromised, the raiding party fired on the approaching vessel, scuttled the *Mustika* and commenced a withdrawal in canoes. Prior to withdrawing, a small party successfully damaged several Japanese ships;[109] however, this limited action failed to achieve the operational objectives and instead intensified the subsequent Japanese pursuit.

Rather than operating under a unified C2 structure, the raiding party and submarine crews relied entirely on cooperation. As a result, the priorities of the naval and land forces diverged, adding friction and additional risk to an already complex operation. This divergence would prove fatal for several members of the raiding party when the captain of the submarine HMS *Tantalus* elected to seek opportunities to torpedo enemy ships rather than proceeding directly to the planned extraction.[110] Instead of rescuing the remaining survivors at Merapas Island, HMS *Tantalus* unsuccessfully hunted shipping, unaware that the raiding party had been compromised. By the time HMS *Tantalus* attempted the rendezvous, the Operation RIMAU raiding party had been fighting to survive for nearly two months. Had the captain of HMS *Tantalus* seen the raid as central to his mission, rather than as an inconvenience, he would likely have attempted the extraction earlier and with more determination.[111] Further, had unified C2 been in place, the priorities of the land and maritime components would have been aligned, and 18 members of the raiding party would likely have survived.

Once the raiding party was compromised, poor interoperability exacerbated the lack of unified C2 and further undermined any opportunity they had to escape. When HMS *Tantalus* finally reached the rear base at Merapas, both the captain and the party that went ashore failed to follow the established rendezvous procedures.[112] First, the submarine approached the island from the wrong direction, preventing the raiding party from visually identifying its arrival.[113] Second, the party that went ashore entered the rendezvous point at least an hour after the planned window had closed.[114] Finally, the extraction party made only a single attempt to rendezvous before departing.[115] If the planned procedures had been followed, the 18 members of the raiding party who had successfully reached Merapas would have been rescued. Instead, the submarine departed and left them to the Japanese. While chance had resulted in the detection of the *Mustika*, a lack of joint interoperability between the raiding party and the submarine crews prevented any chance of the raiding party escaping the Japanese pursuit.

In addition to the lack of joint interoperability, a lack of coalition interoperability further undermined any opportunity for emergency support. Lieutenant Colonel Ivan Lyons, the commander of the raiding party, had experienced US resistance to an earlier raid during Operation JAYWICK, resulting in deliberate efforts to reduce any opportunity for the operation to be cancelled.[116] Rather than employing common cipher keys and tables, Lieutenant Colonel Lyons opted to use a one-off code book that ensured that only his party and the assigned Operation RIMAU cipher clerk could decode the messages. The fact that Lyons left his copy of the code book behind further undermined any opportunity for external communication.[117] Historian Lynette Silver has argued that this was a deliberate act, suggesting that 'Mary Ellis, Rimau's cipher officer, believed that Lyon had taken the decision that, come what may, they were not going to be recalled'.[118] While Lieutenant Colonel Lyons's intent may have been to prevent the US from cancelling his operation, his decisions undermined any opportunity for joint or coalition forces to come to his aid. At the conclusion of Operation RIMAU, all 23 members of the raiding party had been killed in action or were in Japanese captivity, where they would later be executed.[119] By failing to achieve the tenets for littoral operations, Operation RIMAU set the conditions for disaster to ensue once chance undermined the initial plan.

Tenets for Littoral Operations during a Successful Amphibious Assault: Operation OBOE II

Operation OBOE II, the seizure of Balikpapan in 1944, demonstrates the role played by all five of the proposed tenets during the successful conduct of an amphibious operation within the wider context of littoral operations. Operation OBOE II was the final allied amphibious operation of the Second World War, as well as the largest Australian amphibious operation conducted during that conflict.[120] The Australian 7th Division successfully integrated the land, maritime and air domains to seize Klandasan, the most heavily defended of Balikpapan's beaches.[121] Underpinning that success was the deliberate handover of unified C2 between Rear Admiral Noble as the commander afloat and Major General Milford as the commander ashore 'and with it the progressive transition of control of air support'.[122] While the air domain was not formally incorporated into the unified C2 structure, a RAAF 'Air Support Section' deployed in support of Major General Milford's headquarters ensured that the air operations were effectively integrated.[123] Through the effective employment of unified C2, the United States Navy, the

RAN and the Royal Netherlands Navy commenced the landing operation on 1 July 1945.[124]

Within an hour of the landings commencing, 16,500 members of the 33,000-strong landing force were ashore alongside 1,000 vehicles and were pushing inland through established Japanese defences.[125] Cross-domain mobility enabled the momentum of the inland advance to be maintained. Fifty-one US Army Landing Vehicle Tracked (Amtraks) were employed to bring the forces ashore, with these platforms exemplifying cross-domain mobility through their ability to seamlessly transition between water and land manoeuvre. After transiting from ship to shore, these vehicles enabled the assault to rapidly move inland, leaving 'the beach clear for subsequent waves of landing craft'.[126] US Army underwater demolition teams working alongside naval minesweepers had prepared lanes through shallow water obstacles ahead of the assault, ensuring that the transition of Amtrak mobility from sea to land would not be disrupted.[127] Initial waves of Amtraks were reinforced by 'Landing Craft Medium (LCM) and Landing Craft Tank (LCT) carrying vehicles and heavy equipment, followed by Landing Ship Tank (LST) and Landing Ship Medium (LSM), that would unload directly onto the beach'.[128] Through the effective employment of cross-domain mobility, Operation OBOE II rapidly transitioned forces from seaborne transit to inland assault.

Alongside the effective employment of cross-domain mobility, cross-domain effects had both set the conditions for a successful lodgement and supported the maintenance of momentum. Extensive preparatory fire from the air and from the sea targeted the defending Japanese forces with '3000 tons of bombs, 7361 rockets, 38,052 rounds of naval gunfire, and 114,000 rounds of automatic weapons fire'.[129] Cross-domain fires continued as the attack progressed, with land, air, and naval fires reinforcing each other to neutralise Japanese coastal defence guns.[130] Equally extensive cross-domain ISR conducted from the air domain provided detailed photographs and scale models of the land domain to support planning and briefing. [131] By achieving extensive cross-domain effects from the air and maritime domains, landing forces were able to seize the initial beachhead in 20 minutes without receiving casualties.[132]

Figure 5. The view looking along Yellow Beach soon after the Operation OBOE II landing at Balikpapan, Borneo, in 1945. DUKW and Landing Vehicle Tracked vehicles are in the foreground. (Source: AWM 110385)[133]

On 15 August 1945, the final Japanese defenders at Balikpapan surrendered.[134] Operation OBOE II secured its objectives at a cost of 229 Australians killed, with another 634 wounded.[135] The endurance of the 7th Division during six weeks of fighting through tropical jungle against stiff Japanese resistance was a critical factor in the operation's success.[136] Effective beachhead management, led by the 2nd Beach Group, assured the sustainment of the attacking forces throughout the operation.[137] Although a significant number of junior officers and soldiers had arrived as reinforcements prior to Operation OBOE II, the level of experience among command teams was 'unprecedented during the war'.[138] The presence of this core leadership reinforced the resilience of the division and thereby bolstered its ability to maintain endurance. The official history of the operation 'describes the morale and ethos of a force which believed it was among the world's best fighting forces at the end of a world war'.[139] By achieving the necessary endurance, the 7th Division were able to maintain constant pressure on the Japanese defences until their surrender had been secured.

The success of Operation OBOE II also hinged on extensive interoperability, with joint forces from the US, Australia and the Netherlands enabling extensive fires, rapid troop movement, and effective logistical support. Historian Garth Pratten described Operation OBOE II as 'the most extensive and well-integrated joint and combined operation undertaken by Australian forces during the war'.[140] In the air domain Air Vice-Marshal Bostock 'acted as coordinating agency for all pre-invasion strikes and close support' conducted by 'the RAAF, US 13th and 5th Air Forces, and naval air units from the US 3rd and 7th Fleets'.[141] In the maritime domain, over 150 ships from three nations formed the Amphibious Task Group, Carrier Covering Group, and Escort Carrier Group.[142] On land, joint forces ensured that the assault force was logistically sustained.[143] The head of the Military History Section at the Australian War Memorial has described Operation OBOE II as 'an example of the expertise achieved by Australian forces in amphibious operations during the war'.[144] As an amphibious operation within the wider context of littoral operations, Operation OBOE II demonstrates the value of employing cross-domain mobility, cross-domain effects, unified C2, endurance, and interoperability as tenets for littoral operations.

Tenets for Littoral Operations During Successful Riverine Manoeuvre: Operation JACKSTAY

Commencing on 26 March 1966, the US 1st Battalion, 5th Marine Regiment, successfully exploited both the land and maritime components of a riverine littoral environment during Operation JACKSTAY.[145] Operation JACKSTAY sought to disrupt a key Viet Cong sanctuary in an effort to reduce attacks on shipping headed for Saigon via the Long Tau River.[146] The Rung Sat Special Zone characterised the complexity of the littoral environment: consisting of a large tidal mangrove swamp, only one road entered the zone with locals instead relying on the waterways for travel.[147] In addition to inserting land-based blocking positions via air-mobile and surface connectors, Operation JACKSTAY employed six US Navy patrol craft, fast (known as Swift Boats) and nine US Coast Guard patrol boats to prevent Viet Cong reinforcement or resupply via the major waterways.[148] By patrolling the 'major waterways, which included the Long Tau, the Dong Tranh, and the Soirap Rivers', these vessels and their land-based counterparts effectively isolated the operational area. Unified C2, exercised first by Captain John D Westervelt as the commander of the Amphibious Task Force, then by Colonel JR Burnett as the commander of the Marine Special Landing Force, ensured that the opportunity presented by this isolation was exploited.[149]

With the blocking positions and riverine patrols in place, the Battalion Landing Team sought to disrupt the Viet Cong within their perceived safe zone.[150] Cross-domain mobility was crucial to the success of the operation; the Marines employed rotary-wing aviation, small boats, amphibious assault platforms, and dismounted movement to exploit the entire Rung Sat Special Zone as manoeuvre space. By effectively manoeuvring on water, on land and through the air the Marine Special Landing Force was able to gain and exploit access to any part of the area of operations, denying the Viet Cong the ability to shield their positions within the complex riverine terrain.

Cross-domain fires supporting the operation included naval fires from the guided-missile destroyer USS *Robison,* air support from the aircraft carriers USS *Hancock* and USS *Kitty Hawk*, and Air Force B-52s launched from Guam.[151] In addition to aiding force protection, fires from the air and maritime domains enabled the land forces to rapidly defeat enemy positions and maintain the momentum necessary to clear objectives dispersed across more than 1,250 square kilometres of tidal mangrove swamp. When Operation JACKSTAY concluded on 6 April 1966, the combined land, maritime and air effects had not only inflicted Viet Cong casualties but had 'captured and/or destroyed a substantial amount of enemy equipment and material' at the cost of relatively few US casualties.[152]

Reflecting on the success of Operation JACKSTAY, US historian John Sherwood highlights:

> *For the Navy, these operations represented its first major foray into the rivers of the Mekong Delta and … demonstrated [Military Assistance Command, Vietnam's] ability to strike at the enemy in a place the Viet Cong originally believed was beyond the control of allied forces.*[153]

While the duration of the operation was short, endurance still played a role in securing success. The ability of both ground forces in blocking positions and riverine forces patrolling the major waterways to persist in their assigned areas was essential to establishing the security necessary to find and disrupt the Viet Cong logistical network. Likewise, the resilience of the ground forces operating continuously in a humid swamp was essential to the achievement of the operational objectives. The endurance achieved on land and on the water maintained the isolation of the Viet Cong throughout the operation.

Interoperability was equally important to the success of the operation. Without the integration of the land, naval and coast guard blocking forces, the Viet Cong would likely have exploited the complex littoral terrain to withdraw. Joint forces operated in unison throughout the operation, including M50 Ontos anti-tank vehicles firing from the decks of landing ships, and US Army UH-1 Iroquois helicopters operating from these same platforms to maintain constant air cover.[154] Operation JACKSTAY demonstrated 'many concepts that would become standard for US forces as the war progressed—namely river assaults, river patrol, and the integration of airpower, ground power, and naval power in a riverine environment'.[155] It also reinforces the utility of the proposed tenets to guide littoral operations where there is a complex overlap between land and water manoeuvre spaces.

Figure 6. US Marines during Operation JACKSTAY, a littoral operation conducted in the riverine Rung Sat Special Zone of Vietnam in 1966. (Source: US Naval History and Heritage Command, K-31450)[156]

Conclusion

As an island nation in a region dominated by archipelagos, Australia requires an ADF that can successfully conduct littoral operations to protect its national interests. The increasing urbanisation of littoral regions and the proliferation of

long-range sensors and weapon systems both heightens the importance of littoral operations and increases their complexity. Overcoming these challenges and exploiting the opportunities presented by the littoral environment requires a common definition of what littoral operations actually are. By defining littoral operations as 'operations conducted in areas defined by the close proximity of the land and sea where the greatest military advantage is achieved by treating land and water as a cohesive, interrelated battlespace', the ADF can meet this need. This definition incorporates amphibious operations because, while amphibious operations remain important in their own right, littoral operations offer wider options than ship-to-shore actions. Further, this definition is nested within the wider concept of maritime strategy, yet maintains a deliberately narrower focus. By aligning existing littoral definitions with the proposed definition of littoral operations, the ADF can pursue these operations in a manner that is comprehensive and cohesive.

The ADF's ability to conduct littoral operations can be enhanced by establishing and applying the five proposed overarching tenets. First, cross-domain mobility enables forces to exploit the surfaces and gaps that appear when the littoral environment is approached as a cohesive space rather than a collection of disparate domains. Second, cross-domain effects allow forces to consistently hold adversaries at risk from positions of relative advantage. Third, unified C2 ensures that planning and decision-making occur with the entire littoral environment in mind rather than being constrained by single domain or service thinking. Fourth, endurance enables littoral operations to be conducted despite environmental challenges and the proliferation of modern sensors and long-range weapons. Finally, interoperability ensures that joint and coalition strengths are available to mitigate any weaknesses that would otherwise undermine the conduct of littoral operations. While distilling the complexity of the littoral operations into just five tenets inherently results in imperfections, considered together these tenets are a useful guide to support force design, planning, and decision-making.

The validity of the proposed definition and the usefulness of the associated tenets can be verified through their application to historical littoral operations. The naval operation that sought to penetrate the Dardanelles offered an opportunity to deliver significant strategic outcomes; however, the lack of cross-domain mobility or cross-domain effects, combined with a lack of endurance, rendered the Allied fleet unable to defeat the coastal defences. Operation RIMAU had the potential to deliver a significant blow to Japanese

forces in Singapore, exploiting gaps on land and at sea to manoeuvre through a contested environment. However, the failure to employ unified C2 or to achieve interoperability turned poor luck into disaster. By contrast, Operation OBOE II demonstrates the relevance of the definition and tenets in the context of a successful Australian amphibious assault. Finally, Operation JACKSTAY verifies their applicability during riverine operations, demonstrating the reinforcing effects that can be achieved when both land and maritime opportunities are exploited. As these operations demonstrate, clearly and distinctively defining what littoral operations are, then articulating the five overarching tenets that should guide their conduct, will allow the ADF to leverage Australia's natural alignment with littoral operations.

Acknowledgements

About the Author

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Glossary

Amphibious assault (Australia)—The principal type of amphibious operation, which involves establishing a force on a hostile or potentially hostile shore. For clarity, ADF doctrine does not use 'assault' in the context of landings against heavily defended beaches where the risk of casualties is high. The ADF's approach to this type of operation uses situational understanding, shaping, manoeuvre and surprise to avoid high-risk situations.[157]

Amphibious demonstration (Australia)—A type of amphibious operation conducted for the purpose of deceiving the adversary by a show of force with the expectation of deluding the adversary into a course of action unfavourable to them.[158]

Amphibious operation (Australia)—An operation launched from the sea by a naval and landing force embarked in ships or craft, with the principal purpose of projecting the landing force ashore tactically into an environment ranging from uncertain to hostile.[159]

Amphibious raid (Australia)—An amphibious operation that involves a swift incursion or temporary occupation of an objective in an uncertain or hostile environment, followed by a planned withdrawal.[160]

Amphibious support to other operations (Australia)—An amphibious operation where force elements are established ashore, usually to conduct operations such as disaster relief.[161]

Amphibious withdrawal (Australia)—An amphibious operation involving the extraction of forces by sea in naval ships, landing craft or rotary-wing aircraft from a hostile or potentially hostile shore.[162]

Expeditionary advanced base (US)—A locality within a potential adversary's weapons engagement zone that provides sufficient manoeuvre room to accomplish assigned missions seaward while also enabling sustainment and defense of friendly forces therein.[163]

Expeditionary advanced base operations (US)—A form of expeditionary warfare that involves the employment of mobile, low-signature, persistent, and relatively easy to maintain and sustain naval expeditionary forces from a series of austere, temporary locations ashore or inshore within a contested or potentially contested maritime area in order to conduct sea denial, support sea control, or enable fleet sustainment.[164]

Land domain (Australia)—Located at the Earth's surface and sub-surface ending at the high water mark and overlapping with the maritime domain in the landward segment of the littorals.[165]

Littoral (Australia, obsolete)—That area defined by the close proximity of the land, sea and air, where the operational effects of land, sea and aerospace power would overlap.[166]

Littoral (Australia)—The areas to seaward of the coast which are susceptible to influence or support from the land and the areas inland from the coast which are susceptible to influence or support from the sea.[167]

Littoral (UK)—Land that can be directly affected from the sea, and sea that can be directly affected from the land.[168]

Littoral (US)—The littoral comprises two segments of operational environment: 1. Seaward: the area from the open ocean to the shore, which must be controlled to support operations ashore. 2. Landward: the area inland from the shore that can be supported and defended directly from the sea.[169]

Littoral capabilities (Australia)—Capabilities enabling or supporting operations related the littoral zone.[170]

Littoral force commander (US)—A conceptual term, versus a formal title, for the officer who commands all forces within a littoral operations area.[171]

Littoral manoeuvre (Australia)—The use of the littoral as an operational manoeuvre space from which a sea-based joint amphibious force can threaten, or apply and sustain, force ashore.[172]

Littoral manoeuvre (UK)—Exploiting the access and freedom provided by the sea as a basis for operational manoeuvre from which a sea-based amphibious force can influence situations, decisions and events in the littoral regions of the world.[173]

Littoral operations (proposed)—Operations conducted in areas defined by the close proximity of the land and sea where the greatest military advantage is achieved by treating land and water as a cohesive, interrelated battlespace.

Littoral operations (Australia)—Littoral operations are those influenced by the interface between the land and the sea. These can encompass the entire spectrum of operations.[174]

Littoral operations area (US)—A geographical area of sufficient size for conducting necessary sea, air and land operations in order to accomplish assigned mission(s) therein.[175]

Littoral region (UK)—Those land areas (and their adjacent sea areas and associated air space) that are susceptible to engagement and influence from the sea.[176]

Manoeuvre operations in the littoral environment (Australia)—
A concept that outlines the conduct of rapid and simultaneous actions by a joint force, to create 'shock'—a state of command paralysis that renders an adversary incapable of making an effective response. It is the conduct of continuous shaping operations that set the conditions for, and support, the equipment acquisition strategy, decisive actions and transition phases.[177]

Marine littoral regiment (US)—A Marine Corps formation designed to persist within an adversary's weapons-engagement zone in order to conduct expeditionary advanced base operations in support of fleet operations.[178]

Maritime domain (Australia)—The environment corresponding to the oceans, seas, bays, estuaries, islands, coastal areas, including the littorals and their sub-surface features, and interfaces and interactions with the atmosphere.[179]

Operation (Australia)—A series of tactical actions with a common unifying purpose, planned and conducted to achieve a strategic or campaign end state or objective within a given time and geographical area.[180]

Stand-in engagement capabilities (US)—Low-signature forces designed to accept risk and persist inside a competitor's weapons-engagement zone to cooperate with partners, support host-nation sovereignty, confront malign behaviour and, in the event of conflict, engage the enemy in close-range battle.[181]

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Supplies Over the Shore: Logistics and Australian Littoral Operations

Rhys Crawley

Introduction

Writing in *The Lifeblood of War: Logistics in Armed Conflict*, distinguished Royal Marine Major General Julian Thompson (retd), noted that for all its importance logistics usually takes a 'back seat to the more glamorous tactics and strategy'.[1] He was not claiming that militaries do not understand logistics. Rather, he was saying that they often show a reluctance to acknowledge its importance—or devote enough time to its detailed study— vis-à-vis operational matters. As someone with active command experience during the Falklands War, and an appreciation and understanding of military history and the peculiarities of amphibious warfare, Thompson's message is unambiguous: history offers many insights into the good and bad of military logistics and their relationships with the successes and failures of battles, campaigns and wars. Those wanting to master the profession of arms should not put such studies at the bottom of the to-read pile.

Beyond the obvious benefits of being logistically lingual, why should the non-logisticians of the Australian Defence Force (ADF) bolster their logistic knowledge right now? The answer is that littoral operations, and the Australian Army's ability to project and sustain force so as to deter an adversary through denial, feature prominently in the 2023 Defence Strategic Review, *National Defence*. So, too, does the need for a more

robust and fit-for-purpose logistic system.[2] This recasting of the Army's role as a littoral force—to 'be transformed and optimised for littoral manoeuvre operations'[3]—and the structural, cultural and equipment changes that undoubtedly accompany it, will bring many challenges for the Army and Defence. Not least of these are questions of littoral logistics. Such issues recently occupied the focus of key AUKUS partners. In May 2023, for instance, Commandant of the United States Marine Corps General David H Berger told audiences at the Brookings Institution that his 'focus is logistics, logistics, logistics'.[4]

After establishing and securing a point of entry, one of the principal challenges littoral and amphibious operations face is the problem of logistics over the shore.[5] Dayton McCarthy explained these complexities further:

> If 'amateurs talk tactics, and experts talk logistics' then amphibious operations require a sage-like understanding of what to bring onboard initially, how to stow and cross-load a multitude of stores, weapons platforms and personnel and then how to supply troops ashore while operating in a hostile environment.[6]

This challenge is not a new phenomenon, as the following selected case studies from Australia's experiences of amphibious operations in the First and Second World Wars illustrate.[7]

First World War

Much of what enables militaries to fight goes unseen. Behind strategic plans, operational preparations and tactical actions lies a complex administrative system incorporating supply, transport, reinforcements, training, manufacturing and infrastructure. In this sense, railways, roads, runways, flight paths, and sea lines of communication are the arteries of war. Martin van Creveld, whose nearly half-centenarian *Supplying War: Logistics from Wallenstein to Patton* should still be on every professional military education reading list, estimates that all of this—the logistics of war—constitutes some 90 per cent of military effort.[8] Whether in the littoral or halfway across a continent, placing soldiers at the right place at the right time, and with sufficient equipment to achieve the objective, is always a difficult proposition. This is especially true in contested conditions.

Every day throughout the First World War a mountain of equipment, people, animals, food, ammunition and weapons had to be moved forward—and sometimes rearwards in times of retreat—in order to keep the millions of personnel of the opposing armies fed and functioning. As the war dragged on, and the number of combatants increased, the logistic demands grew exponentially. In August 1914, for example, when the British Expeditionary Force arrived in France, it numbered 120,000 men and 53,000 horses. By war's end in November 1918 it had grown to 3 million men (including the Australian Corps of Lieutenant General Sir John Monash) and 500,000 horses. This expansion was met with a corresponding increase in the tonnage required to feed them: from 1.6 million kilograms of meat, 2 million kilograms of bread and 2.6 million kilograms of forage per month in 1914, to 30.6 million kilograms of meat, 40.8 million kilograms of bread and 14.6 million kilograms of forage per month in 1918. Most of this vast tonnage came from Britain, and responsibility for moving it fell to the Army Service Corps, which at its peak numbered more than 325,000 men.[9]

These vast quantities aside, the logistic arrangements on the Western Front—with its pre-existing road and rail networks, its sympathetic civilian population, and a short sea passage between the United Kingdom and France—was relatively simple when compared with the challenges of supplying the British Empire's far-flung theatres of war.[10] Two of those theatres, German New Guinea and Gallipoli, were the scene of Australia's only amphibious operations of the First World War. Very different in environment, complexity and outcome, each operation had its own unique logistic hurdles.

German New Guinea (1914)

War had only just been declared against Germany when, on 6 August 1914, Britain asked Australia to seize and destroy German wireless stations in the South-West Pacific.[11] The Australian Government responded favourably (as did New Zealand, which received a similar request to occupy German Samoa) and in less than two weeks it raised, mobilised and equipped a joint expeditionary force of 1,500 men for that purpose.[12] Known as the Australian Naval and Military Expeditionary Force (AN&MEF), it was commanded by Colonel William Holmes, a citizen-officer who had served in the Boer War and would later command a brigade at Gallipoli and die of wounds suffered at Messines while commanding the 4th Division Australian

Imperial Force.[13] Before the month was out, HMS *Hampshire* and an expeditionary force from New Zealand had destroyed the wireless stations at Yap and Samoa, respectively.[14] A landing party from HMAS *Melbourne* did the same at Nauru on 9 September.[15] Meanwhile, having conducted amphibious landing rehearsals and tropic acclimatisation off Townsville at Palm Island, on 2 September the AN&MEF set sail for Port Moresby, the staging base for its attack on German New Guinea.[16]

Nine days later, on 11 September 1914, nearly the entire fighting strength of the Royal Australian Navy (RAN), led by the commander of the Australian Fleet, Rear Admiral Sir George Patey, assembled off the coast of New Britain carrying Holmes and the AN&MEF.[17] Australia's first amphibious landing was unopposed: 25 RAN Reservists rowed ashore from HMAS *Sydney* at Herbertshöhe at 6 am, but found neither an enemy force nor a wireless station. The next landing party, of a similar size, set foot on a jetty east of the Kabakaul pier an hour later. A 'nervous Chinese storekeeper' soon told them that the enemy—German reservists and Melanesian police—had retreated up a jungle road towards the Bita Paka wireless station. Reinforced from the sea, the Australians pursued them. With scouts out front, the party advanced on either side of the road.[18] Robert Stevenson's account, *Australia's First Campaign: The Capture of German New Guinea, 1914* takes us into the jungle and the nervous tension before battle:

> *Manoeuvring through the shadows, a small column of tawny-clothed men shouldered their way through the verdant growth, like ships ploughing through the sea. The column wove in and out seeking the path of least resistance; when the closely matted scrub became too thick, the men turned back towards the road that skirted along the verge until a new path could be found.*[19]

Spotting the enemy lying in wait, Petty Officer George Palmer fired, wounding and taking prisoner German Sergeant Major Maurice Mauderer.[20] After broken resistance from German reservists and locally trained police, during which Australia suffered its first casualties of the First World War, the AN&MEF continued their advance, destroyed the wireless station, and retraced their steps to the coast where they embarked for Herbertshöhe.[21] The day, and Australia's first amphibious operation, was a success. The wireless station was located and Australian casualties had been slight: six killed, four wounded. The German and native defenders, numbering fewer than 300, suffered 31 killed and 11 wounded, and 75 were taken prisoner.[22]

Figure 1. Troops of the AN&MEF during the landing at Herbertshöhe, 1914. State Library of New South Wales, PXA 2165. (Source: Wikipedia Commons)

'As a result of that single action', Stevenson explained, 'Australia achieved a long-cherished goal of ridding the islands to its near north of a hostile power'.[23] Rabaul, the capital of German New Guinea, was occupied on 12 September 1914 and surrender terms were signed with the German acting governor five days later. A military administration, with Holmes in charge, began on 20 September. Over the next three months, the Australians occupied the remaining German islands, leaving garrisons behind where appropriate.[24] Colonel Samuel Pethebridge, a former Secretary of the Department of Defence, replaced Holmes in January 1915. A newly raised expeditionary force, Tropical Force, replaced Holmes's men. The successful combined and joint campaign removed the German wireless chain used by Vice Admiral Maximilian von Spee's German East Asiatic Squadron and 'secured Australia's trade routes in the Pacific'.[25] It also removed 'a real threat to Australia and its economy'.[26] The removal of this threat, as well as the security provided by British and Japanese sea supremacy, meant that Australia and New Zealand were able to transport reinforcements to Europe and the Middle East, and keep sea trade flowing, for the remainder of the war.[27]

Logistic issues defined the expedition from its outset. Indeed, logistics 'probably predetermined the successful outcome of the campaign'.[28]

A prerequisite of any military operation is to define its requirements, especially in terms of food and supplies, and make appropriate provisions for their transport and movement.[29] One of the reasons why the AN&MEF was able to mobilise so rapidly was that its rifles and uniforms came from existing stocks and that the RAN, in its own mobilisation, was able to call upon pre-positioned stores. In spite of this logistic success, the AN&MEF's departure from Sydney was delayed due to problems loading supplies. When the force did sail, carrying 60 days' provisions, it did so without mess tins or signalling equipment. Holmes knew that until commercial trade resumed, these supplies would have to feed his troops and the local population. To reduce some of the pressure, on 1 September, while the troops were training at Palm Island, HMAS *Berrima* was loaded with nearly 32,000 kilograms of frozen mutton.[30] Upon reaching Port Moresby, where his force was to concentrate before its amphibious operation, Holmes was confronted with a logistic burden. There waiting for him was SS *Kanowna*, carrying 500 men from the Kennedy Regiment who had volunteered to join the AN&MEF. But their ship had run out of stores. Holmes could not take such a logistic risk; nor did he think these citizen-soldiers were sufficiently equipped or trained for the task. He therefore removed them from the expedition.[31]

The benign nature of the campaign meant that supplying the force during the occupation was a relatively simple task. Prior to lodgement, everything was afloat in Patey's warships or the merchant vessels chartered by the Australian Government and converted into colliers, oil tankers, a supply ship and a hospital ship.[32] Post-lodgement, and without resistance, supplies were taken ashore using existing piers and jetties. Stores were disembarked with ease, where and when required. The overriding challenge, though, was the length of the lines of communication and the reality that everything initially had to be acquired and delivered from Australia. With nearly 2,000 nautical miles between Rabaul and Sydney, where most supplies came from, there was no such thing as an urgent request. Consequently, once established ashore the force became as self-sufficient as possible, sinking wells, building a water condensing plant, treating water tanks with kerosene to prevent mosquitos from laying their eggs (thereby reducing the chance of malaria), and boiling water before drinking.[33]

Realising the importance of having sufficient and ongoing provisions for his force and the local population, Holmes prioritised establishing trading routes

between Australia and the administered territories of German New Guinea. Sometimes this led to inflated cargo prices or corruption, but it also ensured regular deliveries of food, tobacco, and coal, except when the weather intervened to sever supply lines.[34] According to the official historian of the Australian occupation, himself a key member of the administration:

> *The regular supply of provisions from Australia was a constantly-recurring problem during the military occupation, and when, as sometimes happened through strikes or other causes, communication by sea was entirely interrupted for a considerable period, strange shifts had to be devised.*[35]

Logistic considerations were also a factor when considering what to do after the AN&MEF's initial successes. Holmes's force had neither the coal nor the shipping to expand its footprint north of the equator (as Britain had requested). Pethebridge's Tropical Force was better provisioned, and steamed from Australia with two months' provisions of coal, water, and food (including more than 800 frozen sheep carcasses, 30 tons of beef, and 2,500 kilograms of butter). Despite this, and soon after he replaced Holmes, Pethebridge was faced with a supply shortage.[36] Fortunately, such circumstances were not the norm, and the administration's effective planning typically averted the occurrence of similar situations.

As they were almost entirely dependent on seaborne resupply, command of the sea ensured that both the AN&MEF and Tropical Force had secure lines of communication. It also meant that sustainment was a comparatively easy task. Ammunition expenditure was never significant, and there were no challenges or concerns regarding its resupply. Similarly, medical support was 'sound' and casualty evacuation was never burdensome.[37] As Ross Mallett wrote: 'That a force could be enlisted, equipped and shipped in little over a week must be considered extraordinary'.[38] It stands as an impressive feat of logistics considering the expeditionary force consisted of a relatively young navy, established just over a decade earlier, and a fledgling army. By prewar estimations, mobilisation was both rapid and remarkable.[39] The expedition to German New Guinea not only marked Australia's inaugural amphibious operation but also represented the first occasion that Australia assumed full responsibility for its own logistics. This was in contrast to the Gallipoli campaign, where—like much else since—Australia relied heavily on its major partner (Britain) for the majority of its logistical needs.

Gallipoli (1915)

Described by the British War Office's chief logistician, Major General Sir John Cowans, as 'abnormal and peculiar', the lines of communication from Australia, France, New Zealand, and the United Kingdom to the allied forces at Gallipoli in 1915, were some of the most complex in the history of warfare.[40] General Sir Ian Hamilton, commanding the multinational Mediterranean Expeditionary Force (MEF), described the logistic system that fed, watered, and sustained his force as the 'most difficult … since the day of Xerxes'.[41] The campaign being an amphibious operation on foreign shores, everything required for fighting and living at Gallipoli was brought in across the sea. It was a long, dangerous route, and an administrative nightmare (and substantially more burdensome than the 160 kilometres between the Ottoman capital, Constantinople, and the Gallipoli peninsula). Yet, despite its inadequacies and imperfections, this system nonetheless enabled the projection of a substantial force, numbering 75,000 men at its smallest, to a theatre of war some 3,500 nautical miles from its home base in England (the French were responsible for their own logistics).[42]

The logistic cycle, or what we might today call the supply chain, actually began in the theatre. Employing a 'pull' system, units on the Gallipoli peninsula submitted daily requests outlining their future needs. These requests were filtered through General Headquarters (GHQ), which compiled and forwarded them to London. There, officers at the War Office then worked to acquire and dispatch the required items in a timely fashion. The mass of paperwork that this system produced made the system inefficient and cumbersome, and was the main reason the British armies on the Western Front replaced the pull with a 'push' system. Not having a similar push system at Gallipoli meant that the War Office was unable to anticipate what would be required. Arrangements could not be made until a request was received. On more than one occasion, the ensuing delays meant that by the time an item arrived in the theatre it was no longer required.[43]

Once the items had been acquired in the United Kingdom, the War Office organised for their delivery, by trucks and trains, to British portside towns, where responsibility was handed over to the Royal Navy for their transport to the MEF's main logistic base at Alexandria, Egypt. Where practical, items were loaded in bulk, with one type of item in one or as few ships as possible. Often, though, that was not possible owing to the urgency with

which supplies were required. With an absence of deep-water harbours or functioning ports closer to the Gallipoli peninsula, it was realised that all stores and supplies would have to be transhipped into smaller vessels— which could lie off the Gallipoli peninsula—upon arriving in Alexandria. Packing them so that their cargo could be offloaded directly onto the shore was not an option. All of this resulted in more work, more administration and more delay.

Upon leaving the United Kingdom, the ships sailed across the Bay of Biscay and along the coast of Spain until they reached Gibraltar. After a brief stopover they continued to Malta, and then on to Alexandria. Here, the ships were emptied and their cargoes repacked from bulk into ration sizes and reloaded. The ships then set off for Lemnos island, a smaller intermediate logistic base closer to Gallipoli (still 70 nautical miles from Anzac Cove), where their cargoes were again transferred into smaller craft. It was here, in Mudros harbour, that the greatest delay and confusion was experienced. The port facilities were basically non-existent: there were no deep-water piers; nor were there storage facilities on land. Instead, the MEF relied upon converted store ships, which they used as 'floating depots'.[44] But this method of ordnance storage had its own problems. Most ships arrived at Mudros without a manifest of goods, which made it difficult to locate specific items or prioritise which ships should be unloaded first. This both delayed the dispatch of essential items and prevented ships from duties elsewhere. The lack of port facilities was not the only problem. Delays were further compounded by insufficient labour to load and unload cargoes, and a lack of small craft for transhipping purposes.[45]

When ready, these smaller craft went either to another intermediate base on Imbros island, or directly to the advanced bases on the Gallipoli peninsula. This final voyage usually took place at night to offer some protection from the German submarines lurking beneath the Aegean Sea, and Turkish artillery observers ready to fire on boats as they approached the beaches. At such distances, and subject to further complexities caused by unfavourable weather, delays at the various ports of call and a lack of inter-service cooperation, the difficulties of supplying the MEF were, as one senior logistician later wrote, 'beyond description or possibility of exaggeration'.[46] Modern supply chain managers could find many cost-saving measures and efficiency dividends in this case study.

Despite these challenges and the delays they caused, the real difficulties, as in most amphibious operations, were found in logistics over the shore: getting the stores and supplies ashore, organising the beach maintenance area, and then distributing them to the troops. None of the three main beaches (Cape Helles, Anzac Cove, Suvla Bay) which made up the advanced bases at Gallipoli were logistically suitable. They were subject to the weather and the beaches were narrow, with limited room for storage and overcrowded with men, headquarters, and piles of wooden boxes containing all matter of stores. They were a hive of activity; in addition to receiving all men and supplies, these same beaches were the evacuation points for sick and wounded personnel.[47]

Figure 2. Anzac Cove, pictured here, was a hive of logistic activity. Stores lined its shore, but its narrow beaches were constantly vulnerable to the whims of the weather and the thunder of Turkish shells. (Source: AWM A03092)

It is worth briefly reflecting on the medical situation. Logistics, after all, is a two-way process. In addition to moving supplies forward, a force must also be conscious of the mechanics of medical evacuation. Casualty evacuation for the initial Gallipoli landings in April 1915 was an utter failure. Inadequate forethought was given to the likely scale of casualties. There were not enough hospital ships for their evacuation, or hospital beds for their immediate treatment and ongoing convalescence. Arrangements improved as the campaign continued but they were never perfect, and

operations always took priority over casualty care. In practice, orders were issued prohibiting troops from falling out of their battle columns to assist their wounded comrades. That does not mean that nothing was done to assist the wounded—indeed, the opposite was the case. Stationed in the frontline trenches, regimental stretcher-bearers often ran into no-man's-land to collect the wounded. They applied basic triage before removing casualties to regimental aid posts. Mild cases could often be treated in the immediate vicinity, at field ambulances or dressing stations, and then sent back to the front. More severe cases were evacuated to casualty clearing stations on the beach and then on to field hospitals. The most severe were sent back to Egypt, Malta or Britain for surgery and recovery.[48] When it came to medical evacuation, logisticians had to be conscious that the routes used for removing the wounded to the beach were the same as those used for supply and transport purposes. Minimising congestion here, and on the beaches themselves, was important. So, too, was ensuring that casualty evacuation from the shore to the waiting hospital ships did not interfere with the disembarkation of reinforcements, guns and stores. The solution, which worked, was to do rearward logistics during the day, leaving the night—with all the concealment benefits that the dark affords—free for resupply.

Once disembarked at the beaches, ordnance and supplies were stockpiled at locations chosen by the corps. It was then up to each division to liaise with its units and arrange for their distribution to the front line. Each day a regular stream of troops made their way from the trenches down to the beach, where they collected food, water and ammunition and carried them back up the tracks and over ridges to their units in the trenches. Distances were not far, but the journey was tough, especially during summer. Water supply was a particular challenge. Not found ashore in sufficient quantity, it had to be sourced in the region, transported to the peninsula and either carried or pumped ashore into large tanks, from where fatigue parties collected it. When there were no more pressing duties to attend to, troops on fatigue duty were sometimes assisted by the mules and muleteers of the Indian Mule Cart Corps, who would help them carry supplies to the dumps immediately behind the frontlines. It was a long and arduous process, but geographical and topographical constraints meant that there was no other way. Mechanical transport, so fundamental to logistics on the Western Front, for example, could not be used in the rugged terrain found in the Anzac sector.

Let us return to the forward movement of materiel. Given the lack of suitable deep-water piers extending from the beaches, it was necessary to again tranship items into lighters upon their arrival at the peninsula. Being smaller than the supply ships, lighters could approach the piers and unload the goods. For this, it was necessary to have an adequate number of lighters, as well as the requisite labour. Some civilian labour from Greece or Egypt was available but, understandably, most refused to work when under fire. At places like Anzac Cove, which was constantly sprayed with shrapnel, the exhaustive work of manhandling the items from the lighters onto the piers, and then onto the shore where they were stockpiled, was regularly undertaken by troops who should have either been in the front line or enjoying some rest. All of this work was further confused by the lack of clearly defined boundaries of responsibility between the army and navy— doctrine was ambiguous and at times contradictory on who was responsible for what.

For all of these inadequacies, it must be acknowledged that, while they were never plentiful, supplies at Gallipoli were rarely so short that they directly affected the outcome of operations. With the front line frequently no further than one kilometre from the beach, ad hoc arrangements were often sufficient to get by. Had the campaign progressed further inland, however, the logistic system would have likely stretched beyond breaking point and extended supply lines would have been more vulnerable to enemy attack and interdiction. Such challenges further question the validity of the strategy behind the Gallipoli campaign. Although a lack of supplies was not the reason for failure at Gallipoli, it is clear that the MEF did not have everything required to give it a fighting chance. Logistics matters. More importantly, the Gallipoli campaign, like many other aspects of the First World War, was not conceived with logistical limitations in mind. These should have factored into any decision to commit forces in the first place. That they were not is a failure in itself.

Second World War

When developing and refining its amphibious expertise and doctrine during the interwar years, the United States Marine Corps turned to the Gallipoli campaign. Logistics, from procurement and distribution to medical evacuation, was one of the many topics forensically studied for the lessons Gallipoli offered.[49] Britain did too, though not to the same degree. The same

was not true in Australia, however, where, as Mina Murray shows us, 'there were very few attempts to understand the operational or tactical elements that had contributed to its failure'.[50] Murray continues:

> *For a nation that had established a tradition commemorating the campaign just twelve months after the initial landings on 25 April 1915, it seems strange, even negligent, that so little effort was made to understand the campaign's military lessons.*[51]

To be sure, the campaign was not entirely ignored by Australian military officers, but it was not studied at an institutional level like it had been in America or Britain. Instead, during the interwar years Australia placed its faith in the Royal Navy's ability to protect Australian interests via the Singapore strategy. In this context, Australian defence planning all but ignored amphibious operations. Consequently, when Japan entered the Second World War, radically changing Australia's strategic circumstances, the Australian military lacked an amphibious capability. The lessons of Gallipoli had to be relearned the hard way: through costly experience.[52]

Lae (1943)

Australia's first major amphibious operation of the Second World War occurred in September 1943, against the Japanese base at Lae, New Guinea. Some limited practice loading and unloading men and supplies from amphibious craft was undertaken in Cairns (June-July) and then a rehearsal took place at Normanby Island, off Milne Bay, in August, prior to the operation, though most of the preparatory period had focused on the tactical assault phase at the expense of issues of maintenance, supply and logistics.[53] This meant that virtually nothing was 'learned of the supply and maintenance problems' of amphibious operations.[54] Beyond what Gallipoli might have taught the Allies, this oversight ignored a number of recent lessons that they had already shared from their experiences in other theatres. One was that 'adequate training and rehearsals are pre requisite to any operation', and another that 'adequate personnel and material must be available for clearing the beach and dock areas of supplies'. The experiences of North Africa, in particular, emphasised the need for an organised beachhead, with men and vehicles to move stores to dumps rather than leaving them mixed on the beach.[55]

Although successful, the amphibious landing at Lae highlighted a number of deficiencies, particularly in logistics. Getting ashore in the face of limited Japanese resistance was not a problem, but the limitations of the amphibious assets allocated for the maintenance of the beachhead rapidly became evident. In particular, the US Army 2nd Engineering Special (Amphibious) Brigade was insufficient for the size of the operation and unable to maintain a division ashore (it was designed to support a brigade only). Having earlier rejected the offer of a beach ordnance detachment, the commander of the 9th Australian Division, Major General George Wootten, was forced by operational necessities after lodgement to reduce his frontline combat power and reallocate troops from a pioneer battalion and two infantry battalions to the task of unloading resupply ships. Rather than fixing the problem, the outcome was bottlenecks and blockages on the congested beaches. Supplies were placed alongside fuel and ammunition dumps—a major hazard given Japanese air raids on the beachhead.[56] Poor logistic planning could have been disastrous had the Japanese launched a determined bombing raid on the supply dumps.[57]

Lae revealed that while Australian units and formations were adept in amphibious assault, logistics proved to be their Achilles heel. Nearly half of the 35 post-operational lessons identified by the 9th Australian Division, for example, concerned logistics. It is worth listing some, both for their insight into the development of Australia's amphibious logistics capabilities throughout the remainder of the war and for their contemporary relevance today. Logistic plans and preparations had been negatively affected by, among other things, late changes to operational plans. It was recommended that, in future, army, navy and air force staffs should be co-located during the planning process as a joint staff, able to work out issues and alter plans. The divisional headquarters also required that it be consulted prior to equipment tables being settled, thereby eliminating unnecessary stores being loaded and transported to the beaches, as had occurred at Lae.[58] Recognising training deficiencies, it was also suggested that supply and transport elements should undertake specialised training and rehearsals in loading and unloading supplies in the same type of craft to be used in an operation. They should practice making stockpiles and constructing roads from the beaches into the jungle.[59]

The main logistic lessons were to be found on the beachheads. Beach organisation, congestion and forward supply could all be improved by better preparation, the employment of a beach master with overall authority in the landing zone, and the formation of specialised logistic units for work on the beaches.[60] A self-contained beach landing group, with its own staff and attached to the division, was deemed 'a necessity' for working the beach maintenance area.[61] It would also free up personnel for the quick preparation of beach exits and the formation of supply dumps, both essential elements in reducing congestion and clearing stores from the beach, where they were more vulnerable to air attack. On top of additional labour was a requirement for more vehicles and small craft.[62] The final, and most crucial, lesson was the requirement for better cooperation and closer liaison at all stages between the three services and the United States Navy.[63]

All of these recommendations could be met through structural changes and increased training and familiarisation in amphibious warfare and its logistic peculiarities.[64] One key measure, implemented in late 1943 and early 1944, was the establishment of two joint beach groups, each consisting of army troops, engineers, pioneers, signallers, medical staff and a RAN beach commando, and each totalling 1,800 men. Their role was to clear the beach, liaise with the forces offshore, and unload the landing craft.[65] Longer term logistic support beyond the initial landing, when a base had been established, became the responsibility of another new organisation formed in 1944, Base Sub Areas.[66] An Australian/US amphibious training school (the Joint Overseas Operational Training School, JOOTS) had been established at Port Stephens in late 1942 and was subsumed the following year into the 7th Amphibious Force's Amphibious Training Centre (ATC). Specialist training in logistics increasingly featured in its program. Many of those in the new beach groups attended the school, improving inter-service logistics cooperation.[67] Training was as realistic as possible. Exercise Mittens at Cairns, 21–22 December 1943, for instance, included loading assault craft, landing the force, developing a beachhead, and delivering 500 tons of stores ashore, and was described as 'probably the best exercise the Beach Group ever did'.[68] By the time Australia's military forces were tasked with the liberation of the oil-rich island of Borneo, which the Japanese had occupied since 1942, the lessons from Lae had been learned, implemented and rehearsed.

Borneo (1945)

Detailed planning for the assaults on Borneo, codenamed Operation OBOE, began in March 1945.[69] Transport shipping shortages caused some postponements, but eventually GHQ settled on three operations in three stages: OBOE One, a landing by the 26th Infantry Brigade Group (9th Australian Division) at Tarakan Island on 1 May; OBOE Six, by the remainder of the 9th Division at Labuan Island and Brunei Bay on 10 June; and OBOE Two, by the 7th Australian Division at Balikpapan on 1 July 1945. Each operation had similar objectives: to seize and destroy all enemy forces in the area, thus allowing it to be used as a naval and air base for future operations, and, when possible, to re-establish civil government.[70] Dayton McCarthy's book *The Oboe Landings 1945* is the most recent detailed examination of these operations, the largest amphibious assaults in Australian military history.[71]

Unlike Lae, logistics underpinned the planning for each of the Borneo operations from the very beginning. Relevant divisions, for example, were drawn into the planning process before their parent headquarters (1st Australian Corps) issued orders defining every operation's logistic considerations, including key dates and who was responsible for supply, resupply and the ongoing maintenance of the force. Balikpapan is indicative of the logistic forethought and preparedness for these operations. It also shows just how central logistic considerations had become to operational commanders and their staffs. Before operations commenced the 7th Australian Division's commander, Major General Edward Milford, commented that the problem was not in landing the troops 'but in landing heavy equipment and stores since beaches may be vulnerable to shelling'.[72] His concerns about getting supplies over the shore directly contributed to the selection of Klandasan—with its firm sand rather than the mangroves that were predominant along the coast—as the landing site.[73] Another reason for its selection was its close proximity to Balikpapan Bay, the use of which 'would ease the problem of supply over the beach and would be a safeguard against unfavourable weather'.[74]

Before the Borneo operations got to that point, however, men and materiel had to be transported from Cairns, Townsville and Brisbane to the staging base at Morotai. Beginning on 12 March 1945, thousands of troops, vehicles, equipment and stores made the journey every week. Almost all shipping

was provided by the US Army Services of Supply (USASOS). By the time the 7th and 9th Australian Divisions departed Australia, Lieutenant General Sir Leslie Morshead's 1st Australian Corps 'had been equipped to a level never previously achieved by an Australian Formation during this War'.[75] Morotai was a hive of activity and hard work in preparation for the embarkation of the assault convoys. These ships, mostly provided by the United States Navy (although with RAN ships involved), would either run ashore or, in the case of Tarakan, offload using naval pontoons and amphibious craft at the objective area. They therefore had to be tactically (or combat) loaded, with only vital equipment—and no bulk stores—placed on amphibious shipping, and loaded in such a way that the most important equipment could be unloaded first, so as to enable fast disembarkation by the beach groups and for the ships' quick return to Morotai for resupply purposes.[76]

Leaving the staging base, the assault convoys carried minimal although sufficient supplies to establish the force ashore. In the case of Tarakan, this amounted to 18 days' supplies and 20 days' ammunition. If required, each force could call upon the USASOS floating reserves of ammunition and petroleum, oil and lubricants (POL) or, in an emergency, rations and ammunition could be flown from Morotai and airdropped to the ground forces (at Tarakan, for instance, nearly 1,300 3-inch mortar bombs were air-dropped on 3 June, with 100 per cent recovery and serviceability of all ammunition and parachutes).[77] The initial resupply, to boost the stocks carried in the assault waves, was also delivered from Morotai. After that, the maintenance of the forces—with the exception of Tarakan—shifted from Morotai to Australia, with supplies periodically pushed forward based on expected usage rates, and shipping arriving at the sub-bases on an as-required basis.[78]

Balikpapan (OBOE Two), the third and final landing of General Douglas MacArthur's campaign to reclaim Borneo, was the largest and last amphibious assault conducted by Australian forces during the Second World War. Despite its tactical success, the mission's strategic validity was questionable: its own commanders thought that it lacked a tangible objective and doubted its relevance to defeating the Japanese.[79] Despite these reservations, the operation proceeded as planned. Similar to the Tarakan and Brunei Bay/Labuan operations, the mission fell to formations of the 1st Australian Corps, with considerable backing from US air, naval, and logistics forces. A 20-day preliminary bombardment, consisting

of a staggering amount of ordnance, set a record for the largest ever supporting an Australian mission.[80] Japanese defences were obliterated.[81] Simultaneously, US Navy underwater demolition teams diligently cleared the approaches to the beaches, paving the way for a formidable force of 33,500 men and over 100 ships to commence their approach.[82]

Figure 3. Firing rockets on Balikpapan beach, Borneo. Across two runs, 20,000 rockets were fired by units of the 7th Fleet preceding the landing by Australian forces on F-Day. (Source: Library of Congress: LC-USZ62-99261)

At precisely 7 am on 1 July, a barrage of firepower from cruisers, destroyers and Liberator aircraft was unleashed upon on the beaches at Klandasan. The first two waves of troops, gathered offshore in Landing Ship, Tanks (LSTs), were transferred from these LSTs into US-crewed Landing Vehicle Tracked (LVT) 'Alligators' for the journey towards the shore. Fire support switched to cover the flanks and rear as they got closer to the coastline.[83] The first and second waves of troops, landing on a two-brigade, 2 kilometre front, reached the shore just before 9 am.[84] It took less than 15 minutes for the 7th Australian Division to secure the beachhead.[85] Within a span of just over a week, the Australians achieved their initial objectives. Yet, for all its

tactical success, OBOE Two had negligible strategic influence and did not shorten the war by a single minute.[86]

Balikpapan was the pinnacle, or 'high water', of Australian littoral logistics in the Second World War.[87] Initial lodgement was swift. The beach group, previously commended by MacArthur for their exceptional work during OBOE Six, landed at Balikpapan with the second wave. Drawing upon recent experience, they promptly marked out the beaches and directed the subsequent waves through the maintenance area.[88] By the morning of 3 July the combined efforts of American and Australian forces resulted in the disembarkation of approximately 1,000 vehicles, over 16,500 personnel, and nearly 2,000 tons of equipment and stores.[89] Once the beachheads were secured, the focus shifted towards establishing docks to both ease and increase the flow of supplies. The Australians constructed a pontoon dock, but by far the standout was the U-shaped dock built by US forces. This design allowed two LSTs to be unloaded at once and significantly enhanced the speed at which supplies could be got ashore. Another beach, capable of accommodating eight LSTs simultaneously and better protected from the weather, was opened on 10 July and remained the primary logistic hub for the remainder of the operation.[90]

The three OBOE operations showed the Allied forces—air, sea and land—at their most logistically proficient. Where obstacles were faced, such as the difficulty of getting supplies ashore over pontoons onto unsuitable beaches at Tarakan, the temporary breakdown of inter-service communication at Brunei Bay, or congestion on the beaches at Balikpapan caused by the destruction of piers, the beach groups, working with the fighting force, overcame them through familiarisation, improvisation, cooperation and hard work. Overall, and despite many small problems, the OBOE operations were a logistic success.[91] The forces achieved their objectives and there were—with few exceptions—no significant complaints about a lack of stores or supplies. The reasons for these logistic successes were many. Primary among them, though, was a willingness and ability to learn and adapt from past experience. Proficiency, whether in logistics or other matters, came through proper planning, preparation and training.

Allied logistic systems were proven by the time that the Australians landed at Balikpapan in July 1945. The establishment of the JOOTS and the courses provided afterwards by the ATC equipped the Australians with

the knowledge and skills to proficiently execute amphibious operations. Furthermore, structural improvements to the force, combined with training serials, rehearsals, and learning lessons from previous operations, ensured that they understood joint and combined logistic processes—both in theory and in practice. Australian amphibious capability in 1945, with all the US support inherent, stands in stark contrast to the logistical challenges encountered at Lae less than two years prior. This marked difference can be attributed to various factors, including gained experience, enhanced confidence, established trust, well-defined roles and, crucially, the presence of sea and air supremacy. Additionally, successful logistics in 1945 was made possible by leveraging unprecedented US shipping support, which was crucial for moving all of the personnel, stores, equipment, and masses of ammunition from the supply bases in Australia to the theatre of operations. At the end of the Second World War, as with more recent times, Australia was logistically reliant on its allies.

Conclusion

History shows us that despite changes in technology, some of the logistic challenges of operating in littoral environments are constant: sea lines of communication demand protecting; where a land base does not exist, or a staging base is too far distant, a force needs sufficient shipping for sea basing, troop transport, transhipping, amphibious assault and disembarkation; materiel needs to be unloaded over the shore, organised and cached, and distributed where and when required and in sufficient quantities; stocks require replenishment and equipment requires spares, repairs or salvage before depletion; and the reverse flow of casualty treatment and evacuation must be given adequate forethought. Then, of course, there are the inherent complications of inter-service administration and cooperation.

More explicitly, the case studies above offer some specific lessons and raise issues worthy of further consideration and nuanced study. Even if deployed somewhere as benign as German New Guinea was in 1914—a not implausible proposition if the objective is to pre-emptively secure terrain to deter, harass or interdict an enemy—an Australian integrated force will still encounter logistic trials, from supplying basic items like water and rations to more significant challenges of ensuring the continuation of local trade or, in

its absence, provisions for the local population. That might seem simple in principle, but it will be a major problem if sea trade is disrupted or if Australia is required to fill the void for any protracted period from its own wholly insufficient strategic reserves.

Gallipoli, too, offers up logistic lessons, especially in terms of illustrating what a poorly designed and implemented logistics plan looks like. The only thing preventing that calamitous campaign from being a logistic disaster was the failure of the MEF to actually advance far enough to stretch the lines of communication to breaking point. Nonetheless, supply over the shore still suffered from inter-service rivalry, doctrinal ambiguity on defining responsibilities for beach work, and a host of other factors. If only one lesson is taken from the Gallipoli case study, it should be the importance of realistic casualty forecasting and ensuring the medical arrangements and resources are sufficient to cope with the demands.

In both Gallipoli and Borneo, we see examples of the significant bearing that both geography and terrain can have on logistics. None of the multiple island bases, or the floating reserves supporting the former campaign, were logistically suitable. Narrow beaches under constant enemy fire allowed little space for maintenance areas and little capacity for storage. The rugged hills and razor ridges immediately confronting the coast meant mechanical transport could not be employed, and everything had to be carried on the backs of men or mules. Those same factors could be overcome at Balikpapan where, unlike at Gallipoli, the operational plan—including the choice of landing sites—was made with logistic considerations firmly in mind. For example, Klandasan was selected over other beaches because of its logistic suitability.

Another lesson that can be drawn from a comparison between 1915 and 1945 is the advantage (where considerable scale and timeliness are concerned) of 'push' over 'pull' logistic systems. The First World War on the Western Front showed how unworkable pull systems are from an administrative perspective. Gallipoli reinforced this fact and provided countless examples where the pull system resulted in costly and unworkable delays. A pre-emptive push system, like that employed at Borneo, was far better, even if it led to wastage: that is, it was preferable to have more, and immediately accessible, than it was to have to wait for the system to catch up. This tension, which raises questions of stockpiling and the capacity of the national

support base to withstand wastage, is worth further consideration from the strategic to tactical levels within government and Defence.

If Gallipoli is examined for what ought to be avoided logistically, Borneo is a case study in what good littoral logistics looks like. Unlike in the case of Lae, those planning the OBOE operations examined past experience for logistic lessons. Where Lae (like Gallipoli) had been characterised by the physical separation of planning staffs and dislocation between the services, for Borneo they were brought together. What is more, the training and organisational systems had evolved to ensure that logistic processes and logistic units—and the physical work of unloading supplies and establishing beachheads—were practised, tested, improved, and practised again. Simple things, like combat loading, were perfected so as to minimise the time amphibious craft spent discharging goods in contested areas: this benefited the tactical fight and bolstered the logistic capacity for resupply and reinforcements. The Army and the ADF must ensure that sufficient redundancy is built into its systems so that multiple personnel across the force are logistically proficient. As Gallipoli's reliance on troops rather than dedicated fatigue parties reminds us, it is these types of tasks and specialisations that suffer through 'ad hocism'.

Those in the Australian Defence Force charged with finding solutions to tomorrow's challenges ought to heed Julian Thompson's advice: many of the answers to current questions already exist in hard-earned past experience, in the operational orders and after-action reports of battles long gone, and in dusty tomes on library bookshelves. Lieutenant General Morshead's post-operational report on the OBOE operations, and its appended operational and logistic instructions, is a great place to start.

About the Author

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Small Boats and Brave Men: The 9th Division and the use of the Littoral in the Huon Peninsula Campaign September 1943–January 1944

Thomas Richardson

Introduction

At 0630 on the morning of 17 November 1943, a tremendous screeching sound cut through the air of the slopes of Sattelberg, a peak that reached some 900 metres above sea level and dominated the southern coast of the Huon Peninsula, on the north coast of New Guinea. The sounds were produced by a salvo of 4.5 inch rockets fired from a makeshift mount on a ¾ ton weapons carrier; another salvo was quickly fired, and then another.[1] It was unclear how much damage the rockets did to the Japanese positions guarding the settlement of Sattelberg, and in some ways irrelevant; their primary purpose was to mask the sound of a troop of Matilda tanks moving into position further ahead. As the Matildas crossed their start line at 0700, the sound of the rockets was replaced by the thunder of guns. Hundreds of rounds fired by the 25-pounders of 2/12 Field Regiment fell ahead of the tanks and the infantry of 2/48th Battalion; so too did thousands of rounds fired by Vickers machine guns of the 2/2nd MG battalion.[2] 'H-Hour, 0700 hours on 17 November opened a new chapter in combined arms fighting for the Australian Amy in New Guinea,' Garth Pratten has argued. 'While all

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of these elements had been employed in New Guinea previously, this was the first occasion on which they had been so closely integrated and also in sufficient strength to produce a decisive combined effect.'[3]

This paper seeks to build on Pratten's argument by demonstrating how, during the second half of the Huon Peninsula campaign, the 9th Division was able to generate superior combat power to its enemy and execute combined arms warfare in supremely difficult terrain. From 17 November 1943 to the capture of the Japanese operating base at Sio in January 1944, tank-infantry teams and liberal use of artillery support was central to the 9th Division's methods. This was made possible in large part by the division's willingness to use the littoral for manoeuvre and supply. The ability to use small landing craft to move tanks and guns quickly from base areas to beachheads, and then from beachheads to smaller beachheads, was critical in enabling the Australian tactics. Far from forcing the 9th Division to get light, taking to the sea allowed the Australians to stay heavy.

This was in stark contrast to their Japanese opponents, who even at the start of the campaign struggled to muster comparable firepower and by the end of it were in a state of total logistical collapse. This situation partially reflected the broader materiel weakness of the Japanese war effort, but also the sustained campaign conceived by II Australian Corps and waged by Australian and American units that targeted Japanese logistics. Even as they maximised their use of inshore water, the Allies sought to deny it to the enemy. In this they succeeded, spectacularly, with devastating consequences for the Japanese soldiers on the Huon Peninsula.

Allied domination of the littoral around the Huon Peninsula owed much to two units: the US Army's 532nd Engineer Boat and Shore Regiment (EBSR), and the US Navy's Task Group (TG) 70.1. As this paper will show, both achieved success not through leveraging of overly sophisticated military equipment but rather by using boats that were cheap, simple, survivable, small and easily replaced. Precisely because of this, they were able to sustain operations in contested areas—in turn giving the 9th Division the flexibility to adapt its preferred methods of combined arms warfare to the terrain. The result was the emergence of a littoral team that, in miniature, replicated much of the maritime strategy that guided operations in the South-West Pacific in 1943–44.

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The Strategic Context

The Huon Peninsula campaign was one part of the larger Operation CARTWHEEL, designed initially to capture (and subsequently modified to isolate) the Japanese base at Rabaul, in New Britain. The campaign plan called for simultaneous advances up the Solomon Islands by Admiral Halsey's South Pacific command, and up the coast of New Guinea by General MacArthur's South-West Pacific Area (SWPA). As Peter Dean has argued, traditionally in a littoral area such as the north-eastern coast of New Guinea, control of the sea enabled control of the land. But the invention of the airplane, and its refinement into an anti-shipping weapon, drastically changed this equation: 'now the airplane based on land enabled the land to control the sea'.[4] This point was brutally demonstrated in March 1943, when Allied aircraft destroyed a Japanese convoy attempting to move reinforcements from Rabaul to New Guinea in what became known as the Battle of the Bismarck Sea. All eight of the merchant ships in the convoy, and four of the eight escorting destroyers, were sunk. Over a quarter of the 8,470 men in the convoy were killed, and only around 1,300 made it to New Guinea. Huge quantities of stores and artillery were also lost. It was a savage demonstration of the power of the aircraft as an anti-shipping weapon.[5]

MacArthur thus based his strategy for the execution of the SWPA's part of CARTWHEEL around air power. There was a beautiful simplicity in this thinking, as Dean outlines:

> This strategy rested on air superiority enabling sea control to allow his ground force to leap-frog forward using amphibious warfare, isolating large numbers of Japanese and establishing airfields, ports and logistic bases along the way to allow the advance to continue. This was to be achieved through a joint operational approach contained within a maritime strategy that used the ocean as the space for manoeuvre.[6]

This concept rendered the Huon Peninsula, and the town of Finschhafen on its eastern tip, important for a number of reasons. Seizing Finschhafen would give the Allies another base area where airfields and port facilities could be developed, ready to support the next leap forward. That leap would be to Cape Gloucester, on the western tip of New Britain and 50 miles east of the Huon Peninsula. The body of water between the two places was divided by Rooke Island into two straits, the Vitiaz and the

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narrower Dampier. Controlling both sides would deny Japanese vessels entry to the Solomon Sea. Perhaps more important for MacArthur, as the US Navy's official historian Samuel Morison put it, the Vitiaz and the Dampier 'were the two principal entrances to the Bismarcks fish weir which must be secured before MacArthur could pass the [Bismarck] Barrier.'[7] Seizing them was thus a critical step in not only executing CARTWHEEL but also setting the conditions for the advance to the Philippines.

The Japanese recognised this reality, and the importance of the straits. Writing post-war, Lieutenant General Yoshihara Tsutomu, Chief of Staff of the 18th Army, described Japanese thinking at the time:

> *Finschhafen is situated on the eastern edge of New Guinea, and is therefore a strategic point on the west coast of Dampier Strait. Since the Dampier Strait is the barrier between the Solomon Sea and the Bismarck Sea, if the Allied forces could not use this barrier, an advance to the Bismarck Sea area would be extremely difficult… Considering matters from all angles, with Lae and Salamaua fallen, a break through the Dampier Strait would be very easy, and in addition it would confirm with strategy. So it became a problem of holding Lae and Salamaua; the defence of Finschhafen began immediately, and as I have mentioned before, with the enemy's landing at Hopoi on 4th September, the situation became definite.*[8]

The landing which Yoshihara refers to is the arrival of the 9th Division at Red Beach—the opening blow of Operation POSTERN, which aimed to seize Lae. Lae was the major Japanese base in south-eastern New Guinea and was central to their defensive scheme. Its fall would splinter the Japanese position, allowing Allied forces to assault the Huon Peninsula and advance along the Markham and Ramu valleys toward the northern coast of New Guinea. Cunning in concept and well planned and executed, POSTERN succeeded brilliantly. Salamaua, which had provided defensive depth to Lae, fell to Australian soldiers on 11 September, and Lae to men of the 7th Division on 16 September. With the collapse of this position, Finschhafen gained even more importance to Japanese strategy, and reinforcements were hastily ordered from New Guinea's northern coast to the area.

Operation POSTERN had been masterminded by General Thomas Blamey, in his role as the commander of New Guinea Force, and his chief of staff Major General Frank Berryman. Blamey and Berryman had anticipated

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the fall of Lae and had planned out their next two moves. A thrust up the
Markham and Ramu valleys would culminate in the seizure of the town of
Madang on New Guinea's northern coast. Seizing the town would deny the
Japanese one of their major remaining bases in New Guinea and also isolate
the Huon Peninsula. The other operation would be a landing at Finschhafen,
to secure the area for development as an Allied base, followed by an
advance up the coast to secure the Vitiaz Strait.[9]

The responsibility for the task of capturing Finschhafen would fall to the 9th
Division, commanded by General George Wootten. Unlike the 7th Division,
which had previous experience fighting the Japanese during the Kokoda
Campaign, Operation POSTERN was the 9th's first experience of fighting in
jungle. The division had spent 1941 besieged in Tobruk, and 1942 fighting
the first and second battles of El Alamein. It is hard to think of a more
severe contrast than that between the open spaces and baking, dry heat of
North Africa and the confined, malarial jungle and intense humidity of New
Guinea. But the gap between the division's withdrawal from North Africa in
January 1943 and its deployment to New Guinea had given it time to train
and prepare for jungle warfare. While the numerous lessons the Australian
Army had learned in the first 10 months of war against the Japanese had
not been encoded into formal doctrine, they had at least been written down
and disseminated.[10] Moreover, the 9th returned from North Africa with
a firm belief in combined arms warfare. While it would adapt for its new
environment—often in quite substantial organisational ways—it would not be
'spooked by the jungle', as Pratten has put it, into abandoning basic tactical
principles.[11] The infantry would fight as part of a team.

The Long Road to Finschhafen

Of course, it was easy to aspire to combined arms—another thing to execute
it in the jungle. The campaigns of 1942 had made clear what an enormous
obstacle the terrain of Papua New Guinea posed to the use of heavy
weaponry and vehicles. The lack of roads, the weather, and the density of
jungle all conspired against combined arms. The overwhelming reliance of the
logistics system on the human back, particularly in forward areas, was also a
substantial obstacle to the use of supporting fires—even if the weapons could
be moved forward, supplying them with ammunition was an arduous process.
The Allies had recognised that movement by sea could overcome some of

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these problems in the lead-up to the beachhead battles around Buna, Gona and Sananada in late 1942. But the sinking by Japanese aircraft of the small vessels carrying US artillery forward to support these attacks pointed to the hazards of this path, and exacerbated an existing shortage of suitable craft. As it was, tanks delivered by sea proved critical in breaking Japanese resistance around the three towns by early 1943.[12]

The gradual unfurling of MacArthur's maritime strategy in the first six months of 1943 helped change this situation. As the Fifth Air Force slowly gained the ascendency in the air over New Guinea, the Japanese aerial threat diminished (but did not disappear). This in turn allowed MacArthur's growing amphibious force to manoeuvre more freely, enabling more areas to be seized via amphibious assault. These areas would be developed into bases that further increased the Fifth's superiority over its foe, allowing yet more amphibious manoeuvre—a truly virtuous cycle.[13] More importantly, it meant the possibility of using amphibious lift to enable sustained onshore combined arms was becoming more and more feasible.
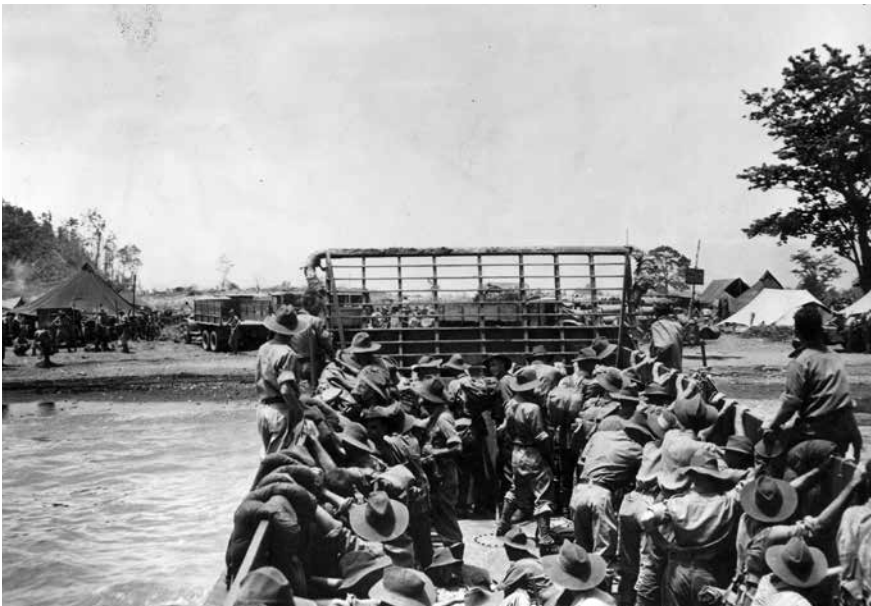

Figure 1. An American landing craft brings Australian soldiers into a beach on the north coast of New Guinea. The use of such small craft gave Australian commanders tactical and logistical flexibility during the campaigns of 1943-44. (Source: State Library of Victoria, an011005)

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MacArthur's amphibious capability rested largely with VII Amphibious Force (Task Force 76) under Rear Admiral Daniel E Barbey, known as 'Uncle Dan, the amphibious man'. By the time of Operation POSTERN, Barbey could call on an impressive array of specialist landing craft. These ranged from purpose-built Landing Ship Tanks (LSTs), Landing Craft Tank (LCTs) and Landing Craft Infantry (LCIs) to old destroyers that had been converted into fast transports and a range of smaller craft to support them. The LSTs, LCTs and LCIs were particularly valuable as they could, if the beach gradient was right, unload directly onto the shore. The LSTs were the largest, measuring 316 feet in length and capable of carrying over 150 soldiers or 500 tons of cargo. The LCIs were roughly half the size of this, while the LCTs measured a mere 100 feet and could carry 150 tons.[14] While Barbey's fleet was not quite as impressive as the huge amphibious armadas assembled by the Allies later in the war, it was still a substantial improvement over what had been available a year earlier.[15]

As noted already, the Japanese threat to Barbey's ships had steadily decreased in the first half of 1943, but their potential was still formidable. How TF 76 reacted to this threat would cause considerable friction with their Australian passengers. The contrast between Morison's account of TF 76's performance during the Lae landing and the views of the Australians who participated is marked. Morison highlighted the number of troops (7,800) and volume of supplies (1,500 tons) deposited by mid-afternoon, before describing in detail the heroism of LST crews subject to a punishing attack by Japanese aircraft from 1300.[16] The Australian perspective is somewhat more jaded. The reluctance of some of the captains of the amphibious craft to beach, or finish unloading under threat of enemy air attack, rankled the Australians and had serious operational consequences. One LST that withdrew early on 4 September took all of the 20th Brigade's Owen gun ammunition with it. Later, on 20 October during the Finschhafen operation, another deposited the tanks of C Squadron, 1 Australian Tank Battalion and then departed after an hour, taking with it most of the squadron's ammunition, fuel and food.[17] So serious was the issue that Wootten issued an order to his commanders on 26 October to clamp down on anti-USN discussions within units.[18] As John Coates put it, in the eyes of many in the 9th Division 'the lack of commitment of some amphibious craft commanders in New Guinea was simply not good enough'.[19]

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A defence of Barbey and his men can be mounted, however. MacArthur's entire strategy of maritime manoeuvre rested on VII Amphibious Force. It was, in a sense, the single point of failure for the SWPA's participation in CARTWHEEL—a perception not helped by the obvious vulnerability of the slow and undergunned landing craft. These vessels were not easy to replace, either; the centrality of amphibious warfare to Allied strategy in Europe and the Pacific put a premium on such craft. Moreover, MacArthur's timetable kept VII Amphibious Force operating at a relentless place. In light of this, the reluctance of US Navy crews to linger at beachheads is perhaps more understandable. Nor was this a simple crew initiative. The US Navy consistently pushed to restrict the amount of time amphibious ships spent on the beach to a narrow window of night-time as a matter of policy, even at the expense of unloading cargo. This understandably infuriated those fighting ashore.[20]

These tensions would be highlighted in the week after the Finschhafen landings, in an extended argument over whether to reinforce the single brigade that had been put ashore on 22 September. The Australians believed they had secured agreement during operational planning for an additional brigade to be landed, and on the evening of the 22nd Blamey ordered 24th Brigade and 9th Division HQ to be shipped to Finschhafen. Efforts to turn words into reality quickly foundered, however, when Barbey revealed he had been ordered by MacArthur's General Headquarters (GHQ) to begin preparations for the planned landings at Cape Gloucester—at the expense of the Australians. What followed was a substantial disagreement between MacArthur and his Australian subordinates that only ended when Blamey made a direct appeal to his American superior. MacArthur's obstinance was underpinned by the erroneous reporting of GHQ intelligence staff that Japanese strength in the area was minimal; that he believed his own staff in Brisbane over the ample evidence generated by the men on the ground speaks to some of his flaws as a commander. Even after Blamey's message, MacArthur's acquiescence was limited; the 2/43rd battalion was transported from Lae to Finschhafen on 29 September by fast destroyer transports, while the remainder of the 24th Brigade and 9th Division HQ were not landed by TF 76 until 11 October.[21]

Much has been written about this episode, usually with an eye to the problems of coalition warfare and the substantial (and undoubted) flaws in MacArthur's style of command.[22] But MacArthur's stated reasons for resisting the Australian request reveals the premium he placed on

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VII Amphibious Force and its ability to execute his timetable. In one message explaining his reasoning, MacArthur warned:

> *… large forced reinforcements of DIMINISH [Finschhafen] area requires considerable risk to both ship and life. Produces large continuing supply commitment … Requires commitment of amphibious forces necessary for other operations endangering ability for further advance.*[23]

As Pratten notes with some understatement, 'the 20th Brigade was also facing a considerable risk to life' and the message showed 'GHQ had lost touch with reality'.[24] Peter Dean judged that MacArthur 'was putting future operations ahead of current tactical reality'.[25] Both are undoubtedly fair judgements, and MacArthur does seem to have taken some lessons from the dispute. When the Australians requested more reinforcements during the Japanese counterattack that began on 17 October, MacArthur ordered VII Amphibious Force into action.[26] Yet even here the amphibious ships did not linger, again to the annoyance of some of the Australians they delivered. The overall point was clear: the large ships would do the heavy lifting, but they would not tie themselves for long periods to a beachhead.

The sustained amphibious support that would enable the 9th Division's combined arms warfare would instead come from the 532nd EBSR, part of the US Army's 2nd Engineer Special Brigade. The brigade's name was testimony to the conceptual barriers operations in the littoral posed to the services; originally known as Engineer Amphibian Brigades, these were re-designated 'Special' in 1943 because of a belief within the upper echelons of the Army that the term 'amphibian' should remain the sole domain of the navy. It made little difference to the men in the units, who continued to cheerfully refer to themselves as amphibs during and after the war.[27]

Each Special Brigade had three EBSRs, in turn divided into two parts: a boat battalion and a shore battalion. The boat battalion was designed to be able to move an entire US Army Regimental Combat Team, and so had 120 Landing Craft, Vehicle Personnel (LCVP) and a dozen Landing Craft, Mechanized (LCM)—manned by nearly 1,000 soldiers. The shore battalions were smaller but still substantial units of around 600 men. Their role included loading and unloading supplies on the near and far shores of an amphibious landing, and managing and developing the beachhead.[28]

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The equipment of an EBSR was plentiful, but simple. An LCVP was 36 feet 10 inches long, and made largely of plywood. It could carry up to 36 soldiers or 8,100 lb (3,674 kg) of cargo, and reach a top speed of 9 knots. The LCM was of a similar design but larger, capable of carrying up to 60,000 lb (27,215 kg) of cargo—in practice wheeled vehicles or a light tank.[29] Both were easy to build—so easy, in fact, that when production eventually began of landing craft in Australia it occurred not in ship or boat yards but in Ford's car factories in Brisbane and Geelong.[30] The equipment of the shore battalion—bulldozers, trucks and jeeps, plant equipment for building roads—was largely adapted from civilian use. While the existence of these units was undoubtedly demonstrative of the massive material strength of the US and Allied war effort, it also shows the way in which relatively simple technological capabilities could be leveraged to great effect. The EBSRs were critical not only in enabling Allied amphibious operations but also in maximising use of littoral space to generate combat power ashore.

2ESB had arrived in Australia in early 1943. It was equipped with US-built landing craft, but most of these craft had crossed the Pacific in pieces in order to maximise shipping space, and were frantically reassembled at facilities created for the purpose near Cairns.[31] Once the EBSRs began regaining their craft, training commenced alongside the 9th Division. At the beginning of the war, the US War Department had:

> … visualized engineer amphibian units as made up of highly skilled technicians equipped and trained for the mission of transporting combat elements and their supplies over extended water distances and logistically supporting the landing of those troops on hostile shores.[32]

Yet in practice, as one US officer sheepishly admitted post-war, when training began 2ESB had as little practical knowledge of amphibious operations as the 9th Division. Perhaps because of this immaturity, training proceeded smoothly as both units learned together. In contrast to the Australians' view of the US Navy, the relationship between 2ESB and the 9th Division remained strong throughout.[33]

The 532nd ESBR supported the 9th Division during Operation POSTERN. Over 65 LCVPs and LCMs of the regiment were involved in the initial landing, staging out of the port of Morobe.[34] While most vessels returned to Morobe for a second load, 20 remained at the beach to supplement the unloading of ferry supplies along its length. The shore battalion worked to expand the beachhead by building roads and carving dispersal areas out

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of the jungle.35 This was necessary in order to provide protection from the inevitable Japanese air attacks, which began at 0705 on the first morning and became regular occurrences thereafter. A shortage of Australian labour and the need to unload VII Amphibious Force landing craft meant work on expansion slowed, and supplies piled up on the beach. When they were moved inland there was not enough space for adequate dispersal of material such as fuel and ammunition, with predictable and devastating consequences after another Japanese air raid in the afternoon.36 This experience demonstrated why logistics was so difficult in New Guinea— supplies flowed into the beachhead more quickly than they could be moved off it, because creation of the infrastructure necessary for that movement was hard. The partial solution, as shall be seen, was the continued movement of supplies to forward troops by sea, rather than by land.

Figure 2. The joy of logistics in New Guinea. Soldiers work to free a truck that has become bogged in a beach supply dump in the Finschhafen area in 1943. Building and managing such dumps was a key task of the US Army's Engineer Special Brigades. (Source: State Library of Victoria an011001)

Operation POSTERN was important for the 532nd EBSR in a number of ways. At a basic level, the operation solved the lingering doctrinal question of who was responsible for what during the execution of a landing: the

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navy would transport material from the near shore to the far shore, where the EBSR would unload it and distribute it.[37] This was not an arrangement without frustrations; the navy's desire to unload in a limited window at night, in order to minimise the risk to ships, put limits on the amount of cargo that was arriving, aggravating the Australians and putting the 532nd between a rock and a hard place.[38] It was also not absolute; the range of the LCVPs and LCMs meant they could make runs back to Allied base areas at Salamaua and Nassau Bay. On average five LCMs and 35 LCVPs were engaged daily in such activities. Although slow, lightly armoured and armed only with a few machine guns, they proved surprisingly survivable in the face of the still-dangerous Japanese air threat. Their small size and shallow draft made them easy to disperse, and attacking pilots were naturally drawn to larger vessels. The shuttle runs between base areas and beachhead thus continued throughout the operation.[39]

Secondly, Operation POSTERN showed the value of small craft in being able to support the advance of Allied troops. Ninth Division quickly discovered the frustrations of poor or non-existent roads and tracks, torrential rain and limited available motor transport.[40] The small craft of 532nd EBSR helped fill the gap. Nightly convoys of LCVPs and LCMs left Red Beach to take supplies to the forward Australian positions. This was difficult, dangerous work; the landing craft lacked many basic navigation tools, there were numerous uncharted coral reefs, and landing on the wrong beach could mean an encounter with the Japanese.[41]

The importance of these missions was demonstrated by the 24th Brigade's crossing of the Busu River on 10 September 1943. Usually 700 m wide, it had been swollen by rain, which rendered the speed of the water dangerously high. The river presented a formidable obstacle and had the potential to be turned into substantial line of resistance if the Japanese reinforced those already guarding it.[42] The 2/28th Battalion thus made a quick attack over the river on foot on 9 September and succeeded in establishing a bridgehead under enemy fire; demonstrating the river's power, 13 men were swept away and drowned. The crossing also cost the battalion 25 per cent of its automatic weapons and approximately 80 rifles.[43] Even after a rope ferry was established over the river, ammunition and general supplies dwindled. Given the obvious problems with crossing the river, on the night of 10/11 September, 24th Brigade requested landing craft be

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despatched from Burep with supplies for landing on the far side of the Busu, within the 2/28th's perimeter. Several such craft were driven off by harassing Japanese artillery fire but two landed with a valuable cargo of ammunition. The following night more landing craft were used to ferry supplies from Burep into the bridgehead, a particularly valuable contribution given that the rope ferry washed away overnight and had to be re-established. From 12 September, two landing craft were permanently attached to the 24th Brigade; their first substantial role was ferrying the brigade tactical headquarters and 2/32nd Battalion to the far shore, allowing the advance towards Lae to continue.[44]

The crossing of the Busu also highlighted the third role of the 532nd: the ability to move units and heavy weapons forward and so greatly increase Australian combat power. This was not just carriage of the 2/32nd; the 2/12th Field Regiment used landing craft to move forward as well, both from the beachhead and over the Busu. Unsurprisingly the 24th Brigade appreciated the presence of the guns and during its subsequent advance 'arty support was used extensively'.[45] Early in the operation, persistent communications issues limited the responsiveness of artillery support, and the brigade found that (unsurprisingly) the closer the guns were to the infantry the better the support. This was made possible, at least in part, by the use of landing craft.[46]

Operation POSTERN came to a rapid conclusion following Lae's fall. Beyond its strategic significance, the battle for Lae had been a valuable operation for 9th Division and 532nd EBSR to gain experience in amphibious and jungle warfare. The operation had also made plain the potential for the persistent presence of landing craft to enhance the ability of troops operating in a littoral area to generate combat power. There was little time to dwell on this experience, however. The day after Lae's fall, on 17 September, MacArthur ordered that Finschhafen be seized. After a frantic period of planning, the 20th Brigade embarked on VII Amphibious Force ships near Lae on 21 September. The next day it landed at Scarlett Beach, north of Finschhafen, marking the start of the Huon Peninsula campaign.[47]

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Generating Combat Power in the Littoral—the Huon Peninsula Campaign

The 9th Division would demonstrate the way in which use of the littoral could be used to generate combat power ashore in the Huon Peninsula campaign, which lasted from September 1943 to January 1944. The purpose of this paper does not require an extended description of the Huon Peninsula campaign, but a brief summary is necessary.[48] The 20th Brigade landed on 22 September. After heavy fighting, Finschhafen was secured on 2 October. Through this period, it became abundantly clear that Japanese forces were massing inland and to the south in preparation for an offensive to destroy the beachhead. Japanese security was abysmal and the Australians knew in advance that the operation was to begin on the evening of 16 October. In the event, the difficulty of communicating over such a wide area meant that the Japanese offensive, conducted by troops of the 20th Division, was launched in a somewhat uncoordinated manner. Despite heavy fighting and some moments of genuine concern, the 9th Division's positions held and the Japanese called off their operation on 24 October.[49]

General Herring, commander of I Australian Corps, would later write of the Japanese offensive 'that we damn nearly lost Finschhafen.'[50] Certainly, the extended argument between the Australians and MacArthur detailed earlier, over the reinforcement of the beachhead with an additional brigade, added more drama to the episode than was necessary. A handful of tactical missteps—reflective of commanders still learning to fight in the jungle—also added to the sense of precarity, as too did the penetration of a Japanese company to the southern end of Scarlett Beach on 18 October. For some of the gunners of 2/4th Light Anti-Aircraft (LAA) and 2/12th Field Regiments, firing their weapons over open sights at the attacking Japanese infantry, the situation must have felt very much in the balance. But even this moment illustrated the broader problem with the Japanese offensive. The Australians already had a great deal of firepower ashore; the Japanese had very little. The Australians were well trained enough to hold their ground and not panic when Japanese attacks cut their line of communication to the rear, and the combination of infantry weapons and artillery support extracted a heavy toll. Moreover, Japanese tactical performance was poor, as it largely would be throughout the campaign. As one Australian later observed, his opponents 'although not lacking a certain amount of courage, were as thick as two planks'.[51]

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The Japanese counteroffensive also showed that both sides fighting on the Huon Peninsula appreciated the potential of using the littoral for tactical advantage. At 0445 on the morning of 17 October, three barges were detected running into Scarlett Beach. The 532nd, as well as the various Australian units around the beachhead, had been expecting an attack from the sea, and the distinctive bows of the three vessels clearly identified them as Japanese. This planned attack had already gotten off to a poor start, with four other barges having been sunk well short of their destination by US Patrol Torpedo (PT) boats. Once the survivors got within 50 metres of the beach, a furious fire was opened by defending Australian infantry, members of the 2/4th LAA, and the 532nd. The two-pounder AT guns of the Australians, long since obsolete in Europe, proved particularly effective. One barge withdrew after being damaged, another breached in the surf, and the third managed to run ashore. Despite the enormous advantage in firepower boasted by the defenders, the shape of the beach meant that by the time this surviving barge got ashore it was shielded from much of the Allied fire. One exception was a machine gun manned by Private Nathan Van Noy, Jr, and Corporal Stephen Popa of the 532nd. Although Japanese grenades inflicted mortal wounds, Van Noy stayed at his gun, killing many of the attacking Japanese troops and breaking the momentum of the attack. Van Noy was posthumously awarded the Medal of Honor for his actions during the attack; it was a powerful reminder both of the need for the amphibious engineers to be able to defend themselves, and that success in combat rested on the determination and bravery of the individual soldier. The surviving Japanese soldiers were mopped up the following day.[52]

This attack on Scarlett Beach shows Japanese commanders clearly appreciated the way in which coastal forces could expedite manoeuvre—by attacking from the sea, the barge force bypassed the main Australian defensive positions and struck straight at the heart of the 9th Division's logistics and firepower. Unfortunately for the Japanese, the decision to manoeuvre directly onto a defended beach spelled failure for the attack—even considering the seemingly limited objective of disruption rather than occupation. The episode also showed the growing vulnerability of barge traffic—the core of Japanese logistics in the region. November and December 1943 would see an enormous jump in the number of barges destroyed by US fast-attack craft, with devastating consequences for Japanese logistics.

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The Australians had more success in exploiting the littoral during this phase of the campaign than their Japanese opponents. The small craft of the 532nd gave Wootten flexibility. The landing craft were able to bring a steady flow of supplies in to Finschhafen from Lae and other Allied bases further south, while evacuating wounded Australian soldiers on the return trip. These craft also allowed Wootten to move troops from one part of his front to another, ensuring reinforcement of threatened areas. With telephone lines cut by infiltrating Japanese soldiers and wireless often unreliable, the boats also provided a way of maintaining communication between posts.[53] Indeed the 9th Division's post-operation report highlighted the use of small craft for communications, arguing for the addition of specialist fast boats to any future boat battalion specifically for this role.[54]

With the end of the Japanese counterattack, the 9th Division quickly transitioned back onto the attack. From 17 to 25 November, the 26th Brigade fought to occupy Sattelberg and surrounding peaks. Seizure of this area both helped secure Finschhafen and threatened inland Japanese communications; it was key terrain which the Japanese fought hard to hold. With its capture on 25 November, the division turned to clearing the Wareo-Gusika ridge in order to secure the inland flank of any advance along the coast. This was accomplished on 10 December, five days after the Japanese had decided to withdraw to Sio and five days after the Australian advance on the coast had begun. Just over a month later, on 15 January, Australian soldiers entered Sio—bringing the Huon Peninsula campaign to an end.

Combined arms were central to Australian operations from 17 November onwards. The advantages were immediately obvious. The Matildas were virtually invulnerable to Japanese fire; on 2 December one was hit by five rounds fired from a 75 mm gun at close range and only suffered damage to one track.[55] As a result, the tanks often proved to be the decisive factor, particularly in encounters with rearguard positions during the advance to Sio. Infantry, having mastered the use of walkie-talkie radios to communicate with the tanks, could direct their fire on concealed Japanese positions, which were then systematically destroyed.[56] Where the tanks could not go, liberal use of artillery was substituted. The Japanese made clear that they considered artillery a major reason for their defeat in the campaign; certainly, the difference between the volume of Australian fire and the paucity of Japanese guns was stark.[57]

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Figure 3. Sattelberg area, New Guinea, 17 November 1943. Troops of the 2/48th Battalion advance alongside a Matilda tank of the 1st Australian Army Tank Battalion. Despite the difficulties posed by the terrain, tanks proved a key part of the combined arms team during the Finschhafen campaign. (Source: AWM 060606)

The overwhelming fire superiority provided by tanks and artillery was made possible by the availability of the landing craft of 532nd EBSR. A steady stream of small boats moved along the coast in the wake of the 9th Division, ferrying both heavy equipment and supplies. This effort was not without its difficulties. The small landing craft were dependent on the existence of suitable beaches and appropriate weather conditions; the former were not abundant and the latter became increasingly rare as the campaign continued. Even where beaches were available, the need to turn them into beachheads put significant strain on engineering resources. In the 9th Division post-operation report, staff argued that even the 532nd's generous allocation of craft had proven inadequate for the task 'and this frequently delayed operations for a period of a few days while units and necessary supplies could be shuttled forward with the craft available'.[58] The report recommended that the LCVPs be limited to beach assault and that for littoral support they be replaced by the larger LCMs, with the overall force supplemented by some LCTs and small cargo vessels capable of operating in rougher weather and with larger loads.[59]

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Yet the report and its recommendations showed the basic importance of small craft to 9th Division's operations on the Huon Peninsula. As the report stated, '532 B&S Regt which was under comd of the Div gave excellent service and the fullest cooperation. Facilities such as it offered were indispensable to the prosecution of operations.'[60] The desire for more and bigger craft was a recognition of the potential of logistics in the littoral. As it was, the Australian willingness to use the good-but-not-perfect assets of the 532nd unlocked a range of combat power.[61] As Garth Pratten has pointed out, there was widespread belief within the 9th Division that the human cost of the campaign 'would have been much higher if not for the advantage conferred by the divisions' supporting armour and artillery'.[62] This in turn was made possible by the division's willingness to use the littoral, and the small ships of the 532nd EBSR, to maximum advantage.

Interdicting Japanese Logistics

While exploiting littoral areas for maximum effect, Allied commanders in New Guinea were also keen to deny it to the Japanese. This was particularly important, because one consequence of MacArthur's maritime strategy was that the Japanese were becoming steadily more reliant on coastal rather than bluewater transportation. The Battle of the Bismarck Sea on 2–3 March 1943 marked the end of Japanese efforts to reinforce Lae and the Huon Peninsula with large convoys, but the need to move reinforcements and supplies to the area from the major bases at Wewak and Rabaul remained as urgent as ever. Even before the defeat in the Bismarck Sea, the Eighth Area Army had recognised the need to improve overland communications from northern New Guinea to the operational areas in the south, and had commenced the construction of a road between Madang and Lae. This task was given to the 20th Division, which had landed at Wewak in January and was intended to reinforce Lae. Progress proved torturously slow, however. By the time the project was abandoned in September 1943, the road had advanced a mere 60 km—roughly a tenth of its estimated final length.[63] After visiting the road in May 1943, Lieutenant-Colonel Kumao Imoto ruefully wrote: 'Nature the Great will not accommodate an army which challenges its undeveloped and primitive state with hand-held shovels and pickaxes.'[64]

What caused the project to be abandoned was the Allied landings at Lae. The 20th Division was ordered to advance immediately to reinforce Finschhafen; the men would walk along coastal tracks, while the heavy

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equipment moved by barge. It was these two forms of transport that would form the backbone of Japanese logistics in the campaign. For obvious reasons, waterborne transport was the preferred option. Prior to September 1943, responsibility for movement along the coast east of Wewak lay with the 9th and 5th Shipping Engineer regiments. After the landings at Lae, the area the two regiments were tasked to operate in moved steadily eastward, the gap behind them being filled by fishing auxiliary vessels brought forward from Shizuoka Prefecture in Japan. In the aftermath of the failed Japanese counteroffensive at Sattelberg, all distinction was lost; the fishing boats began operating as far east as Sio.[65] These shifts show how vital these vessels were to Japanese logistics—as the fighting intensified in the Huon, the best way to satisfy spiking logistical requirements was to transport material by sea, and in an environment of growing Allied air superiority this could only be done close inshore.

The barges the 9th and 5th regiments used were slow and small, but had a number of advantages over larger, faster vessels. Their shallow draft meant they could operate very close to the shoreline. During the day this meant they could take shelter in small inlets; covered in freshly cut vegetation, they were extremely difficult to detect from the air. At night, when they usually chose to move, they remained hard to spot against the dark landmass behind them. They were also protected by the coral reefs that fringed the New Guinea coast; anyone getting close enough to find or fight them risked running aground in the poorly charted waters.[66]

Australian commanders understood the fragility of Japanese logistics and sought to exploit it. In early October, a specialist staff was set up within HQ II Corps to 'determine the points at which the enemy supply system could be most profitably attacked and the best times at which to attack it.'[67] This analysis underpinned a decision to conduct an offensive against the Japanese logistics system prior to the 26th Brigade's attack on Sattelberg in November. It was hoped that by using air and sea power, the collapse of Japanese logistics that had accompanied every campaign in New Guinea to date could be accelerated—and 9th Division would reap the benefits.

The offensive had three major lines of effort: prevention of the use of local carriers, prevention of the use of barges and submarines, and the overall prevention of the movement of supplies forward. Aircraft from the Fifth Air Force played a large role in all three. From early November suspected

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assembly areas for local food, coastal tracks and known and suspected supply dumps and barge off-load points were bombed and strafed. Results were seen as positive, although the terrain made observation of post-strike results difficult. A definite victory in the pursuit of the third objective, however, came on 20 November when 2/23rd battalion occupied 'Pabu Hill'.[68] This feature dominated a track running between Bonga and the nearby harbour of Gusika, and the inland town of Wareo. Patrols from mid-October onwards had revealed the track to be a major Japanese supply route. Its importance to Japanese logistics was shown by the violent reaction provoked when the 2/23rd captured it. The battalion was besieged and under repeated heavy attack for 10 days until relieved. Throughout this, the Australians were astonished to see Japanese carrier parties continue to move freely along the track, seemingly oblivious to both the presence of the 2/23rd and the Japanese infantry attempting to dislodge them. These parties were easily destroyed by mortar and machine-gun fire.[69]

The patrols that had initially identified the Wareo-Bonga track could clearly hear barges moving along the coast at night, and believed the soldiers they were observing had likely just disembarked. It was these vessels that were the foundation of Japanese logistics on the Huon Peninsula, and their destruction would see the system collapse. The ability of the Japanese to operate inshore at night, however, made them particularly hard targets. From 2 October to 10 January Fifth Air Force flew 12 separate missions aimed at sinking barges, with over 120 aircraft involved. Five of the missions encountered no barges at all; the remaining seven yielded 10 barges destroyed, another 10 possibly destroyed, six damaged and 11 attacked with unknown results. Even with the most optimistic reading of results, air power had succeeded in averaging 10 destroyed barges a month—not insignificant, but hardly a crippling blow.[70]

The forces that would ultimately smash the barge fleet were the PT boats of the Seventh Fleet's Task Group 70.1. By dominating the water around the Huon Peninsula, TG 70.1 was able to dismember the logistics of the Japanese and severely hinder their ability to use the littoral for manoeuvre, while contributing to an environment in which it was safe for Allied small craft to operate. They accomplished this thanks to their small size, their simplicity, and the ability of their logistical support to rapidly move forward in line with the Allied advance. The actions of TG 70.1 during the Huon Peninsula campaign, and in particular from October onwards, would be an

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important demonstration of the value of denying the littoral to the enemy while simultaneously exploiting it.

Originally ordered by the US Navy for a harbour defence role, the PT boats were seen as a considerably cheaper way to deliver a torpedo than a full-sized destroyer. They were designed to be fast, manoeuvrable and simple. Between 77 and 86 feet long, made primarily of wood and powered by three Packard engines, they could be built in small civilian yards. Their initial armament—four torpedoes and two machine guns—reflected the investment in simplicity. Although the hulls proved surprisingly strong, and the Packard engines surprisingly reliable, these were not craft designed to last; in January 1945 the US Navy judged the typical service life of a boat to be just two years.[71]

What started out as a simple design grew increasingly complex, however— not through design but through in-theatre modifications. The Japanese had first used barges to provide supply in forward, contested areas during the Guadalcanal campaign. Tasked to interdict these supply lines, PT boat crews had quickly discovered that the shallow draft of the barges limited the usefulness of torpedoes. As a result, crews began mounting more and ever-heavier guns on their boats in an effort to sink their opponents. The Japanese responded by adding armour and guns of their own. This miniature arms race (as one historian put it) accelerated even faster in New Guinea, where the rarity of large Japanese ships meant crews were increasingly willing to sacrifice some of their torpedo capacity in favour of more and larger guns.[72] At the end of October 1943 two PT boat squadrons, 12 and 7, were operating in New Guinea; their boats carried either a 40 mm Bofors cannon in the stern or a 37 mm army anti-tank gun strapped to a makeshift mount forward. So enamoured was the commander of the incoming Squadron 21 with the Bofors that he sourced enough from the Royal Australian Navy to have one installed on each of his boats. The squadron arrived in New Guinea in early November, substantially boosting the firepower of the PT boat force.[73]

This power was on immediate display. In October the two PT boat squadrons had claimed just 9 barges sunk or destroyed. In November this figure leapt to 45, with an additional six claimed as damaged; December and January saw a further 102 barges destroyed. This increase partially reflected levels of Japanese activity: holding the Huon Peninsula was important, and

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supplying the force necessary to hold it could only be accomplished through heavy use of the barge force. Unsurprisingly, the capture of Sio in January and US landings further west brought a reduction in activity, with just 17 barges sunk in February.[74]

But the massive increase in sunk barges also reflected changes in equipment, numbers and tactics. The reliability, accuracy and destructive power of the Bofors clearly improved results. So too did the addition of new and better radars, installed by crews at forward bases in New Guinea. The overall numbers of the PT boat force increased, with one new squadron arriving in December, January and February. Finally, the boats themselves adopted new, more aggressive tactics by operating much closer to shore and thus closer to the barges. This came at a cost: the heaviest single cause of PT boat losses, far in excess of enemy action, was grounding on uncharted reefs. However, tactics were adopted to minimise this risk (boats operated in echelon, so those trailing the leader were further out to sea), and ultimately the rewards were judged to be worth the risk.[75] After the grounding of PT 147 off Teliata Point on the night of 19/20 November, the commander of Squadron 12, Lieutenant Commander Harllee, wrote:

> *It is not felt that the officer-in-tactical-command is deserving of censure for this grounding, as PT's have had to take such risks in order to effectively attack Japanese coastal barge traffic. In the past, these risks have proven worthwhile.*[76]

The massive destruction wrought by the PT boats in Japanese coastal traffic, and the wider offensive against the Japanese supply system, had a clear impact. As the Battle of Sattelberg concluded, evidence of Japanese privation began to emerge; when the advance to Sio began it was overwhelming. 'Hubika Creek was an indescribable scene', read the war diary of 2/13th Battalion. 'Naked enemy dead everywhere. Evidently used as a dressing station. 40 dead in one small cave. None had been buried. The area was foul and nauseating.'[77] A subsequent summary by II Corps argued that the overall effect of the war on Japanese logistics was:

> *Japanese forces in the inland or SATELBERG area starved, and his forces on the coast were on half rations for so long that disease took a great toll and the state of his forces could only be described as pitiful.*[78]

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In a letter written by General Berryman to Commander MC Mumma (commander of TG 70.1) at the start of December, the Australian set out 'the cumulative effect of the activities of your command' and 'the telling effect' that had been 'wrought upon the enemy's land forces in the Finschhafen area'. This included not only increased evidence of starvation but also shortages of artillery ammunition, the dispersal of artillery pieces away from the battlefield into coastal sites in an effort to deter the PT boats and protect the barges, and the need to use frontline Japanese soldiers as porters. Berryman also thanked the Americans for their willingness to act as fast transport for urgent items, such as blood plasma. 'All ranks of 2 Aust Corps appreciate your help,' Berryman concluded, 'and, I know, will join me in wishing you every continued success'.[79]

This feeling was undoubtedly mutual. Part of the strength of Macarthur's maritime strategy was the way the interplay of the three domains strengthened each in turn. Since April 1943 Morobe Harbour, roughly halfway between Buna and Salamaua, had been used as the forward base for the PT boats.[80] The main base was at Milne Bay, some 300 miles in the rear. As the Allies advanced, the distance the boats had to travel simply to reach their patrol stations steadily increased. In the immediate aftermath of the Finschhafen landings, the Morobe-based boats had to travel 100 miles before arriving on station. The obvious solution was to advance the forward operating base, and on 25 November Squadron 21 arrived in Dreger Harbour, Finschhafen. Operations began two days later, and five days after that Morobe was shut down as a PT boat base. By capturing Finschhafen, the 9th Division had created the conditions for naval assets to deploy forward and operate against Japanese supply lines, in turn facilitating the 9th Division's continued advance across the Huon Peninsula.

The move to Finschhafen was also made possible by the mobility of TG 70.1's logistics support. The PT boats relied not on shore-bound facilities but on tenders, ships specifically converted to support PT boat operations. The first was USS *Hilo*, a former yacht that had been bought by the US Navy in November 1941 and converted over the following six months. USS *Hilo* was originally anchored at Milne Bay; by mid-August 1943 the threat of air attack was considered sufficiently reduced that she was allowed to move forward to Buna. There she was joined by two additional tenders, USS *Portunus* and LST 201 (eventually renamed USS *Pontus*).[81]

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Yet while the mobility of these tenders was valued, Commander Mumma recognised the disadvantage of having everything crammed in single, vulnerable hulls. In March 1943 this point had been underlined neatly when the sinking of MS *Masaya* and her cargo of fuel, parts and radio equipment near Oro Bay had set back the efforts to establish a forward base at Douglas Harbor by nearly a month. Consequently, he had directed the fabrication in Australia of equipment for a number of advanced base units. These units themselves could be shipped on a single LST; their floating equipment, including dry docks, cranes, fuel storage and repair shops, could be towed by tugs. These base units offered the bare minimum to keep boats in operation, but could be rapidly moved forward and offered a more difficult target to Japanese aircraft than a single large tender.[82] The equipment for one such advanced base was carried into Dreger Harbour on board two LCTs on 25 November, enabling the rapid commencement of operations from that point.

The Huon Peninsula campaign was only one episode in a long war for PT boat crews. US landings at Saidor on 2 January 1944 and in the Admiralties on 1 March allowed TG 70.1 to again leapfrog its operating bases forward and focus on supporting the next Allied advance.[83] But in retrospect it was as strong a demonstration as any of the potential of dominating the littoral. Like the Allies, the Japanese recognised the potential that small coastal vessels had for providing logistics support to ground forces in an environment where overland movement was difficult, and open water spaces heavily contested. While small size came with disadvantages, it improved survivability and reduced dependency on port facilities for loading and unloading. By the time of the Allied landings at Finschhafen, Japanese logistics in the area were heavily dependent on these barges. By targeting these barges—with small, cheap craft that were quickly modified in theatre for the specific task at hand—the Allies were able to accelerate a collapse in Japanese logistics that delivered demonstrable advantages to the 9th Division as it advanced towards Sio.

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Conclusion

In his postwar memoir *Southern Cross,* Lieutenant General Yoshihara Tsutomu reflected on the reasons for Japanese defeat in the Huon Peninsula:

> *As I have said before, equipment makes all the difference in the world; in addition we had numerous casualties and sick people, who in addition had empty stomachs. They transferred to the complex and confusing mountain tracks and gradually arranged their resistance. The enemy covered the grassland area along the coast from the airfield and with tanks and made assaults from the coast on to their flanks. Faced with the immense material strength of the enemy, our primitive pressing attacks were a poor reply.*[84]

Tsutomu's explanation is telling. On the one hand the Australians had clear materiel superiority, and the impression which their armour made is clear. On the other, the Japanese logistical situation was collapsing; soldiers went hungry while the sick and wounded could not be evacuated. Defeat was inevitable.

This situation came about in part because the Allies were able to deny the use of littoral areas to the Japanese, while maximising their use for themselves. Denial came through a coordinated air and sea campaign that had at its centre the PT boats of Task Group 70.1 These boats badly hurt the Japanese logistics system, while helping create the conditions in which the Allies could use the littoral for their own ends. It was precisely this control of the littoral that allowed 9th Division to deploy tanks and artillery and keep them supplied, enabling combined arms tactics that substituted—though of course not fully—firepower for lives. When the infantry of the 2/48th crossed their start line at Sattelberg on 17 November, they benefited from an unprecedented level of indirect fire support, while ahead of them moved tanks that were virtually invulnerable to any weapon the Japanese could deploy against them. At the same time, the logistical system of their enemy was being steadily eroded to the point where it would collapse entirely. Both of these things were made possible by domination and maximisation of the littoral space. Moreover, this control and exploitation of the littoral rested not on sophisticated, complicated or expensive military equipment but on basic small ships that were quick to make and easily replaced. Landing craft could be built in car factories; PT boats could be built in civilian yacht yards.

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Indeed, it was precisely because these craft and boats were small and cheap that they were able to operate and thrive in an environment where larger vessels were considered too valuable to risk for anything more than short periods.

Trying to draw lessons from the past is frequently a fraught undertaking, and no historical analogy is perfect. But modern practitioners should be able to draw inspiration from the past, and it is in this spirit that this paper has been written. Three clear points stand out in this regard. The first is that the ability of the 9th Division to use the littoral to deploy *more* combat power, not less, should provoke thought around the modern Australian Defence Force (ADF) attitude to amphibious warfare. The 9th Division, like all Australian divisions, had been reorganised to strip off excess units and equipment in order to make it easier to operate in the difficult logistical environment of New Guinea. This did not mean, however, that it could not move heavy weapons forward or use them in the jungle. Instead, movement was made possible by using the sea and, while this equipment was usually initially landed by large amphibious ships, its continued use during the campaign rested on the use of small craft. Most importantly, the effort put into moving these weapons was clearly justified by their performance on the battlefield. Tanks and artillery gave the 9th Division an enormous advantage during the close-in fight, saving countless Australian lives.

The second point is that the ability to move these tanks and guns forward—not to mention supplies and men—rested on a unit composed of small landing craft. Because these craft were small, Allied commanders were more willing to risk them in contested areas than larger, more valuable amphibious ships. Moreover, their size provided tactical flexibility in coastal areas. The 9th Division's post-operation report noted both that such craft were essential to the conduct of the campaign and that in future a divisional-sized force should have more of them, and that they should, at minimum, be large enough to carry vehicles. Investment in small craft gave the Allies logistical flexibility and power, but also increased survivability in contested waters.

The third point is that the advantages of operating in the littoral are so obvious, an enemy is likely to do it too—and so denying them use of it becomes a priority. The modern equivalent of PT boats are fast attack craft, but it is by no means clear that these are the only option. The PT boats succeeded because they could be risked inshore, could be rapidly adapted to changing threats,

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and were able to operate from bare-bones facilities just behind the Allied land advance. There are clearly a range of options across multiple domains that would allow the modern ADF to achieve similar effects.

History is not prescriptive, and should not be treated as such. But as is so often the case when the ADF is confronted with emerging problems, it can find inspiration in its own past. The three services spent much of the Second World War mastering the art of amphibious operations. The Huon Peninsula campaign was one important part of this—but only one part. Further research can undoubtedly provide further guidance as the modern integrated force returns to the littoral.

About the Author

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Entry by Air and Sea: The Littoral Challenges of Operation ASTUTE, 2006

William Westerman

Introduction

Since the Second World War, Australian naval, land and air forces have rarely had the opportunity to undertake amphibious operations on active deployments. On the evening of 24 May 2006, with firefights taking place around the Timorese capital of Dili and the government losing control of its own security services, the country's political leaders requested assistance from Australia, New Zealand, Malaysia and Portugal 'in sending defence as well as security forces from their countries to Timor-Leste as a matter of urgency'.[1] Having monitored events for several weeks and as the nearest of the four nations, the Australian Government had already authorised a potential stabilisation force to be at high readiness and thus was able to respond quickly. After a deployment agreement was signed with the Timorese Government outlining the parameters of the Australian Defence Force (ADF) mission, the force, designated Joint Task Force (JTF) 631, began landing in Dili at dawn two days later on Friday 26 May under the auspices of Operation ASTUTE. Over the coming weeks, the multi-national military force sought to restore order to the streets of the capital while a political resolution to the crisis was found. As with its predecessor in 1999, the initial phases of Operation ASTUTE required a force lodgement and build-up in a littoral environment, drawing upon a range of air and

sea assets. Therefore, it is a worthy case study for the modern ADF and the Australian Army, and warrants consideration in conjunction with the better-recorded events of 1999.

Policy Context for Operation ASTUTE

On 6 December 2000, barely a year after the first Australian troops landed in East Timor as part of the International Force East Timor (INTERFET), the Australian Government released a *Defence White Paper* which Prime Minister John Howard referred to as 'the most comprehensive reappraisal of Australian defence capability for decades'.[2] As with previous policy documents, the White Paper affirmed that the defence of Australian territory from direct military attack was the country's most important long-term strategic objective.[3] Yet unlike the earlier 'Defence of Australia' policy, which had emphasised that expeditionary operations were largely unnecessary for Australia's defence, the new White Paper acknowledged that the stability of Australia's immediate neighbourhood could not be guaranteed and it was in the nation's strategic interest to foster security in the region.[4] As a consequence, the ADF required the capability to lodge a force into a foreign country, either from the sea, by the air or both, and then sustain it over the duration of its mission. While the document never used the word 'expeditionary', it nevertheless pointed towards such a role for the ADF in the future.

At that time, the recent INTERFET deployment had been a textbook example—in form if not necessarily in execution—of a regional expeditionary operation. It had, however, also demonstrated the ADF's limitations in this area. Years of force development in line with the precepts of Defence of Australia, in conjunction with several efficiency reviews, had left the organisation hollow in key areas. The ADF had put together enough lift assets in September 1999 to execute the Operation WARDEN lodgement into East Timor, comprising RAAF C-130 Hercules transport aircraft from No. 86 Wing for airlift. Meanwhile, sealift was provided by the heavy landing ship HMAS *Tobruk*, the heavy landing craft (LCH) HMA Ships *Balikpapan*, *Brunei* and *Labuan*, and the leased wave-piercing catamaran HMAS *Jervis Bay*.[5] Yet planners recognised that if the ADF wished to deploy and sustain another expeditionary force on regional operations, it required increased amphibious lift capacity and capability. Accordingly the White Paper

provided a detailed, costed plan—the *Defence Capability Plan*—to guide force development and capability acquisition over the following decade to enable the ADF to achieve its required tasks.

The government planned to structure the Army to ensure it was able to sustain a brigade deployed on operations for extended periods and, at the same time, maintain at least a battalion group available for deployment elsewhere. This required an increase of the number of infantry battalions at high readiness from four to six. The 3rd Brigade, based in Townsville, would continue to provide light, air-mobile forces available for immediate deployment.[6] To deploy these forces, the government gave high priority to improving the ADF's strategic lift and logistics capabilities. After several years of modernisation and conversion to Landing Platform Amphibious (LPA) configurations, the amphibious ships HMAS *Manoora* and HMAS *Kanimbla* had only recently joined the fleet, too late to support INTERFET. These capabilities would enable the retirement of *Jervis Bay*, which had proved a valuable platform in 1999 for high-speed runs to Dili but possessed only limited cargo capacity and no means to support helicopter operations. The government also planned to replace *Tobruk* at the end of its life, as well as the fleet of heavy and medium landing craft. Further, there were planned enhancements to the Royal Australian Air Force (RAAF) 12 C-130H aircraft (a replacement of the ageing DHC-4 Caribou cargo aircraft) and improvements to the Army's logistics capabilities and capacity to support deployed forces.[7] Due to the lengthy development and acquisition process, however, these capabilities would not come into service for many years.

No sooner had the Defence White Paper been adopted, however, than strategic priorities shifted following the al-Qaeda terrorist attacks against the United States on 11 September 2001. The government having declared that the defence of the continent and contributing to the security of Australia's immediate region were the ADF's first and second priority tasks, the ADF proceeded to spend the next two decades in the Middle East area of operations, predominantly undertaking what the White Paper designated the third-tier task of contributing to 'international coalitions of forces to meet crises beyond our immediate neighbourhood'.[8] In early 2003, Defence updated the 2000 White Paper, reflecting the strategic changes since 11 September 2001 and the looming US-led invasion of Iraq, which began in March 2003. Amid discussion of global terrorism and weapons of mass destruction, the update reiterated that Australia's neighbourhood constituted

'a troubled region', faced with 'major economic, political, governance and social challenges'.[9]

The residual concern about stability in Australia's nearer region was borne out in mid-2003, when the ADF was called upon to lead a security (military and police) intervention into Solomon Islands at the request of Prime Minister Kemakeza. On 24 July the 2nd Battalion, Royal Australian Regiment (2RAR) (the Army's Ready Battalion Group) deployed to Honiara as the nucleus of Combined Joint Task Force (CJTF) 635. Designated Operation ANODE, Australian forces arrived surreptitiously at dawn by C-130 aircraft and on a beach landing site borne by two Army-operated LCM8 mechanised landing craft and Sea King Mk 50 helicopters from *Manoora*. Ultimately CJTF 635 was to become a 1,800-strong peacekeeping organisation comprising army personnel from Australia, New Zealand, Fiji, Tonga and Papua New Guinea, supported by navy and air force elements.[10] The requirement for the ADF to become proficient at regional expeditionary operations was seemingly confirmed.

A second defence update was released two years later and affirmed the strategic judgements of its predecessors with some modification. Specifically, *Australia's National Security: a Defence Update 2005* included language concerning 'the risks posed by failed or failing states', which sat alongside trans-national terrorism and the proliferation of weapons of mass destruction as grave challenges to Australian security.[11] The document acknowledged that 'Australia's regional security interests require that we have the ability to respond comprehensively to contingencies that might arise with little warning'.[12] Yet aside from the Solomon Islands intervention, which was on a relatively small scale, the capacity for the ADF to respond to contingencies similar to those of 1999 had not been tested in the years since. By 2006, Defence was finalising the acquisition of C-17 Globemaster transport aircraft and seeking first-pass approval for the amphibious ships project to replace *Manoora* and *Kanimbla*. Yet, by and large, the ADF's capability to respond to a regional crisis was largely the same as in 1999, with the welcome exception of two new LPAs and 12 new C-130J models. Furthermore, unlike in 1999, the ADF was heavily committed, on a genuinely global scale, and operating at a higher tempo than it had seen in decades. As a result, the second Australian military intervention in Timor would be undertaken in a vastly different operational context than the first.

Early Warning Signs

Following East Timor's independence in 2002, the ADF's operational commitment in the country now known as Timor-Leste concluded. On 30 June 2005, the last contingent of ADF personnel supporting the United Nations handed over Forward Operating Base Moleana to the Timorese Government and departed the country.[13] The residual ADF presence in Timor was then confined to the Defence staff at the Australian Embassy and a 24-person bilateral Defence Cooperation Program.[14] It was not long, however, before the country once again became a strategic focus for the Australian Government.

In early 2006, internal disputes began to escalate within the Timor-Leste military—the FALINTIL-Forças de Defesa de Timor-Leste (F-FDTL). In mid-March, after raising complaints of unfair treatment in a letter to President Xanana Gusmao, the Chief of the Defence Force, Brigadier-General Taur Matan Ruak, dismissed 594 protesting soldiers.[15] On 28 April, a week-long demonstration by the former soldiers turned violent when the protest was hijacked by anti-government groups. In response, Prime Minister Mari Alkatiri authorised the military to assist the police in containing the unrest, resulting in five civilian deaths and 70 wounded or injured.[16] The government had stabilised the situation within several days, but not before thousands of frightened Dili residents had fled into the hills. There had also been several high-profile deserters from the F-FDTL in protest over the government's action. Chief among these was the charismatic military police commander, Major Alfredo Reinado, who soon had a small group of armed former soldiers and police around him.

In Australia, the ADF had only just deployed the Ready Company Group back to Solomon Islands on 19 April to reinforce the international police and military in the wake of riots in Honiara.[17] Reports of fresh unrest in Dili, therefore, came at an unwanted time for Australian policymakers, officials and military commanders. Australian Defence Headquarters was alive to the possibility that Australia might be asked, either by the Timorese Government or by the UN Security Council, to send police or military forces to help the local authorities maintain or regain control should events deteriorate. Accordingly, strategic- and operational-level planners put together a basic concept of operations for a stabilisation operation, drawing heavily on the INTERFET experience. The intervention force, designated JTF 631, would

deploy into Dili to assist the Timorese Government to regain security and restore order to the streets to enable a peaceful resolution of the unrest. It would also support a non-combatant evacuation operation of Australians and other approved foreign nationals in either permissive or uncertain conditions.[18]

Given the dispersal of Australian forces across the globe and their existing domestic commitments, planners were only just able to pull together on paper the required stabilisation force. As in 1999, 3 Brigade was the natural choice around which a potential force could be built. The Townsville-based light infantry formation could provide a force headquarters; combat support elements, namely the 3rd Combat Engineer Regiment (3CER), the 3rd Combat Signal Regiment (3CSR) and M113 Armoured Personnel Carriers from B Squadron, 3rd/4th Cavalry Regiment (3/4CAV); and a combat service support unit, the 3rd Combat Service Support Battalion (3CSSB). The brigade could also be augmented from elsewhere within Army by other capabilities, in particular S70-A Black Hawk helicopters from B Squadron, 5th Aviation Regiment (5AVN). The challenge came with the combat element. At that time, 3 Brigade's rifle companies were spread far and wide. From what remained, planners formed a new Ready Battalion Group, led by the Commanding Officer of 3RAR, Lieutenant Colonel Mick Mumford, and comprising the 3RAR battalion headquarters, A Company, 1RAR, B Company, 3RAR, and C Company, 2RAR, in addition to support and administration companies from 3RAR.[19] This would create a complete, if diverse, battalion and importantly would leave several companies in Australia to address other contingencies.

For strategic lift, the Royal Australian Navy (RAN) had the Amphibious Task Group—*Tobruk*, *Manoora* and *Kanimbla*—and several LCHs. The full task group was theoretically capable of transporting the equivalent of an Army battalion group, together with its equipment and ready-use stocks of fuel, stores and ammunition.[20] For a more expedient, if numerically limited, deployment of troops, the RAAF could draw from its fleet of 24 C-130s (both H-model and the newer J-model), although they were in high demand due to operational commitments in the Middle East and the requirements of training and routine maintenance.

Operation ASTUTE—Concept of Operations

On Thursday 11 May 2006 the commander of 3 Brigade, Brigadier Mick Slater, was formally warned out for a possible deployment to Timor-Leste. Slater was an experienced infantry officer who had spent much of his military career in 3 Brigade, including as the Commanding Officer of 2RAR when, in September 1999, he led the battalion into Timor. He was, therefore, well positioned for the emerging crisis. At one level, the warning order came at an inconvenient time for the brigade, as many elements had only recently returned from Operation LARRY ASSIST, providing support to recovery efforts around Innisfail after Cyclone Larry, and, external to the brigade, several Black Hawk helicopters from 5AVN were still in northern Queensland. On the other hand, the brigade was preparing for its annual combined arms training activity (CATA) at High Range Training Area, scheduled to start on 16 May.[21] This meant that many of the elements required for a 3 Brigade-led stabilisation force, should it be ordered, were already planning to force concentrate in Townsville.

From 11 to 18 May, brigade headquarters worked alongside the maritime component (the Amphibious Task Group commanded by Captain Peter Murray), and an air component (commanded by the Officer Commanding No. 86 Wing, Group Captain John McGarry). Based in Darwin, the headquarters developed a concept of operations for both a non-combatant evacuation and stabilisation operations.[22] At that time, the situation in Dili remained fragile. There had been some further violence on 8 May, but nothing of a scale that would precipitate widespread unrest or, worse, civil war.[23] Regardless, thousands of Dili residents had fled to the hills around the capital, groups of armed former soldiers continued to pose a threat to stability, and Timorese leaders began blaming each other for the situation and positioning themselves to capitalise on future events.[24]

Back in Australia, 3 Brigade continued planning. Many members of the brigade had participated in the 1999 operation, where they had gained a good appreciation of the environment and terrain. Timor-Leste has a hot tropical climate, usually around 25–35°C in the coastal area and cooler in the mountainous interior. By May it would be coming into the dry season, which would last until November. Thus far, Dili had been the epicentre of activity as the crisis had slowly grown, so it would remain central to military planning and execution. Situated on the country's northern coastline, it

was a former Portuguese colonial city, occupied by the Indonesians and set ablaze by militias in 1999. It was only starting to rebuild itself after those harrowing events, and still bore many of the scars of occupation. Many dwellings were rudimentary and the streets and alleys could be labyrinthine. It had one main airfield, the Presidente Nicolau Lobato International Airport (known more simply as Comoro airfield) situated to the west of the city.[25] Its runway ran broadly east-west, and represented the main point of access for those seeking to enter the city from afar. Within Dili itself, a former airfield constructed by the Japanese during their occupation of the island in the Second World War was used as a heliport during INTERFET and the subsequent UN missions. For those seeking to arrive by sea, the Dili wharf was located centrally. The port itself was relatively small; the main wharf was 280 metres long and had a maximum capacity of three commercial vessels, augmented with two roll-on/roll-off ramps.

For the operation, Slater's intent centred around the early establishment of situational awareness, rapid build-up of forces, the establishment of a highly visible and robust security presence in Dili and the denial of adversary freedom of action. Once this was achieved, he aimed to transition security responsibility back to the Timorese security forces at the earliest opportunity, consistent with their capacity and the stabilisation of the security situation. The corresponding concept of operations evolved as additional details were added over the following days. It comprised six phases, in addition to a preliminary non-combatant evacuation phase. An evacuation, either permissive or non-permissive, in the days immediately before D-Day, could be conducted with just the air component or with the Ready Company Group supported by limited protected mobility. The preliminary operation was designed in such a way that, if launched, it would flow directly into Phase 1, securing a point of entry.[26] Once Comoro airfield had been secured, forces would build up on D+2 and D+3 (Phase 2), after which the land force would break out and begin security key locations in Dili (Phase 3) until D+13. Stabilisation operations (Phase 4) would take place not before D+14, after which there would be an unspecified transition phase (Phase 5) and a redeployment phase (Phase 6).[27]

Figure 1. Concept of Operations

Phase	Description	Tasks	Timing
Preliminary	Non-combatant Evacuation Operation	Evacuation of Australians and other approved foreign nationals, with options for either a permissive or non-permissive environment	D-5 to D-1
Phase 1	Secure Point of Entry	Seizure of Comoro airfield and adjacent beach landing site	D-1 to D+1
Phase 2	Force Build-Up	Completion of the deployment of combat elements and the establishment of logistics unit ashore	D+2 to D+3
Phase 3	Securing Dili	Battlegroup operations to secure the Dili port, establish movement control into and out of Dili and conduct large-scale security operations across Dili	Not before D+3 to not before D+13
Phase 4	Stabilisation Operations	Ongoing security of key infrastructure and patrolling tasks in Dili, as well as response operations outside the capital and targeted operations if required	Not before D+14 onwards
Phase 5	Transition	Planning postponed until after entry due to the need to gain further information on the security situation, conduct further consultation with Timorese Government and gain a clear picture of international police commitment to the operation	To be determined
Phase 6	Redeployment		

Slater could be reasonably confident that, unless the situation deteriorated into genuine civil war, once ashore and established in Dili, his land force could stabilise the situation there. The force at his disposal was well equipped, well trained and armed more heavily than the adversaries they might reasonably expect to encounter in the streets of Dili. Rather, the hardest tactical task

would be creating the initial foothold in Dili to act as an airhead to facilitate the deployment, build-up and sustainment of the Ready Battalion Group, as well as to facilitate the non-combatant evacuation. While the whole concept of operations owed much to the brigade's previous Timor experience on Operation WARDEN, the tactical plan for Phase 1 was particularly influenced by the 1999 INTERFET landings. On that occasion, Commander INTERFET, Major General Cosgrove, had wanted to insert the maximum combat forces in the minimum time, and thus focused on securing the airfield and the Dili wharf before focusing on restoring security in Dili.[28]

If ordered to return to Timor in 2006, Slater also wanted to maximise boots on the ground in a minimum amount of time. His reasoning was simple: should the situation in Dili deteriorate to the point where a stabilisation force was required, violence needed to be stamped out quickly and authority asserted in the streets. This was best done by having the largest and most capable land force possible in Dili in short order. Therefore, Slater's tactical plan for the lodgement replicated much of the INTERFET approach, even down to the inclusion of two M113s in the initial wave. Yet there would be important differences between Operations ASTUTE and WARDEN. One was that the quantity of assets available to Cosgrove and his force was much greater than that Slater could call upon. Although Slater had access to every major amphibious platform the Navy possessed, the quantity of C-130s was much reduced. For instance, for the initial insertion in 1999, the air component commander had 13 RAAF C-130H aircraft at his disposal, augmented by two C-130Hs from No. 40 Squadron, Royal New Zealand Air Force.[29] This was nine more than was available for Operation ASTUTE on 25 May 2006, due to the lack of assets provided by coalition partners and competing demands on Australian C-130s.

It was also the case that Slater could not guarantee his entry force would land at Comoro airfield uncontested. He subsequently wrote:

> It needs to be remembered that we essentially conducted a permissive entry in 1999, and while there was a degree of uncertainty, the vital cooperation of the Indonesian military (TNI) ensured that we were able to achieve a rapid build-up of forces without serious incident.[30]

By contrast, in 2006 there was every possibility that there would be no cohesive security force on the ground to guarantee security while the

Australians attempted to get a firm foothold. 'In other words', Slater continued, 'we had to assume that our lodgement could be contested and our plan reflected that'.[31]

Given this risk, 3 Brigade staff developed two entry options: a tactical air landing operation (TALO) largely replicating the INTERFET lodgement, and an amphibious landing option followed by a TALO.[32] The second option came about due to Slater's intention to use as many different means of entry as possible to reduce the operational risk associated with deploying his force through a single and familiar method. It also arose from having the availability of three major amphibious ships from the Amphibious Task Group, rather than just *Tobruk* and *Jervis Bay*. This situation offered Slater increased flexibility to consider a genuine amphibious entry option. Both LPAs were larger than *Tobruk*, capable of carrying up to 450 troops, and had extensive command and control facilities that allowed them to operate as mobile joint force headquarters. They had a hangar for four Army Black Hawk helicopters or three Navy Sea King helicopters and could carry multiple vehicles and extensive stores and equipment.[33]

Of the two, *Manoora* would directly support JTF 631. While the Ready Battalion Group would still deploy into Dili by air, *Manoora* would transport the JTF 631 reserve (A Company, 1RAR, mounted in APCs from B Squadron, 3/4CAV), the Force Engineer Group and the brigade headquarters (main). Under the amphibious entry option, A Company would secure a beach landing site at Comoro airfield by 'amphibious assault'. The landing was described this way in the operational orders in view of the uncertain situation and the need to be prepared for opposition or an otherwise unstable situation on the beach. The company headquarters, three platoons and the amphibious beach ream tactical party would deploy ashore on Black Hawk helicopters when *Manoora* was 20 nautical miles from Dili, landing at L-Hour. The beach team would then move to the landing site, designated Blue Beach, and reconnoitre the location. LCM8 landing craft would deploy two M113s carrying two sections from A Company, 1RAR. The rest of the amphibious beach team would follow and prepare the beach for the wheeled vehicles. The remaining M113s would then land, followed by a general offload from *Manoora*.[34] Elsewhere, the Ready Company Group (B Company, 3RAR) would conduct its TALO and secure the perimeter of the airfield in advance of the rest of the Ready Battalion Group, which would build up its strength over three days (Phase 2).

If the lodgement plans for Phase 1 paralleled the previous successful landings under Operation WARDEN in 1999, logistics planning took a different approach. Logistics had been a signature weakness of INTERFET, and Slater held 'strong views' on how JTF 631 would be supported. The force size was smaller than INTERFET, numbering 1,800 personnel (a land component of 1,500 personnel, land-based air elements of 50 personnel and special forces of 230 personnel) and some 300 vehicles.[35] While the limited numbers of combat troops would make the task of restoring law and order to the streets of Dili more challenging, the smaller force size enabled Slater to exercise greater control over how his brigade's logistics were handled. Shortly after 3 Brigade began planning Operation ASTUTE, Slater established a specific logistics component within JTF 631, sitting alongside the standard maritime, land and air components under the Commanding Officer of 3CSSB, Lieutenant Colonel Andrew Bottrell. Unlike in 1999, when neither Cosgrove nor his tactical land force commander, Brigadier Mark Evans, had control over logistic priorities and the means of deployment and resupply, Slater wanted to ensure a single commander within his organisation had the authority to prioritise logistic requirements and demands and to coordinate the available strategic life assets to achieve the most effective inflow of supplies to theatre.[36]

Bottrell's component was effectively 3CSSB, augmented by specialist third- and fourth-line logistic attachments from across Army and supported by a robust communications and logistic information node from 3CSR. Given the strategic importance of this regional stabilisation mission, the Australian Government did not impose an artificial manpower cap on JTF 631. Instead Slater had significant freedom to establish a logistics element with sufficient capability to properly achieve its mission.[37] For the purposes of Operation ASTUTE, the unit was retitled the 3rd Combat Service Support Group (3CSSG), which more accurately reflected its enlarged nature and responsibilities.[38]

Despite the operation's access to No. 86 Wing C-130s plus *Tobruk*, *Manoora* and potentially several LCHs, early operational planning strongly indicated that these were insufficient to deploy the combat elements and each unit's first-line logistics support and still meet Slater's intent to rapidly start and maintain security operations. To address this problem, Bottrell and his staff developed an unconventional plan. Specifically, 3CSSG would provide both first- and second-line support to the entire deployed force for

the first 10 to 14 days of the deployment, until such time as individual unit first-line support deployed. A small combat service support team (CSST) would deploy on *Tobruk* and operate in theatre until the full 3CSSG arrived.[39] It would comprise 150 personnel: 80 personnel from 3CSSB, 34 from 3CSR and 36 from the 10th Force Support Battalion (10FSB).[40] The arrangement was intended to make best use of strategic assets and allow for a rapid establishment of capabilities that could support the entire force, not just individual units. However, it also created a situation whereby *Tobruk*'s arrival and the establishment of the CSST ashore were critical precursors to the start of robust security operations in Dili. It also demanded much of the small CSST during the first days of the operation.[41]

As these plans were being developed, the various elements of JTF 631 were surreptitiously consolidating in Townsville and Darwin. The timing of the 3 Brigade CATA had helped expedite and, to an extent, mask the force concentration of land elements in Townsville, and while individual and low-level collective training took place, soldiers were not formally advised of the potential Timor mission.[42] At the same time, the separate special forces element, JTF 629, had formed and pre-positioned in Darwin to provide a special recovery operations capability if required. This task force included an SAS troop, the Commando Company Group from the 4th Battalion, Royal Australian Regiment (Commando), several Black Hawk helicopters from the 171st Aviation Squadron, *Kanimbla* and the LCH HMAS *Labuan*.[43] The air component also begun to concentrate in Darwin in preparation for a possible non-combatant evacuation operations and support to a JTF deployment.[44]

Given their size and presence, maintaining operational security around the move of the amphibious ships was more challenging to achieve. On 11 May 2006, Maritime Headquarters ordered *Kanimbla*, which was sailing into Sydney Harbour, and *Manoora*, alongside at Fleet Base East, to proceed north with all despatch.[45] Their departure did not go unnoticed, and the following day the Prime Minister was asked about their potential destination. 'They've got to head somewhere', he replied, 'they can't just sort of remain becalmed like the "Ancient Mariner"'.[46] Asked if there was any urgency regarding their move, Howard pre-empted a question about Timor, stating that Australia had received no requests for military assistance from the Timorese Government but what the ADF was doing was positioning its assets 'in such a way that if we were to receive a request we'd be able to respond'.[47]

On Saturday 13 May, Maritime Headquarters force assigned the LCHs *Tarakan* and *Balikpapan*, as well as *Tobruk*, to support Operation ASTUTE. Over the following week, the three main amphibious ships were loaded with stores and personnel. On Sunday morning, *Tobruk*, which had just returned from exercises off Noumea, came alongside Townsville Harbour, where it began pre-deployment preparations including loading aviation stores and equipment.[48] Once 3 Brigade's operations and logistic planning was complete, the CSST personnel and 980 tonnes of vehicles and stores were embarked aboard *Tobruk*.[49] By then, *Manoora* had arrived in Townsville and it too began embarking the JTF 631 reserve (A Company, 1RAR, and M113s from 3/4CAV), the Force Engineer Group from 3CER, support personnel from 3CSR, 3CSSB, a contingent from 5AVN and Amphibious Task Group staff—320 personnel in total.[50] In Darwin, *Kanimbla*, still assigned to JTF 629, nevertheless loaded stores on behalf of 3 Brigade. In addition, 21 medical personnel arrived and stood up the primary casualty reception facility (PCRF) to a Level 3 surgical capability.[51] By 18 May, with ships loaded, the ADF was in a position to launch a sizeable stabilisation force to Timor-Leste by air and sea.[52]

Despite having three fully laden ships that could, if required, loiter over the horizon from Dili, the operation did not put *Manoora*, *Kanimbla* and *Tobruk* to sea. As Slater would subsequently report:

> [D]ue to strategic concerns about the effect of the forward deployment of major fleet units on the security situation in Timor-Leste, the JTF remained in Townsville and Darwin for a further seven days.[53]

This proved to be a decision that, while not fatal to Operation ASTUTE, undermined much of the tactical planning. The concept of operations allowed for several days of pre-positioning before Phase 1 was launched, yet commanders recognised that should the operation be executed, the Australian Government—and the Australian public—would be unlikely to accept a delay of several days while relatively slow-moving ships made their way to Dili. Instead, they would want 'boots on the ground' as soon as possible. D Company, 1RAR, the previous Ready Company Group, had very recently deployed from Townsville to Honiara with barely 12 hours' notice. The difference was that in Solomon Islands they expected to support an unopposed evacuation operation with the possibility of having to assist police to quell civil unrest. They did not expect to face a potentially

contested entry against armed adversaries, as was the situation now in Timor-Leste.[54]

The decision not to forward deploy the amphibious ships thus increased the risk to ADF personnel if the TALO needed to be executed at short notice. Without forces on the ground to secure the airfield, a TALO was vulnerable to modest resistance at Comoro airfield or by a simple delaying action, such as the closure of the airfield's runway with a single burnt-out vehicle sitting in the middle preventing any arrivals. Rather than hope the Ready Company Group would face an uncontested situation, the amphibious option could have placed a rifle company with integral rotary-wing support off Dili with the means to assault and secure Comoro airfield if required.

Crisis Point

When the crisis eventually escalated to the point where international military intervention was required, the speed at which events took place in Dili caught the ADF by surprise. The flashpoint expected to ignite unrest was the Fretilin party national congress, held for three days from Wednesday 17 May. *The Weekend Australian* had reported 'diplomatic sources' who suggested that Alkatiri would be challenged as Fretilin's leader. This would take place 'while hundreds of armed soldiers and police beyond the control of the government are watching with considerable interest, less than an hour's drive away from Dili'.[55]

Throughout the Fretilin national congress, 3 Brigade continued to prepare for both the CATA and, discreetly and with due regard for operational security, a potential stabilisation operation in Timor. On Friday afternoon, Slater addressed the brigade, briefing them on the situation in Dili as best he could and suggesting that there was only a 35 per cent chance that the force would be ordered to deploy to Timor.[56] The following day, he issued orders for a potential non-combatant evacuation operation. The plan provided for both a permissive and non-permissive evacuation and, in the case of the latter, would see JTF 629 subsumed into JTF 631 as the special forces component on activation.[57]

In reality, Alkatiri was easily re-elected. While this situation did little to assuage the concerns of the government's opponents within Timor Leste, the lack of armed response to Alkatiri's victory eased concerns in Australia

about the possibility of further civil unrest.[58] By Monday 22 May, 3 Brigade elements in Townsville previously earmarked for JTF 631 were directed to High Range Training Area on the assumption that their services would not be required in Dili. Mumford eased his battalion into the fact that Operation ASTUTE was 'just about dead', while refocusing his staff on the CATA.[59]

Then, on the morning of Tuesday 23 May, a firefight broke out in the hills above Dili between Major Reinado's group and a joint F-FDTL/police patrol. The skirmish lasted through an increasingly wet afternoon and into nightfall, before the arrival of police and army reinforcements forced Reinado's men to withdraw. The incident reinvigorated ADF preparations for Operation ASTUTE. In Townsville, Mumford recorded that 'all hell [has] broken loose in [Timor-Leste]. Just when it appeared to be over'.[60] Captain Murray was ordered to dispatch all maritime elements of JTF 631 to northern Australia 'with the distinct possibility that units would be transiting direct to Dili'.[61] *Tobruk* departed that evening, with *Manoora* embarking 3 Brigade headquarters (main) and some other late additions before following the next morning. Passing Cairns around midday, she embarked four Black Hawk helicopters from 5AVN, still supporting domestic flood recovery operations until that point. With the four Black Hawks and a Navy Sea King aboard, the hangers and flight deck were at capacity. At the time, the captain believed this was the maximum number of aircraft embarked in a Navy warship since the decommissioning of the aircraft carrier HMAS *Melbourne* in 1982.[62]

On Wednesday 24 May 2006, amid an atmosphere of increased tension in Dili, fighting broke out to the city's west. The catalyst was an encounter between a clearing patrol from the F-FDTL Headquarters in Taci Tolu and an armed group of civilians, police and former soldiers, led by former resistance soldier Vicente da Conceição (more commonly known by his *nom de guerre* 'Rai Los'). Fighting stopped when Rai Los's group withdrew in the afternoon after a Timorese naval vessel was sent into the nearby Tibar Bay to provide offensive fire support.[63] In Dili itself, an armed group of police attacked the residence of the Chief of Defence Force. Although he was elsewhere, the house was defended by an army protection unit and a gun-battle ensued for much of the day.[64] By that time, it had become clear to Timorese leadership that the situation was spiralling out of their control. Around midday on 24 May, as fighting continued in Dili, the Timorese Government agreed that international military assistance was required. The Timorese foreign minister, José Ramos-Horta, informed Australian foreign minister Alexander Downer.

Later that same afternoon, diplomatic representatives in Dili were summoned to the president's office at the *Palacio das Cinzas*, where President Gusmao and Prime Minister Alkatiri formally requested security assistance from Australia, New Zealand, Portugal and Malaysia.[65]

In Australia, frantic efforts were now underway to prepare JTF 631 for deployment. In Darwin, *Balikpapan* and *Tarakan* helped finish loading *Kanimbla.* Meanwhile, JTF 629 was dissolved and all its elements were formally assigned to JTF 631. Very early on Thursday morning, *Kanimbla* weighed anchor and headed for Dili, eventually followed by both LCHs.[66] The distance between Townsville and Dili is 1,758 nautical miles. At a moderate speed of 15 knots, it would take just under five days to reach the Timorese capital. To position a naval presence closer to the city, the guided-missile frigate HMAS *Adelaide* was reassigned from the border protection task under Operation RELEX II to JTF 631 and directed to a station north of Timor, while the replenishment oiler HMAS *Success*, transiting through the Molucca Sea within the Indonesian archipelago, was ordered to rendezvous with *Adelaide*.[67] In Townsville, Slater, his headquarters and the land force undertook their last-minute preparations and certifications. By now, the Ready Battalion Group, designated Battlegroup Faithful, included Support Company, 2RAR, in a rifle company role, and G Company, 4th Field Regiment, formed from the 108th and A Field Batteries to create a fifth rifle company.[68]

Throughout the day, Mumford waited for Slater's orders to be issued, but the timings were continually pushed back and formal direction would not be given until the following day.[69] With *Manoora* days away from conducting an amphibious landing, the Battlegroup Faithful-led TALO was now the only viable entry option. Unfortunately, from the perspective of Mumford and his headquarters, planning for the insertion phase had been disjointed and poorly coordinated. Much of the brigade planning process had been restricted to those at brigade level, a decision Mumford, as the commander of the land component's manoeuvre unit, found difficult to understand.[70] It was especially frustrating as 3RAR was a parachute battalion with a dedicated air operations cell and deep experience in airborne planning and working with the RAAF. Battalion staff had argued with their brigade counterparts to be allowed to plan the force composition and aircraft load plan for the insertion and the security of Comoro airfield. However, no reverse planning was conducted for the TALO, contrary to doctrine and good planning practice. Further, personnel and equipment not immediately

required for the entry were being allocated to aircraft at the expense of combat power. 'For a future similar mission', Mumford later wrote, 'the combat elements must be allowed to plan their part first and have the air planners meet their requirements, not the other way around'.[71]

Back in Dili, the situation was steadily deteriorating. On the morning of Thursday 25 May, nervous Timorese police officers fired a warning shot at a suspicious truck heading towards their headquarters building. Nearby, Timorese soldiers occupying the former UN headquarters interpreted this as an attack against them and fired grenades at the police building, beginning an intense exchange of fire. Eventually, UN military staff were able to arrange a ceasefire. However, as unarmed police were being escorted from the headquarters to the safety of the UN compound, Timorese army soldiers fired upon them for two or three minutes causing the death of eight police, with 27 others suffering gunshot wounds.[72]

Figure 2. Australian Army troops disembark from HMAS *Balikpapan* during a beach landing in the Comoro district of Timor-Leste. (Source: Defence image gallery)

As the bloodiest episode of the crisis was unfolding, back in Townsville Slater issued orders for stabilisation operations.[73] Mumford, who was to use the Ready Company Group to secure Comoro airfield, was aware of reports of violence

and disorder in Dili and, in particular, at the airfield. 'Looks like it could be a very warm reception for us', he recorded. 'Much pressure to leave immediately.'[74] That afternoon, *Adelaide* and *Success* rendezvoused in the Wetar Strait, holding station until *Adelaide* was directed to make for Dili at full power.[75] Amid gloomy tropical rain, *Adelaide* appeared in Dili Harbour and began patrolling up and down the shoreline as a show of force, much to the relief of at least one Australian civilian in Dili, who described it as 'a sight for sore eyes'.[76] There were also reports that, upon sighting *Adelaide* from a summit outside the city, truckloads of armed men coming in from the east to join the fighting turned and headed back.[77] As a demonstration of Australia's readiness to deploy combat power to the situation, *Adelaide* was seemingly a success.[78]

With Operation ASTUTE authorised, JTF 631 was required to execute the concept of operations as developed by 3 Brigade headquarters. The following sections unpack the initial phases of the operation, the lodgement and the force build-up, the two phases of the mission conducted in a littoral environment.

Phase 1—Lodgement

In response to the Timorese request for assistance, on the evening of 24 May 2006, Acting Prime Minister Peter Costello announced that the Vice Chief of the Defence Force, Lieutenant General Ken Gillespie, would lead a senior delegation to Dili the following day to negotiate with Timorese leaders the details of the size and roles of JTF 631.[79] Phase 1 of Operation ASTUTE thus began on 25 May, with D-Day set for the following day. With JTF 629 now the JTF 631 special forces component, an SAS element would deploy from Darwin in Black Hawks to secure Comoro airfield before the arrival of the RAAF C-130 aircraft carrying Lieutenant General Gillespie, his delegation and 150 members of the Commando Company Group.[80] On the afternoon of 25 May, once the SAS troop was given the authorisation to proceed, it deployed on four Black Hawk helicopters, each full of special forces personnel in full kit. Unfortunately, dense cloud cover over Timor's central mountain range made the passage to Dili impossible. With fuel running low, they put down at an airfield near the southern town of Suai, where, in the words of a patrol commander, 'we camped in literally a pile of pig manure'.[81]

As a consequence, the C-130 carrying the senior officials landed at an unsecure Comoro airfield in the late afternoon. The aircraft was reportedly subject to minor gunfire from the surrounding hills, but once on the ground

received cheers from locals gathered at the boundary fence.[82] After the commandos secured the perimeter of the airfield, Gillespie met with President Gusmao, Prime Minister Alkatiri, foreign minister Ramos-Horta and Speaker of Parliament 'Lu'Olo' Guterres, all of whom agreed to the details of the Australian intervention. The delegation then returned to the airport to await the arrival of Brigadier Slater.[83] Late that evening, once Timorese approval had been confirmed, Slater, Mumford and their tactical headquarters', along with the Ready Company Group and two M113s deployed from Townsville in RAAF C-130s, flying overnight directly to Dili. By now, both *Tobruk* and *Manoora* were heading directly for Dili, with *Adelaide* acting as the advance force in Dili Harbour for the Amphibious Task Group, later joined by *Success*.[84] Meanwhile, *Kanimbla* had been diverted from her course directly to Dili in order to refuel the stranded 171 Squadron Black Hawks. Arriving in the area that afternoon, the four helicopters ventured out, one by one, to undertake a complex refuel in adverse weather conditions. Once this was completed, *Kanimbla* resumed passage for Dili and the Black Hawks eventually arrived at Comoro airfield just before first light.[85] As one patrol commander reflected, 'It was a bit embarrassing, and an inauspicious start to the mission'.[86]

At dawn on Friday 26 May the first C-130s arrived from Townsville.[87] Before their final approach, the aircrew in Mumford's C-130 were reluctant to land due to security concerns, requiring Mumford to dissuade the flight commander from turning around and taking the aircraft back to Darwin.[88] Upon landing, the Ready Company Group immediately relieved the Commando Company Group and spread out around the airfield.[89] Not expecting the commandos to have already secured the airfield, Mumford found it a 'bizarre situation' where the carefully crafted plan did not even survive arrival.[90] The flights continued throughout the morning and into the afternoon, bringing in additional combat elements from Battlegroup Faithful: C Company, 2RAR, and G Company, 4th Field Regiment.[91] These sub-units had flown from Townsville to Darwin, where the C-130s had collected them for their deployment into Dili. Given the uncertainty of the conditions on the ground, they had been ordered to fly in combat-ready loading configuration, which made the flight 'extremely uncomfortable'. Unable to sit properly on the C-130's cargo net seats, they could barely lift their arms upon arrival at Comoro airfield, and thus the precaution perversely undermined their ability to be ready to fight upon landing.[92]

Meanwhile, in Dili itself, the situation remained tense and unstable.[93] Fighting continued between rival groups, and members of one faction even invited an Australian journalist to accompany them in a raid on a government building.[94] At the airfield, Battlegroup Faithful secured a beach landing site in preparation for the Amphibious Task Group's arrival, while Slater established his tactical headquarters in cramped conditions in the terminal building's VIP lounge.[95] By the end of the day, Lieutenant Colonel Bottrell and a small command, medical and supply element from the logistics component had arrived by air and set up operations. Limited material-handling equipment and additional medical elements arrived by air over the following 24 hours.[96] In Dili Harbour, *Adelaide* and *Success* were joined in the late afternoon by *Kanimbla* and then *Balikpapan*.[97]

Once Slater was on the ground in Dili, he recognised that the threat situation was more permissible than originally feared and that low-level violence was going largely unchecked throughout the city. Therefore, he decided to abandon the three-day build-up and instead push his available manoeuvre forces into the Dili suburbs on 27 May to secure the port and key government infrastructure.[98] Meanwhile, the amphibious portion of the lodgement plan was still underway. As dawn broke on the morning of Saturday 27 May, those aboard *Manoora* caught their first glimpse of Timor-Leste. L-Hour was set for 1515 hours that day, and as this approached, *Manoora* closed up at flying stations and prepared the flight deck for multi-aircraft launches. At 1430, the first Black Hawk departed with a platoon from A Company, 1RAR, with the remainder launching in sequence through until 1516.[99]

The helicopters also deployed several members of the amphibious beach team, including the beach master, who would make a final survey of the primary landing beach to ensure it was accessible and could support the amphibious assault. Designated Blue Beach, it was situated at the western end of Comoro airfield. When *Manoora* rounded Fatocama Point later in the afternoon, plumes of smoke were seen rising from the city. With Captain Murray assuming tactical control of all maritime units to support the amphibious lodgement, *Manoora* anchored some 1,200 metres off Blue Beach that evening. Wasting no time, *Manoora* began the amphibious landing, deploying both LCM8s and a geospatial survey team deployed via Zodiac inflatable boat to survey the approaches to Blue Beach and Red Beach (the alternative landing site). After some initial setbacks with the airport perimeter fence, Blue Beach was officially opened at 2045 on

27 May. With the beach open and both LCM8s launched and fuelled, the landing began at 2100. Supported by *Balikpapan*, amphibious operations continued through the night until 5.35 am, when the final vehicles and stores were offloaded. The beach was then closed, pending *Tobruk*'s arrival.[100]

Phase 2—Force Build-Up

Slater's decision to break out and begin securing Dili (Phase 3) was unquestionably correct, given the state of lawlessness in the city, the capability of the forces at his disposal as compared to those causing trouble in the streets and the apparent lack of will of any of the rogue groups or the Timorese police and army to contest the Australians' arrival.[101] It would, however, disrupt the logistics plan, which was predicated on the force remaining localised at the airfield for three days, where the CSST's limited number of vehicles could keep the rest of the force supplied. Dispersing Battlegroup Faithful and other elements into Dili would test ability of the 3CSSG's transport elements to undertake their own second-line tasks while also effectively acting as individual unit first-line support and echelon elements.[102]

Meanwhile, with *Tobruk*'s arrival off Dili on the morning of Sunday 28 May, the CSST could deploy ashore and begin its work, a relief to those soldiers who had been operating for two days with little more than what they had brought with them. As *Manoora* had done, *Tobruk* began a logistics-over-the-shore operation, offloading the CSST at Blue Beach using *Balikpapan* and two LCM8 landing craft. Difficult sea conditions hampered the operation and the offload was eventually postponed due to risk to persons and equipment. The heavy swell, the freshening sea breeze and the lack of other suitable anchorages within close proximity to the beach meant that *Tobruk* was faced with the likelihood of not being able to restart the offload safely for a prolonged period. Yet by 1800, *Tobruk* was informed that the fenced Dili port precinct had been secured by the Commando Company Group and it could proceed independently alongside to conduct the offload using the port's infrastructure. Work progressed with great efficiency and concluded past midnight on 29 May; the ship's company appreciated being at the centre of the operation, providing much-needed resources to the land force.[103]

Figure 3. Army stores and vehicles sit on the Vehicle Deck onboard HMAS *Tobruk* as they wait to be unloaded ashore off the coast of Dili, Timor-Leste, as plumes of smoke can be seen rising into the air from the direction of the city during Operation Astute, 28 May 2006. (Source: Defence image gallery)

Once the CSST was ashore at Comoro airfield it established a bulk fuel installation and a transit area, the latter invaluable in rapidly clearing the airhead and establishing control over stores and equipment as they arrived in theatre. More generally, the logisticians provided the deployed force with rudimentary yet immediate first- and second-line logistics and critical combat supplies, namely water, rations, petrol, oil and lubricants, so that each unit would receive a basic level of logistic support. The CSST also provided transport support to Battlegroup Faithful and, by 30 May, had established a logistics node which allowed units to immediately place demands for supplies. The decision to deploy second-line transport and infrastructure elements before much of the first-line support and echelon elements of Battlegroup Faithful was one that Bottrell believed should be sustained. 'This approach', he argued, 'provided the same level of service to all units and ensured that the available strategic lift was utilised to its fullest potential'.[104]

The benefits of this approach were not readily apparent to Mumford, who experienced 'a considerable time lag' between the deployment of his fighting echelon and the arrival of sufficient 3RAR Admin Company assets to support his unit. The gap was intended to be filled by 3CSSG providing first-line support, but it 'did not occur at any stage'. In particular, the battlegroup was without its full number of integral B Vehicles, which was exacerbated by the fact that the battlegroup comprised five rifle companies rather than three. Some 26 ageing Land Cruiser troop carriers were acquired from the in-country Defence Cooperation Program to compensate but, while invaluable, these vehicles presented a maintenance liability and did not reinforce the image of a professional military force. In light of such problems, Mumford argued that if the battlegroup had been required to undertake genuine combat operations then the mission would have been at considerable risk. In general, he declared the expedient to be 'unsatisfactory', and argued that in the future, the complete self-sustaining battlegroup package should be deployed before the deployment of second- and third-line logistic and other units.[105]

Meanwhile, *Kanimbla*'s main offload was undertaken via Blue Beach and with *Balikpapan*'s assistance on 29 May, a task made difficult at times due to strengthening winds and unfavourable sea conditions.[106] That same day, the contingent from B Squadron, 5AVN deployed from *Manoora* and established a staging and support base at Comoro airfield, while 3 Brigade headquarters staff also disembarked at Blue Beach to help establish Slater's headquarters at the Dili port. *Manoora* was due to return to Australia to collect further personnel, stores and vehicles, and thus transferred her two LCM8s, their support crews, and the deployed geospatial survey team to *Kanimbla*. With the offload complete and all embarked personnel ashore, Captain Murray detached *Manoora* in the early evening and ordered her to Darwin for a second upload of combat support elements.[107] *Tobruk* had also departed that afternoon to collect one tranche of the 3CSSG main body in Townsville, while *Balikpapan* returned to Darwin for the next resupply.[108] Concurrently, as the requirement to complete non-combatant evacuation reduced, the air component focus shifted to the build-up of sustainment stocks.[109]

By the morning of Tuesday 30 May, *Kanimbla* was the only Amphibious Task Group ship remaining in Dili Harbour. Proceeding alongside Dili wharf, she offloaded humanitarian aid stores and provided bulk fuel ashore. As Slater was having communications difficulties at that time, *Kanimbla*'s operations room was prepared as a potential temporary headquarters. Slater ultimately

decided that he would simply wait until his new headquarters was established at the port complex in order to reduce the number of times he and his staff were required to move. *Kanimbla* did, however, begin providing hotel services to land forces, which 'very quickly became extremely popular', with up to 200 Army personnel taking advantage of a hot shower, a hot meal, and a comfortable bunk for a few hours or overnight. The ship's company also baked bread and delivered it to soldiers in the field (an initiative colloquially known as 'Cakes Ahoy'). While alongside, *Kanimbla* became responsible for force protection at the port complex. Initially this was conducted in union with land forces, but once the capability of a ship's force protection team became apparent to Slater, he handed over full responsibility to the sailors.[110] When *Kanimbla* briefly returned to Darwin in June, *Tobruk* provided health and comfort services to JTF 631 personnel. During the four days she filled this role, 150 personnel were received on board, making use of mess, shower, laundry and recreational facilities.[111]

Tobruk, *Manoora, Kanimbla* and *Balikpapan* all undertook further transits between Australia and Timor, with the LCH also being of use around Dili Harbour. Under the concept of operations, the Agreed Point (the location where supplies were handed off from Joint Logistics Group to deployed forces) was in Darwin for the initial period, and control of air and maritime assets was devolved to Lieutenant Colonel Bottrell. This arrangement allowed Bottrell to more effectively manage and prioritise the inflow of stores and equipment. He later argued that this approach avoided the situation where other components could utilise the available assets to satisfy their own priorities, which may not have been in accordance with JTF 631 priorities.[112] For his part, Slater pointed to the establishment of the Agreed Point in Darwin as 'a significant contributing factor to the success of the logistic support during the first 30 days', and Bottrell was subsequently recognised with a Bar to his Conspicuous Service Cross.[113] In general, Slater praised the effective delivery of logistic support, arguing that Army was 'a more robust and agile organisation as a result of the enhancements that the various iterations of the Defence Capability Plan have provided since the 2000 Defence White Paper'.[114]

On 1 June, the first tranches of the 3CSSG main body arrived in Dili by air, providing some respite to the hard-working CSST. The following day, *Tarakan* arrived and offloaded seven M113s from 3/4CAV and three portaloos.[115] By 8 June, *Tobruk* had arrived with the remainder of 3CSSG, which included heavy

transport, bulk liquid assets and additional material-handling equipment.[116] Each amphibious ship was incrementally discharged from Operation ASTUTE, with *Kanimbla* the last to be released, on 18 July.[117] Slater subsequently paid tribute to the ship for its 'indispensable support', assisting with fresh meals and hotel services but also providing security elements for foot patrols at the Dili port. He also noted: 'having a major fleet unit alongside creates a significant effect in its own right. It is a very potent symbol of national resolve'.[118] The LCM8 detachment, which had provided dependable support in the littoral environment since their arrival, returned to Australia with *Kanimbla*.[119] With their departure, it remained for the Army elements to conduct what was now almost exclusively a land-centric mission.

Observations

When assessing the lessons of Operation ASTUTE as they relate to Army's future littoral manoeuvre capability, the first point to note is that the lodgement and force build-up phases were ultimately successful. Within 48 hours of the Australian Government receiving a request for assistance from their Timorese counterparts, Australian land forces, deployed by sea and air assets, were on the ground in Timor-Leste. Within a further 24 hours, rifle companies were in Dili itself, securing key locations and beginning to bring order to the previously lawless streets. By 29 May there were some 1,300 ADF personnel in Timor-Leste, with an additional 700 in the wider area of operations supporting the deployment.[120] In the terminology of the time, the government had directed the ADF to provide an effect on the ground, and this effect had largely been achieved.

That Brigadier Slater and his task force were able to execute a relatively complex insertion at short notice using a variety of joint capabilities demonstrated the value of early planning and force concentration. It also spoke to the high level of cooperation between the 3 Brigade headquarters and the air and maritime components. In planning, Slater outlined his intent, and the two components undertook their planning accordingly. Trust in joint elements to have professional mastery of their particular environmental domain was vital in facilitating such rapid planning and execution. Furthermore, despite the resource demands on the ADF at the time, the strategic importance of Operation ASTUTE gave Slater access to an array of joint assets, notably the Amphibious Task Group. The mission

simply could not have been undertaken in such a short time frame without employing all three larger amphibious ships, the LCHs and the LCM8. The LCHs in particularly proved valuable, not only for supporting the offload in Dili but also as their own independent sea-lift platform. The fact that the RAN still does not have a replacement for the long-retired LCHs is a significant deficiency in its littoral capability.

Another important observation from Operation ASTUTE is the value of having a brigade that is trained and specialised in the conduct of regional evacuation and stabilisation operations. Over many years, the brigade was equipped, trained and prepared for situations such as arose in Timor in May 2006. As a result, when its skills and expertise were called for, it could move relatively quickly. Slater considered that his brigade was 'very well prepared for this contingency', adding that the success of the operation demonstrated its ability to adjust rapidly to the role of a JTF headquarters and highlighted the value of its high-readiness culture.[121] Undoubtedly the recent first-hand experience of undertaking a similar operation in 1999 also helped compensate for the uncertainty and the limited time to prepare.[122] This familiarity was demonstrated in the unorthodox logistics plan. Both Slater and Bottrell used their personal experience of INTERFET to develop a sustainment concept for Operation ASTUTE that went against doctrine but suited the particular requirements of the mission.

Operation ASTUTE also offers warnings for future littoral operations. If the ADF successfully achieved the lodgement phase of Operation ASTUTE, it did so inelegantly at times and with a considerable degree of good fortune. For example, a key risk was the decision by senior commanders, in accordance with the government's intentions, not to put the Amphibious Task Group to sea once each ship was fully loaded. Valuable as they are in providing mobility in mass, amphibious ships need to be nearby if their embarked combat power is to be deployed effectively. The absence of an amphibious force just off Dili denied the ADF the flexibility and freedom to land combat troops in the city in a timely manner and in circumstances conducive to the ADF, leaving it with the more dangerous TALO option.

Army must remember that, unlike operations in which it operates as a junior coalition partner in a geographically distant 'war of choice' where many aspects of the mission may be carefully calibrated, regional operations are often undertaken at short notice and with political imperatives that potentially

undermine operational effectiveness. In 2006, with the situation in Dili breaking down and the Amphibious Task Group still days from Dili, only the TALO option allowed JTF 631 to achieve the government's requirement to have Australian boots on the ground in Dili as soon as possible. Other than the presence of *Adelaide* in Dili Harbour, which might have deterred potential adversaries from attacking the RAAF aircraft as they landed at Comoro, JTF 631 had limited ability to shape the environment to ensure a permissive entry of forces. Had there been a genuine threat at the airfield, Australian decision-makers would have faced the choice between undertaking a TALO with a real risk of Australian casualties and waiting several days before *Manoora* arrived on station to execute an amphibious assault. Given the escalation of violence seen over 23–25 May, it is not unreasonable to assume that the absence of international security forces for several days might have led to even greater loss of life and property destruction in Dili.

Figure 4. An Australian Army Unimog truck is transported on an Australian Army Landing Craft Mechanised (LCM8) prior to a beach landing in the Comoro district of Timor-Leste, 28 May 2006. (Source: Defence image gallery)

Another point to highlight is the importance of trusting subordinates with relevant expertise to contribute to mission planning. Whatever Slater's rationale for leaving Lieutenant Colonel Mumford and 3RAR headquarters

out of brigade planning, it limited the ability of the parachute battalion, specialists in air landing operations, from contributing their expertise to the tactical plan or even being aware of the full extent of their taskings should the mission be authorised. With the assumption that the lodgement would be amphibious led, the deployment of Mumford's battlegroup was initially treated as little more than an air movement admin activity, on the basis that A Company, 1RAR, would have already secured the airfield.[123] The requirement to switch to a TALO-led entry allowed little time for the optimal development of manifests and load lists before the entry force was required to depart Townsville. Again, the lack of opposition upon landing obscured this weakness, which might have been exposed had the circumstances been different.

Conclusion

The modern ADF rarely conducts amphibious operations, and thus should pay close attention to previous operational examples for instruction and warning. While the 2006 intervention in Timor-Leste remains a far less storied operation for the ADF than its predecessor in 1999, this in no way diminishes its value as a case study for thinking through the challenges of littoral manoeuvre. The lessons of Operation ASTUTE, at least as far as the lodgement and force build-up are concerned, are thus generally twofold. On the one hand, professional expertise, coupled with a good mix of amphibious assets, enabled the planning and execution of a reasonably complicated lodgement onto a foreign shore in a short period of time. On the other hand, the absence of any serious opposition contesting the lodgement covered over several potentially costly problems in planning. The next time the Army is called upon to undertake an amphibious lodgement, it needs to be aware that the circumstances might not be as favourable as they were in 2006.

About the Author

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Unsinkable Ships? Theoretical and Historical Groundings of Joint Operations for Sea Control

Richard Dunley

Introduction

In the 'National Defence Statement' that forms Part A of the public version of the *Defence Strategic Review* (DSR), the Minister for Defence, Richard Marles, states that 'Army must be optimised for littoral operations in our northern land and maritime spaces and provided a long-range strike capability'. Elsewhere in the document, one of the key priorities for the Army is stated to be 'land-based maritime strike'.[1]

The concept of maritime force projection from land has been developing for some time, with Peter Dean, one of the DSR authors, advocating in 2019 that 'in this modern battlespace Australia's land forces need to be fully fused with air and naval capabilities to create a truly integrated joint force' in order to operate effectively in the maritime-dominated Indo-Pacific.[2] There are also significant parallels between the ideas set out in the DSR and the United States Marine Corps Expeditionary Advanced Base Operations (EABO) concept. As the recent second edition of the Marine Corps *Tentative Manual for Expeditionary Advanced Base Operations* sets out, '[t]he true advantage of EABO lie [sic] in the ability to support the projection of naval power by integrating with and supporting the larger naval campaign'.[3] It goes on to explain how the 'littoral force plays a vital role within the greater naval force

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by applying fires against maritime surface targets to deny or control sea space'. Similarly, the force would conduct 'defensive actions to destroy, nullify, or reduce the effectiveness of hostile air and missile threats'.[4]

A core rationale for these ideas has been the rapidly changing technological environment in which forces will be operating in littoral regions. In explaining the EABO concept, Marine Corps Commandant General David Berger has highlighted how '[a]dversary advances in long-range precision fires make closer naval integration an imperative', something that will mean 'the future integrated naval force will shift from traditional power projection to meet the new challenges associated with maintaining persistent forward naval presence to enable sea control and denial operations'.[5] In order to achieve this:

> *Given the realities of geography and the proliferating precision strike regime, the Navy and the joint force will need an 'inside' or 'stand in' force that can operate persistently within the weapons engagement zone of a peer adversary.*[6]

Thus, long-range precision strike, and the challenges it poses to naval forces in littoral regions, is seen as one of the key drivers of this new trend in land operations in the Indo-Pacific. These new technologies are, however, not only part of the rationale for land-based maritime power projection operations; they are also integral to how such a concept would work.

It is no coincidence that the DSR placed such a priority on Army rapidly accelerating and expanding long-range land-based maritime strike programs.[7] A similar framing has been visible for some time in the American approach.[8] When viewed from this perspective the new operational concepts being explored by the Australian Army and US Marine Corps are driven in large part by the perceived influence long-range land-based maritime strike capabilities will have on operations at sea.

The focus on land-based maritime strike is noteworthy. It represents a reversal of the trend of at least the past 30 years, and arguably past 80 years, which has seen navies and maritime strategists focus on the ability to project power from the sea to the land. More generally it raises some interesting questions about how these new concepts will fit into traditional maritime strategy. This paper will explore the framing of land power within traditional maritime strategy, and suggest how these new strategic developments can be best understood through both a theoretical and a

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historical lens. In doing so it will help to provide an intellectual framework through which to understand the new role played by land forces in joint operations in the maritime domain.

Projecting Power from Land to Sea

Traditionally, states that have sought to control the sea and use it for their own purposes have rarely given much thought to the idea of using land power to control the sea. The only real exception to this is the discussion of expeditionary warfare that targets naval bases. This concept was most fully developed in early 20th century Britain where concerns that an enemy might refrain from confronting the might of the Royal Navy, and instead act as a 'fleet in being', led both scholars and practitioners to consider how to meet such a threat. It was in this context that General Sir Charles Callwell wrote of the 'intimate connection between command of the sea and control of the shore'.[9] These ideas were also explored in detail by Callwell's contemporary the Royal Marine George Aston.[10] The Russo-Japanese War provided a clear case study of precisely the value of land power in this context. The Imperial Japanese Navy was unable to destroy the inferior Russian Pacific Fleet, which remained in its harbour at Port Arthur, in the Liaodong Peninsula in modern China. In the latter part of 1904, the Russian Baltic Fleet was on its way out to East Asia, and if it had managed to join up with the Pacific Fleet, it would have potentially challenged Japanese sea control. The Japanese Army had besieged the Russian base at Port Arthur, and a desperate battle ensued for the high ground surrounding the harbour. On this action 'hung the fate of the Russian Squadron', and arguably the wider war.[11] Japanese success on 5 December 1904 allowed for spotting for the Japanese heavy artillery, and the Russian warships were destroyed in harbour. The French strategic theorist Raoul Castex noted that 'the destruction of the Russian squadron meant not a private success for the navy but control of the sea so as to safeguard the army's lines of communications and ensure final victory'.[12] It was in part for this reason that Julian Corbett concluded his history of the war by noting that in a 'maritime theatre', the 'issue of the war must turn on the just coordination of the sea and land arms'.[13]

When it comes to more directly projecting power from the land to the sea, traditional maritime strategy has cast a far more damning verdict. The classic expression comes from Alfred Thayer Mahan, also writing in relation to the

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Russo-Japanese War. He noted that the behaviour of the Russian fleet at
Port Arthur suggested that there was:

> prevalent in the high command in Russia a radically erroneous
> conception of the relations of a fleet to coast operations …
> This conception is held so strongly as to take form in the phrase
> 'fortress-fleet'.[14]

Mahan viewed the idea of a fleet relying upon the support of land-based
artillery, and thus being connected to it, as utterly antithetical to the proper
use of sea power. As he explained disparagingly, '[t]he fortress throughout
reduced the fleet, as fleet, to insignificance'.[15]

The fortress fleet concept has recently been reinvigorated, most notably
by the American scholar James Holmes, who has suggested that the
concept has 'come of age' with the development of China's long-range
anti-ship missiles and wider anti-access area denial (A2AD) capability.[16]
His argument is that the radical changes in technology available to land-
based forces have made this a viable strategy. He has a point. In 1904 the
coastal artillery in fortresses such as Port Arthur had a range measured in
thousands of yards. This capability has now been replaced by long-range
cruise missiles and anti-ship ballistic missiles that have ranges measured
in the thousands of kilometres. Accordingly, the fleet now has a far greater
range to operate within while remaining under the 'guns' of the fortress.
It is significant, however, that Mahan's critique of the 'fortress fleet' idea
was not primarily based around the limited range of the coastal artillery.
Indeed, he made a measured statement that it was important to 'give each
element—coast fortress and fleet—its due weight, its due consideration, in
the scheme of military and naval policy'.[17] Mahan's fundamental objection
was the way that the 'predominant conception of a fortress fleet reflects
national temperament; that is national characteristics, national bias. For
what does Fortress Fleet stand? For defensive ideas'. Mahan believed that
the strategy of connecting sea power to land power in this way had 'moral
characteristics which will pervade action' and would do so in ways that
were fundamentally detrimental to the effective development and use of sea
power.[18] This was, in his view, a limited and continentalist view of maritime
power rooted in the basic assumption that the sea is primarily a medium for
potential threats and that its use needs to be denied to adversaries.

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Experience across the 20th century tended to broadly support Mahan's contention. The leveraging of land to shape events at sea continued to be the strategy of those seeking primarily to defend their coastlines through sea denial. The Soviet 'New School' of the 1920s and 1930s exemplified such an approach, relying on 'a small navy which acts together with the Army according to a single strategic plan'.[19] Versions of these ideas remained in currency throughout the Soviet era. Despite the Soviet Union's far more expansive gaze post-1945, sea denial remained a central element of its maritime strategic thought, and it continued to leverage off land-based assets, particularly a significant naval aviation arm. The protection of its coastline and the ability to hold Western naval forces at bay in the northern Atlantic and Pacific oceans was the most important Soviet naval mission throughout the Cold War. This focus intensified with the development of 'bastion' strategies aimed at providing protected zones in which Soviet ballistic missile submarines could operate safely. Within this strategy, land-based aviation was seen as playing a crucial role. With some notable exceptions, such as the Soviet Union's growing naval presence in the Indian Ocean, Soviet naval strategy can be seen as conforming closely with a continentalist view of maritime strategy.

A continentalist mindset can also be seen in the military strategy of another great power, China. The early years of the People's Republic of China saw a limited focus on naval matters, with the broad strategic approach being framed as 'sabotage warfare at sea'. This was based upon 'mutual support between [limited] surface forces and shore-based weaponry'.[20] Within sections of the Chinese Communist Party, a large navy was seen as 'an "evil instrument"' used by Western nations '"in the struggle for global hegemony"'.[21] This perspective was evident from the 1970s onwards as China began to look to new technology, notably long-range cruise missiles to defend its coastline. In 1972 the Chinese Vice-Premier stated bluntly that '[w]e are continentalists. Now guided missiles are well developed. Installed on shore, they can hit any target, and there is no need to build a big navy'.[22]

This framing remains the primary lens through which most Western analysts conceptualise China's developing long-range maritime strike capability. As Holmes and Yoshihara have put it, 'the synergy between sea and land-based maritime might endures in Chinese force design and methods'.[23] The strategic situation in the Western Pacific is often presented as being a contest between a Chinese A2AD approach and American efforts to

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gain sea control through some form of air-sea battle, or Joint Concept for Access and Maneuver in the Global Commons (JAM-GC).[24] Long-range anti-ship missiles, especially land-based ones, are consistently framed as an asymmetric capability deployed by a power seeking to deny the use of the sea.[25] This viewpoint comes through most clearly in the near universal colloquial characterisation of them as 'carrier killers'.

Figure 1. JGSDF Type 12 Anti-Ship Missile Launch, Talisman Sabre 23. (Source: Defence image gallery)

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Superficially, this conceptualisation of land-based long-range maritime strike capabilities aligns neatly with the strategic approach recommended for Australia in the DSR. The review's primary recommendation is that 'the Government directs Defence to adopt a strategy of denial'. It goes on to say that the Australian Defence Force (ADF) 'must focus on the development of anti-access/area denial capabilities', including long-range maritime strike.[26] In some regards, this approach has the hallmarks of a modern version of the late Cold War Defence of Australia strategy, using new technology to dominate the air-sea gap.[27] By extension, one could argue that Australia should emulate the A2AD model which is supposedly at the heart of Chinese strategy within the Western Pacific.

Closer engagement, however, shows the obvious flaws in such a framing. The DSR itself highlights the essential requirement to use the maritime domain, not merely deny its use to others. This is implicit in its focus on joint operations, littoral capability, and the significance of an immediate region of primary military interest that is 'encompassing the north-eastern Indian Ocean through maritime Southeast Asia into the Pacific'.[28] The necessity for Australia to go beyond denial comes through most strongly when looking at the third 'mission' for the ADF set out by the Minister for Defence in his National Defence Statement, namely the requirement to 'protect Australia's economic connection to our region and the world'.[29] The problem with applying a narrow 'continentalist' conception of denial is expressed with notable clarity in Australian Maritime Doctrine. It states:

> *Because Australia is an island continent fundamentally dependent upon the sea for communications, and because it exists within a region equally dependent upon the sea, it is control rather than denial which bears more closely upon our national situation.*[30]

For this reason, Australian efforts to utilise land power to influence actions at sea must be focused on working with the Navy and Air Force to achieve both sea denial and sea control where appropriate. Given the similarities in strategic outlook between Australia and the US, it is unsurprising that this is the same conclusion reached by the US Marine Corps.

The realisation that Australia needs to go well beyond any narrow focus on A2AD returns us to the core question addressed in this paper: how should the ADF conceptualise the projection of force from land to sea in an effort to support the control and use of the sea? Put another way, how

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should we view long-range land-based maritime strike if we accept that the continentalist narrative around 'carrier killers' and asymmetric capabilities is not appropriate?

Achieving Sea Control

Sir Julian Corbett, the British naval historian and maritime strategist, stated plainly that '[t]he object of naval warfare must always be directly or indirectly either to secure the command of the sea or to prevent the enemy from securing it'.[31] In this, his views largely aligned with those of his great contemporary, Mahan. While they agreed on this core principle, there was divergence between the two theorists' views about how that command was to be secured.

Mahan was a great advocate of large fleets of battleships: '[A] navy which wishes to affect decisively the issues of a maritime war must be composed of heavy ships—"battleships"—possessing a maximum of fighting power'.[32] In his view, the battlefleet needed the freedom to seek out and destroy enemy forces as opposed to being tied in any way to the land. Indeed, the idea of a battlefleet being in anyway defensive, even of interests on land, was seen as heretical. As Mahan observed, '[s]eaports should defend themselves; the sphere of the fleet is on the open ocean, its object is offence rather than defence, its objective the enemy's shipping wherever it can be found'.[33] Thus, Mahan viewed command of the sea, or sea control, as something that derived directly from the actions of the battlefleet. Preferably this would result from the destruction of an enemy's fleet in a decisive battle, which he saw as the primary means of securing command of the sea. These ideas have remained hugely influential in maritime strategic thought throughout the century since Mahan's death.

Corbett, while broadly agreeing with Mahan on the significance of command of the sea, developed a subtly different concept of how that would be achieved—one that has value when looking at the changes brought about by advances in technology, including long-range precision maritime strike. Corbett wrote at some length about the weapons of naval warfare, or as he put it the 'constitution of fleets'. He pushed back against the general assumption that fleets should have a relatively consistent form, instead insisting that they 'are, or ought to be, the expression in material of the strategical and tactical ideas that prevail at any given time'.[34] Corbett also

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challenged the direct connection between the battlefleet and command
of the sea. He argued that 'for the actual and direct control of either
commercial or military lines of passage and communication battle fleets are
unnecessary and unsuitable'.[35] Instead, Corbett argued that the flotilla and
smaller craft exercised control of the sea. The role of the battlefleet was to
provide 'the security of control'. Therefore, unless there was a direct threat
from an enemy fleet, the battlefleet was redundant. In Corbett's view, the
role of the battlefleet was to provide a security umbrella under which smaller
vessels could exercise command of the sea, and exploit it as appropriate.[36]

When outlined within maritime strategy it is commonly implied, for the sake of
clarity, that such a security umbrella should be direct: that the flotilla should
exercise command directly under the guns of the fleet. The reality tends to
be very different. For instance, during the First World War, the British Grand
Fleet spent most of its time at anchor in Scapa Flow, north of Scotland. To all
appearances it achieved very little. However, when considered more closely it
is evident that the fleet, through its existence and deterrent effect, continued
to provide security. As Herbert Richmond remarked, the 'small craft acting
as escorts, patrols or hunting were able to operate freely … solely by virtue
of the cover afforded by the Grand Fleet'.[37] This cover had great geographic
range. In both world wars Australia was largely protected from German naval
depredations by the location of the superior British fleet astride the German
access to the open oceans. Indeed, during the First World War the Royal
Australian Navy's modern vessels spent most of their time in the North Sea
precisely because this was the most effective place from which to protect
Australia's national interests. More widely the interconnectedness of oceans
and the strategic mobility of naval vessels means that the naval forces of
major powers do not need to be in region to exert a significant effect. The
mere prospect that they could be deployed is frequently sufficient to provide
the security of control, especially in peacetime.

As Corbett argued, the roles of naval warfare are not necessarily tied to the
specific technologies used to carry them out. The century since Corbett's
death has seen significant shifts in the technologies used to create the
necessary security umbrella. The battleship's mantle was passed to the
aircraft carrier, and in certain circumstances land-based aviation. This has
not undermined the importance of the role, and it appears likely that land-
based anti-ship missiles will form (or already have formed) an important
addition to this suite of potential capabilities. As was the case with

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battlefleets, these weapons appear to be ill suited to the role of exercising command of the sea. Like battleships they are too specialised to conduct the range of tasks necessary, and more generally they lack the obvious flexibility of warships. As will be discussed below, they also have significant challenges in terms of providing sufficient command across surface, sub-surface and air in order to facilitate use of the sea. This does not, however, mean that these weapons necessarily strengthen sea denial over sea control, or make surface vessels redundant, any more than their sea-based predecessors in this role did. The technology does not define its use, and we need to be careful to avoid pigeonholing it simply because of the current approaches of certain states.

The Wartime Influence of the Land on the Sea

The use of land-based capability in providing a security umbrella for maritime operations is not an entirely new concept. In fact, there have been a number of examples, primarily of the use of land-based aviation in this role in specific theatres, most notably during the Second World War. These ideas have tended to slip from view in the years since 1945, but it is valuable to revisit a couple of examples in order to understand the role of land forces in projecting power into the sea, and why it is that this has failed to gain traction within wider discourse on maritime strategy. The development of air power sufficient to reliably conduct operations at sea, targeting significant-sized vessels, developed during the interwar period. Its impact played out across the range of theatres during the Second World War, and its degree was naturally shaped by factors including geography and strategy.

One of the theatres where this was most notable was the Mediterranean. This comparatively small, almost entirely landlocked sea sat at the centre of the military theatre, and was essential to both the Allied and Axis powers in their efforts to supply their respective bases and land forces. Both sides maintained significant 'traditional' naval forces in the theatre, including battleships and, in the case of the Allies, aircraft carriers. These naval forces were supported (and challenged) by large-scale land-based aviation from both sides. A core role for this air power was sea denial, with much attention being focused on German efforts, especially those of Fliegerkorps X against the Royal Navy, and the sinking of the Italian battleship *Roma* by a German radio-controlled bomb.

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**Figure 2. HMS Eagle under air attack in the Mediterranean, view from
HMAS *Vendetta*. (Source: Sea Power Centre – Australia)**

A wider survey of the theatre, however, reveals that land-based air power
served in exactly the role set out by Julian Corbett. It augmented, and at
times replaced, the use of heavy naval forces in providing the 'security of
command' necessary to enable smaller vessels to exercise that command,
and merchant vessels to use the sea for critical supply purposes. This
security of command was, for much of the period from 1940 to the end of
1943, temporary, limited, and highly contested. Air power, whether land
or sea based, was a vital component of wider efforts to provide security of
command and, by extension, to control and use the sea. The Allies' eventual
success in the theatre came when they secured control of the entire North
African littoral. This was an essential step that allowed the Allies to establish
a significant degree of command of the sea, not least because of the
infrastructure it made available to Allied land-based aviation—facilities that
were at the same time denied to the Axis. This successful land campaign
was, however, itself in part a result of the growing ability of the Allies to exert
sufficient sea control where and when it was needed, while also preventing
the Axis powers from doing the same. These interconnections between air,
sea and land power, including the projection of power from the land to the
sea, were so tightly enmeshed that it is impossible, and unhelpful, to try to

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unpick them. Indeed, the historian Richard Hammond has recently noted that the Mediterranean was:

> one of, if not the, most operationally 'joint' theatres of war … In no other theatre had combat been so defined by interdependence on the roles of air, sea and land power. Time and again the successful application of any one of these instruments hinged on effective coordination with the other two.[38]

The situation in the South-West Pacific during the Second World War was shaped by very different geographies and resources, but there were notable similarities. Within the wider Pacific theatre, the distances involved ensured that it was carrier-based aviation that came to dominate both the skies and the seas below. This was less true in the waters closer to Australia. In this broadly maritime domain, the real significance of land-based power projection first became evident during the Guadalcanal campaign. From very early on, both sides acknowledged the importance of Henderson Field, the only significant airstrip on the island. US Navy Official Historian Samuel Morison observed that early Japanese efforts to recapture the island in September 1942 were shaped by a strategy that:

> was a curious reversal of principles that had come down from the pre-air age. Instead of counting on a fleet to secure command of adjacent waters before pressing a land attack, the Japanese decided they must capture the air base before challenging their enemy's fleet.[39]

While the attack was unsuccessful, the ongoing campaign proved that the approach was logical. Despite dreadful conditions and regular Japanese attempts to destroy it, Henderson Field remained a crucial link in the island's defence due to its ability to support the projection of power from land to sea. Throughout the campaign 'during daylight hours, aircraft from Guadalcanal dominated the sea around the island'.[40] This force was so significant that it drove the Japanese to rely upon night-time missions to resupply their troops on Guadalcanal. The inability of the Japanese to silence the US Navy and Marines aircraft operating from Henderson was a crucial factor that led to the eventual Japanese decision to evacuate the island. Land-based air power helped ensure that the Japanese were unable to develop sufficient control of the sea around the island to support their operations, and so they were forced to withdraw.

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The operations in the South-West Pacific that followed the Allied victory at Guadalcanal saw a similar, if arguably even more significant, role being played by land-based aviation. While many of these operations occurred along the coast of New Guinea, the second-largest island in the world, the nature of the terrain ensured that it was fundamentally a littoral campaign. The difficulties of manoeuvring on land placed a strong emphasis on maritime mobility and logistics. Circumstances, however, dictated that the theatre commander, General Douglas MacArthur, could not take a traditional approach of relying on naval forces to provide sea control and power projection on shore. The reality was that MacArthur's relationship with his US Navy colleagues was poor at the best of times, and in a period of limited resources and competing priorities, the South-West Pacific received, initially at least, limited naval support. Despite this:

> *MacArthur's campaign for the advance from New Guinea to the Philippines became one based on a maritime strategy. However, MacArthur had only a relatively small navy. Instead, his main striking force was his air force, based on jungle airstrips rather than on aircraft carriers. The role of the army was to seize and hold the areas for the airstrips and for the naval anchorages and bases.*[41]

This approach drove the series of Australian-American operations up the coast of New Guinea, each seeking to establish a new advanced air base from which to then project power further forward. As observed by Dean, 'For MacArthur "command of the air gave command of the sea, which gave initiative and control of the ground"'.[42] Thus, the nature of the theatre and the exigencies of war meant that traditional maritime strategy was inverted, or at least more complicated—the projection of air power from land to sea became an essential prerequisite for the projection of power from sea to land. As operations moved on to the Philippines in late 1944, the unique characteristics of littoral warfare that had marked the campaigns of the South-West Pacific passed. Following the victories at the battles of the Philippine Sea and Leyte Gulf, the unprecedented quantity of American carrier-based naval aviation, combined with the naval supremacy exerted by the Allies, ensured that the significant role of land-based aviation in securing command of the sea was not repeated.

In the Mediterranean and the South-West Pacific theatres of war, neither the Allied nor the Axis forces adopted a strategy defined primarily by sea denial.

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Sea control and the exploitation of the sea were both essential elements of the strategies of all participants in these campaigns. There has nevertheless been relatively little acknowledgement of this reality within postwar discussions of the operational campaigns and their relevance to wider maritime strategy. With the exception of occasional remarks such as the one by Samuel Morison quoted above, the significant shift within maritime strategy marked by the rise of land-based power projection into the sea has remained largely unexplored. The reasons for this limited engagement with the issue remain obscure.

In terms of maritime strategic analysis of the Pacific war, most commentary has focused on the US Navy-led thrust through the central Pacific. This story is dominated by the remarkable influence of carrier-based naval aviation, something that continues to define most people's conceptions of the war in the Pacific. The South-West Pacific campaign was in many ways less obviously significant, and in terms of the perspective of the US Navy had the unfortunate characteristic of being inextricably associated with the figure of General Douglas MacArthur, a leading adversary in the bitter interservice fight. Western navies also had a very strong institutional reason for playing down the impact of land-based aviation on maritime strategy in the years following the end of the Second World War. The late 1940s and early 1950s saw what was believed to be an existential challenge to navies in the form of extreme concepts of air power theory. In 1942, the Russian-American air power 'prophet' Alexander de Seversky claimed:

> [T]he time is approaching when even the phrase 'sea power' will lose all real meaning. All military issues will be settled by relative strength in the skies. At that time, I dare to foresee, by the inexorable logic of military progress, the Navy as a separate entity will cease to exist.[43]

While the rhetoric inside Western armed forces and governments was less extreme, the perceived threat posed by air forces in a world defined by nuclear weapons was nevertheless real.[44] Navies were desperate to demonstrate their own utility, and raising questions about the role of land-based forces in core naval tasks such as sea control would have been extremely damaging.

Discussion of land-based aviation in the European theatre during the Second World War tended to focus on its use by Germany in a primarily sea denial capability. The obvious and very significant exception to this was in the area of anti-submarine warfare (ASW). Experience of both World Wars had

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demonstrated the effectiveness of land-based aviation in this critical role for any power looking to use the sea. Rapid changes in submarine technology in the early Cold War saw major challenges for fixed-wing air power to find and destroy the new generations of both diesel-electric and later nuclear submarines.[45] Despite this, land-based fixed-wing aviation continued to be seen as a vital part of the ASW puzzle. In terms of wider sea control efforts, there was far less interest in using the land to influence the sea. Indeed, the consistent framing of events through much of the Cold War presented Soviet land-based aviation—a key part of their perceived sea denial strategy—in opposition to Western, and particularly American, carrier-based aviation. As one 1950s American planning document stated, '[o]ur carrier task forces will destroy enemy Naval forces and shipping, attack naval bases, [and] attack air bases threatening control of the seas'.[46] This conceptualisation of naval strategy meant that, while there remained an underlying awareness of the potential value of land-based power projection into the sea in support of a sea control mission, it was never really embraced. Instead, Cold War maritime strategy tended to follow the traditional approach of seeing sea control as something provided by naval forces at sea (including carrier-based aviation) which could then be utilised to project power onto the land.[47] The notion of land forces playing a vital role in securing sea control largely faded from view.

The Revolution in Long-Range Fires

Central to much of the recent discussion around the influence of land-based power projection into the sea has been developments in anti-ship missile technologies. In reality these weapons are nothing like as new as is sometimes suggested. The first warship sunk by an anti-ship missile was the Israeli destroyer *Eilat* as far back as 1967. While the majority of anti-ship missiles have been designed to be air or ship launched, the concept of ground launch versions is also not new. The Soviets and Chinese have long developed coastal defence missile batteries, something that has fuelled the narrative around the role of A2AD. During the Falklands War, Argentina took an Exocet anti-ship missile launcher from a destroyer and jury-rigged it as a ground-based system. This proved remarkably effective, inflicting significant damage on the British destroyer *Glamorgan*. More recently, the sinking of the Russian warship *Moskva* by a Ukrainian mobile anti-ship missile battery received considerable attention, with suggestions that this event has radically

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changed naval warfare.[48] However, the system used was based on a Cold War era Soviet missile design, so it is important not to overemphasise the novelty of such developments.[49] Even the general focus on the expansion of the range of missiles appears overstated. Cruise missiles with ranges into the thousands of kilometres have been around for decades. Indeed, there is a degree of irony that the Tomahawk missile, a system originally designed in the 1970s, looks set to remain the primary long-range anti-ship weapon for the US Navy and now US Marine Corps.[50] The obvious exception to this is the reported development of ballistic anti-ship missiles, most notably by China. These weapons have a range that is far greater than existing missiles, and the potential impact of this has been referenced by the US Marine Corps Commandant in his discussion of the rationale behind the EABO concept.

Figure 3. Iranian frigate Sahand on fire after Harpoon anti-ship missile strikes during OP Praying Mantis, 1988. (Source: United States Navy/Wikimedia commons)

Despite the prevalence of discussions around technology, strategy is arguably a more pressing driver for concepts such as EABO and the Australian Army's renewed focus on littoral warfare. In technological terms land-based power projection could have been a priority in decades past,

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but there was no strategic imperative for it. It is the growth of the People's Liberation Army Navy that has radically reshaped the strategic settings. There is now, certainly for the first time since the height of the Cold War, and arguably for the first time since the Second World War, a power seeking to challenge the dominance of the United States and its allies, not merely through the exercise of sea denial but through attempts to establish regional sea control.[51] In response to this development, efforts are now being made by the West to exploit all opportunities to contest China's bid for sea control. For this reason, it is important that we do not get too preoccupied with the idea that this shift towards projecting power from land to sea is a technologically driven one. As we have seen, the concept of land-based power projection has a long history. Developing and integrating a land-based maritime strike capability into the ADF will depend as much on a change of mindset as on a technological revolution.

Unsinkable but Immobile Ships?

In many respects, the development of land-based long-range maritime strike by powers seeking sea control can be readily framed within traditional concepts of maritime strategy. These approaches can be employed in coordination with more traditional naval forces to provide an umbrella of security at sea. There are, however, certain significant differences between a land-based approach to the generation of a 'security umbrella' and a more traditional navy-based one, which will have major implications for strategy and planning.

The first of these is persistence or endurance. As Ken Booth notes 'warships have impressive staying power' and their ability to loiter, all the time providing effect, is one of their great strengths.[52] However, when compared to land forces, the endurance of naval platforms is very limited. Thus, any shift towards reliance on land-based rather than naval assets to deliver security of command will have significant strategic implications. It will mean that the power that is able to utilise such terrestrial capabilities will have major advantages. Notably it will have the capacity to exercise command of the sea even when major naval assets are not available—as was frequently the case in New Guinea—and it will enable them to take fewer risks with those naval assets—as was arguably the case at Guadalcanal.

The second, countervailing implication of any shift towards the use of land-based capabilities to provide the security umbrella at sea is their obvious

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lack of mobility. A major warship has considerable strategic mobility, travelling up to 600 miles in a day.[53] Land-based forces cannot possibly compete with this mobility, even taking into account the stated desire of both the US Marine Corps and the Australian Army to enhance littoral mobility. This has obvious implications in terms of the area over which a force can provide a security umbrella. Land-based forces cannot move with the vessels exercising command or exploiting that command in the same way that warships can. The heavy escorts provided to convoys such as Operation PEDESTAL during the Second World War were able to create a mobile bubble of sufficient sea control to allow the convoy to get through. The inability of ground forces to do the same will place a greater emphasis on the requirement for range in the weapons system and wider kill chain. Further, the comparative immobility of land-based forces makes them more vulnerable to enemy targeting. Certainly it is far easier to maintain a kill chain targeting established military bases as opposed to mobile warships. Therefore, if land-based forces wish to take advantage of the 'unsinkable' nature of their domain, it is likely that they will need to retain sufficient mobility to problematise enemy targeting.

This lack of mobility also affects the degree of cover that can be provided by land-based capabilities. As discussed above, one of the most valuable aspects of naval power is the indirect cover it can provide. Land-based forces may continue to be able to provide this capability if they can exercise sortie control.[54] In a situation such as that existing between Britain and Germany during the First World War, sufficient control of the vital chokepoints exiting the North Sea enabled the Royal Navy to exert indirect control over the wider oceans. The broader aspects of indirect cover will prove far more problematic. Naval forces have always relied upon the interconnectedness of the oceans to be able to achieve effect through the potential for action. Throughout the 19th century the Royal Navy dominated the world's oceans, and did so in spite of the fact that its battlefleets rarely left European waters. The potential to do so was sufficient to deter any adversary from challenging the light British forces in theatre. Arguably the United States Navy has benefited from a similar phenomenon in recent decades. Land-based weapons will not be able to offer these advantages.

Finally, an obvious challenge for any land-based force tasked with supporting sea control is the requirement to exert sufficient control over all three domains in order to facilitate the use of the sea. The US Marines

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are already beginning to consider this challenge. As outlined, they are considering how to provide short-, medium- and long-range air and missile defence to both support their own operations and provide wider security.[55] There has even been discussion about how a land-based force can best support ASW operations. Precisely how this might work remains unclear, but it is apparent that the Marines are looking at how they can deliver support across the air, surface and sub-surface components required for sea control.[56] The wider point about the limitations of land-based forces in influencing across the three domains can be overplayed. After all, the battleships of the Grand Fleet provided little protection against U-boats. Their security umbrella was one focused on the surface domain, allowing the smaller escort vessels to conduct minesweeping and ASW operations unmolested. This model may continue to be relevant with the growth of land-based power projection forces.

Conclusion

The concepts set out in the DSR, together with those being articulated by the US Marine Corps, underscore a growing interest in developing allied capability to project power from land to sea. The capability to achieve this effect will most likely take the form of long-range anti-ship missiles and supporting systems. This technology and approach have been the subject of intense discussion over the past decade, but this has largely taken place in response to their development by states such as China and Russia in an A2AD capacity. This has led to a preoccupation with their being sea denial weapons which fit into a modern 'fortress fleet' strategy. But this is not the only way to conceptualise them. As demonstrated by this paper, long-range maritime strike capabilities that aim to project power from land to sea can fit as easily into the traditional maritime strategic approach of a state seeking sea control as they do into the strategic approach of a state seeking to achieve sea denial. As the case studies from the Second World War clearly demonstrate, a similar strategic approach has been employed by Australian, American and British forces in the past as part of efforts to secure sea control and achieve wider joint effects. Together this theoretical and historical contextualisation offers the potential to better understand the role Australian land forces are now being asked to play, and how it might fit into the wider strategic picture.

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The commentary on the DSR has widely framed it as prioritising the Royal Australian Navy over the Australian Army. In certain respects, this may be true. However, it is perhaps better to frame the review as prioritising warfighting capability focused on a maritime region. The theoretical and historical discussion above demonstrates that land-based forces can play a vital role in a joint strategic approach in such a region. If Australia wishes to hold an adversary at bay at some distance, be able to deter aggression coming from the north, and work with allies to contain threats to a degree sufficient to enable the continued security of its crucial maritime connections, then it will have to employ all potential approaches. Land-based maritime power projection has the potential to be a crucial force multiplier, allowing Australian forces across all three services to achieve maximum results within the country's constrained resources.

Land-based forces offer significant advantages in their ability to use a combination of anti-ship missiles, air defence, and intelligence, surveillance and reconnaissance to create sea control / sea denial bubbles in scenarios where that would otherwise be impossible. As General Berger has noted, there are major opportunities for them to do so with acceptable risk inside the weapons engagement zone of an adversary. They could also provide a persistent presence which is impossible to maintain with limited naval forces. Land-based maritime power projection offers the potential to utilise limited naval capability more effectively, achieving greatly enhanced geographical reach. It also has the potential to help mitigate some of the very considerable logistical problems of naval operations in the Indo-Pacific region, such as the necessity to return to established port facilities to reload vertical launch systems. In order to maximise this effect, it will be essential that land-based forces are able to provide as effective a sea control / sea denial bubble as possible and coordinate closely with the other two services and international partners in doing so. It will also be important that the land-based forces have sufficient endurance to operate independently for a period; otherwise they may prove more of a liability than an asset to their sister services. Land-based maritime power projection offers considerable opportunities for both the Australian Army and the wider joint force. In order to maximise this, it is essential to move beyond the technologically dominated narratives that have marked much of the discussion of this type of approach, and locate it in its appropriate strategic context. Doing so will enable a clear-eyed analysis of the potential opportunities and costs, and help break down any siloed service-orientated outlooks.

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Corbett Down Under: Sir Julian Corbett, Maritime Strategy, and Australian Land Power in the Indo-Pacific Arc

Ash Zimmerlie

Introduction

The global distribution of power is shifting to Asia, and Australia's strategic risks are rising. With reduced warning time, emerging great power competition, and expanding regional navies, Australia's risks are growing within the maritime domain of its immediate region. Australia's 2020 Defence Strategic Update (DSU) and 2023 Defence Strategic Review (DSR) marked significant changes in its strategic approach, identifying the growing potential threat from China and shifting from multiple competing interests to a focus on the Indo-Pacific, 'ranging from the north-eastern Indian Ocean, through maritime and mainland Southeast Asia to Papua New Guinea and the Southwest Pacific'.[1] Worsening geostrategic circumstances have hastened an explicit security commitment to the vast two-ocean maritime region of the Indo-Pacific. However, according to Dr Michael Evans, despite being an island nation situated at the base of the Indo-Pacific, Australia lacks a 'maritime consciousness' to guide its defence policy, which has traditionally been defined by low spending, alliance dependence, and the contribution of its army to continental commitments and coalitions.[2]

Evans has long argued that Australia suffers from a dissonance between its geographically derived strategic theory and its actual operational experience. In peacetime, Australian military doctrine has generally adhered to static geographic notions of 'air-sea gaps' and moat-protected 'naval bastions', only to be continually confronted in times of crisis with a requirement to deploy its military forces overseas.[3] Although strategy should not be a 'fixed blueprint', he says, it should nevertheless provide a guiding framework for envisioned military practice, based on the strengths and values of its people and the geopolitical realities of the environment in which it is formed.[4]

With the challenge from revisionist great powers like Russia and China, the post-World War II Western-ordered system is under threat. Australia remains a liberal outpost committed to the prevailing order's design and purpose. A strategic doctrine of exclusively continental defence stands in contrast to Australia's Western culture and liberal-democratic values. These values underscore its century-old tradition of committing military forces in support of its allies and lines of communication with them, as well as imperial or liberal interests abroad in places like Europe and the Middle East. Theoretical distinctions between continental defence and expeditionary strategy have, until recently, hindered any requirement to develop a regional maritime tradition based on what Peter Dean calls 'true' expeditionary and amphibious operations.[5]

The regional interventions and stability operations in Fiji in 1987, Timor-Leste in 1999, and Solomon Islands in 2003 demonstrated the need for functional force projection capabilities. These operations highlighted the difficulty in quickly projecting forces offshore in response to crises. The former Chief of Army, Lieutenant General Peter Leahy, argued that decades of purely continentalist strategic guidance impaired force generation, hollowed units, and degraded the ability to operate away from Australian support bases.[6] The *Kanimbla*-class Landing Platform Amphibious entered service in the 1990s, and growing operational demand for amphibious shipping led the Howard Government to commit to the purchase of two amphibious assault ships—the *Canberra*-class Landing Helicopter Dock (LHD)—in the 2000 Defence White Paper.[7] These procurements represented a growing awareness of Australia's regional responsibilities and its need for means to meet them. However, from the early 2000s, Australia's commitment to coalition operations in Iraq and Afghanistan once again reinforced the dichotomous nature of Australia's 'way of war' and the inherent tensions

in its defence policy: the need to develop single-service force packages to support alliance partners in distant operational areas while maintaining the necessary capabilities for continental defence and to meet strategic interests in the Indo-Pacific region.[8]

With the cessation of combat operations in the Middle East and Central Asia, Australian defence planners are refocusing the island nation's strategic approach for the 'Asian century'.[9] To address a lack of 'maritime consciousness' and provide clarity to competing priorities, strategic debate will benefit from a synthesis of Australia's geographic reality, strategic culture, and historical experience, with the theoretical framework of a maritime tradition it has hitherto ignored. The doyen of British maritime strategists, Sir Julian Stafford Corbett, was an activist of this tradition, and his ideas remain widely applicable for the 21st century.

This essay contextualises Dr Evans's lamentation and considers how Corbett's work serves as a useful framework for informing Australian defence strategy. In the absence of a maritime tradition, Corbett's strategic theory offers historical guidance and theoretical grounding for Australian defence planners. This guidance provides a path for the development of a coherent maritime approach to national security, increased regional influence, management of great power competition, improved force design, and preparation for future war.

This analysis has three parts. Part 1 reviews the geostrategic challenge posed to Australian defence planners by the confluence of economic and military power in maritime Asia, the rapid expansion of regional navies, and the apparent disconnect between the growing strategic risks and Australia's limited maritime tradition. Part 2 examines Corbettian strategy: the relevance and writings of Corbett, specifically his theories of limited war, joint expeditionary operations, and sea denial. It posits that his 'British way of war' offers useful insights for 21st century Australian strategists and policymakers. Part 3 synthesises Corbett's strategic theory with contemporary defence policy and the geopolitical circumstances of the Indo-Pacific. Within part three, this essay concludes with insights and ideas for Australian defence strategy, operational concept development, and force design. Corbett's ideas are particularly useful to the Australian Army as it seeks to employ land power as part of a joint force in the Indo-Pacific.

Part 1—Australia, the Indo-Pacific, and 'Maritime Consciousness'

Australia looks out on the world in two directions. On the one side lies the Indian Ocean and the developing monsoon lands of Asia. On the other lies the Pacific and the affluent 'new world'. Australia does not have to choose between these two worlds. It can act as a bridge between them.[10]

Indira Gandhi, 1968

Australia and the Indo-Pacific

Australia sits at a crossroads. Adam Lockyer argues Australian policymakers have traditionally conceived defence strategy in 'vertical' geographic terms. They have assumed an expansionist threat would emerge from Australia's north and advance south through the Asian archipelago to threaten invasion of the continent. The experience of fighting the Japanese in the Second World War reinforced this notion. In the emerging regional maritime competition, Lockyer says, it is more helpful to think of a 'horizontal' axis. Australia sits at the base of the 21st century's most valuable maritime gateway—the Indo-Pacific Arc. This geographic framing reconceptualises Australia's strategic geography as part of a buffer region separating the Indian and Pacific Oceans, placing it on the front lines of any potential contest between current and emerging regional hegemons. The geopolitical value of chokepoints through the Indo-Pacific will increase as rising Asian powers seek to challenge the American-led status quo and enlarge their naval spheres of influence.[11]

In 1942, American political scientist Nicholas Spykman explained Australia's intimate relationship with maritime Asia. He argued that the 'middle sea', the 'Asiatic Mediterranean', 'lay between Asia and Australia, and between the Indian and Pacific Oceans, and was rich in resources, trade, and labour supply'. This 'Mediterranean buffer zone' was the scene of great competition between the greatest naval power of Asia, Japan, and the Western nations of Europe and America, who were forced to operate far from their sources of military strength. He compared the geopolitical value of the Malacca Straits to the Panama Canal, noting they were both critical strategic and commercial passageways and chokepoints for their respective regions.[12]

Spykman argued that Australia did not exist in terms of its own strength, but as a part of the British Empire, enjoying considerable protection due to its geographic location. Australia's primary security relationship with the United States has since supplanted that with Britain, but it remains an isolated Western outpost at the base of Spykman's buffer zone, flanked by its vast two-ocean maritime domain.[13] Spykman predicted China's displacement of Japan as the Asian hegemon and called for a postwar alliance to balance against its rise: 'A modern, vitalized, and militarized China', he said, 'is going to be a threat not only to Japan, but also to the position of the Western Powers in the Asiatic Mediterranean'. He correctly projected that China would control a 'large section of the littoral of the middle sea', and that its economic penetration into maritime Asia would take a political form, with the military instrument at its centre.[14] At the heart of this struggle lay energy resources, fisheries, economic and diplomatic influence, control of sea lanes, and the regional balance of power—issues that continue to deeply affect Australia's strategic outlook.

The rise of China, coupled with a more general shift in wealth and power to Asia, has been profound, with historian Niall Ferguson claiming it represented 'the end of 500 years of western ascendancy'.[15] This shift in economic weight has altered the strategic calculus of 'the lucky country' and its largest ally, the United States. Beijing has leveraged its economic growth to embark on an ambitious military modernisation program, acquiring advanced long-range weaponry and expanding its bluewater fleet. Stephan Frühling predicts that Australia will no longer enjoy its geographic isolation and instead will 'increasingly join the ranks of those countries around the world for which the possibility of direct attack on their population or territory is part of an uncomfortable geostrategic reality'.[16]

Economic growth in Asia has swelled defence budgets. Navies have claimed a growing share of national expenditure to acquire new vessels and capabilities. A high proportion of the money spent on naval development in the Indo-Pacific is focused on capabilities for high-intensity combat, such as ballistic missile defence, nuclear deterrence systems, sophisticated submarines and anti-submarine platforms, anti-ship and land-attack cruise missiles, and electromagnetic and cyber capabilities. Indo-Pacific navies are acquiring ever more sophisticated weapons and systems seemingly intended for use against other navies and military targets on land, rather

than against more commonplace archipelagic security threats such as piracy, drug smuggling or human trafficking.[17] Asia is now home to five of the world's top seven most powerful navies.[18]

'Maritime Consciousness' and National Strategy

Despite the clear maritime emphasis of the 2023 DSR and the shifting global power structures, there remains considerable disagreement over appropriate strategy and joint force design. This debate reflects the diverging requirements of addressing Australia's geopolitical vulnerability and performing Australia's duty as a middle power contributing to the preservation of a rules-based global order. Australia's historical identity and strategic traditions also hinder its response to 21st century geopolitical conditions. As Michael Evans has oft observed, a curious paradox of Australian national culture is the absence of a significant maritime tradition. As an island-continent dependent on sea communications, trade, and alliances, Australia should be the 'archetype of a liberal maritime nation'.[19]

Despite Australia's oceanic trade dependence and geographic relationship with littoral Asia, a maritime character has not found its way into the national consciousness. The maritime historian Frank Broeze lamented that Australians are a 'coastal people with a continental outlook'—an island-nation with an inward focus.[20] Evans observed that continental awareness defines Australian literature and art, which often portray 'sunlit pastoral landscapes … [and the] levelling romantic egalitarianism of the bush … paintings of Ned Kelly capture the interior world of the bushranger, not the seafarer'.[21]

The dearth of maritime character in the national psyche has arguably coloured Australia's strategic culture. Two subcultures have thus shaped Australia's 'way of war': first, a continentalist view of naval strategy and homeland defence; and second, dependence on great power allies, who have guaranteed Australia's maritime security in Asia in exchange for expeditionary participation in offshore coalition operations. On the first subculture, Evans argues that when Australia has considered the strategic use of the sea, it has tended towards a doctrine of 'naval' rather than 'maritime' power—a critical distinction. What has often passed as maritime doctrine in Australia has in fact been a 'continentalist's idea of maritime strategy', a conceptually narrow view of national security where the sea is

viewed as a 'defensive moat' rather than manoeuvre space.[22] This strategic approach tends to see an 'air-sea gap' to Australia's north, an unfortunate term which obfuscates the reality of the complex maritime environment of the archipelagic approaches. These approaches are home to a large number of islands that necessarily require the operation of joint military forces in the maritime tradition of theorists such as Corbett.[23]

Second, Australia's expeditionary approach to strategy, which necessarily seeks maritime security through the alliance of a great naval power, has meant there has been both minimal requirement and limited opportunity to develop a sovereign maritime tradition. Australian discourse on 'expeditionary operations' is often complicated by terminology, with the phrase used to describe the deployment of niche, single-service forces to distant contingencies, most recently to Central Asia and the Middle East, as part of coalitions with major alliance partners. This is not expeditionary *operations* in the maritime or joint sense, but it rather describes an expeditionary *strategy*.[24] This strategy has a long tradition that has seen Australian forces deploy far abroad to Europe and the Middle East in both World Wars in support of the British Empire, and to the Persian Gulf, Afghanistan and Iraq in support of its larger American ally.

With the exception of the 'Forward Defence' strategy of the 1950s and 1960s, the seemingly opposed 'continentalist' and 'expeditionary' distinction has recently obscured the ongoing requirement for the Australian Defence Force (ADF) to operate in the space between the Australian continent itself and other distant offshore theatres—that is, in the South-East Asian and South-West Pacific littorals.[25] In addition, it has hitherto slowed the development of joint expeditionary operations and amphibious capabilities in the maritime domain, despite their historical importance in New Britain and Gallipoli in the First World War, in the South-West Pacific in the Second World War, and more recently in interventions in Timor-Leste and the Solomon Islands.[26]

Even though ANZAC sacrifice on the beaches of Gallipoli, the largest amphibious operation of the First World War, looms large in Australian national identity, neither the 1915 Dardanelles campaign nor a more general maritime consciousness has ever come to define strategic thought.[27] Gallipoli's legacy is instead a harbinger of the nation's continued commitment to expeditionary strategy whereby Australian land forces

often supplement a larger ally in distant campaigns. Even the extensive
division- and corps-level amphibious operations performed in New Guinea
and Borneo between 1943 and 1945 have not found their way into what
Evans calls the national 'strategic psyche'. Rather, they are popularly
overshadowed by the Army's 'continental ethos' born from the exploits of
the 1st Australian Imperial Force on the Western Front in the First World
War, and the jungle fighting along the Kokoda Trail in 1942.[28] Even popular
memory of the Gallipoli campaign invokes images of trench warfare and
months of grinding attrition, rather than the operation's intended strategic
dislocation through maritime manoeuvre. In 1994, then Australian Chief
of General Staff Lieutenant General John Grey lamented the 'disconnect'
between the Army's amphibious experience and its tradition.[29]

As Russell Parkin points out, every time Australia has faced a genuine
regional crisis, it has repeatedly deployed its military in an ad hoc reaction
rather than as part of a coherent strategic policy. These responses have
always required the projection of forces ashore, a task for which they are
often ill prepared. Sea power, he says, can project, protect, and sustain
them, but only land forces can take and hold territory.[30]

Adam Lockyer conducted a thorough and nuanced analysis of a variety of
Australian defence strategies using the lens of Richard Rumelt's strategy
evaluation model and by conceptualising Indo-Pacific power competition
as a prisoner's dilemma.[31] His work is a sophisticated and convincing study
in deterrence and it led him to conclude that a 'Corbettian' approach of
maritime denial focused on the immediate region is a sound Australian
defence strategy.[32] His conception of Corbettian strategy, however, is
inspired by macro concepts of sea denial, blockade, and disruption of trade
routes, and is specifically applied to threatening a great power's 'Malacca
dilemma'.[33] While Lockyer is clearly familiar with Corbett's theory, his
proposed strategy does not explore the details of the Englishman's work. It
is instead a logical synthesis of general maritime denial ideas. By extending
his concept and engaging directly with the writings of Corbett, the following
review seeks to reveal in greater depth what the early-20th century English
historian and theorist might offer 21st century Australian defence planners.

Part 2—Sir Julian Stafford Corbett and Maritime Strategy

> *In the splendid words of Sir Edward Grey:*
> *'The British Army should be a projectile*
> *to be fired by the British Navy.'[34]*

<div align="right">

Admiral Sir John Fisher GCB, 1919
</div>

The Relevance of Sir Julian Corbett

Sir Julian Corbett was an early 20th century naval theorist. Born in 1854, he studied at Cambridge University and enjoyed a career in law before retiring from it in 1888 and assuming a second career as a writer and historian. He introduced historical scholarship and legal expertise into the education of the Royal Navy, influenced British national policy and war planning, and produced a series of naval histories and strategic analyses that have come to serve as foundational texts in the maritime canon.[35] His work appears to have undergone a recent renaissance. His theories are increasingly debated within the US Navy, which is grappling with naval strategy in an age of great power competition.[36] It is less immediately apparent how his theories might inform the strategies of smaller states with modest navies and an absence of any maritime tradition.

For Australian defence planners, Corbett is worth studying for several reasons. First, Australia's geostrategic realities are maritime in nature, even if its tradition is not. Both the 2020 DSU and 2023 DSR are emphatic on this point, and the maritime domain features as a common theme throughout the various 'schools' of Australian strategic thought. Australia has long taken for granted its ability to deploy expeditionary land power because its allies have provided the sea control necessary to do so. In the deteriorating regional strategic environment, those circumstances are less assured. The absence of any meaningful maritime tradition risks blinding strategy-makers to what Corbett called the 'striking and comprehensive new outlook which is almost always to be obtained from the sea'.[37] Corbett, who wrote with a deep sense of history and with the perspective of an island maritime power, can offer much to another island nation seeking to redefine its identity, strategy and value in the Asian century.

Second, the 21st century Indo-Pacific region is characterised by emerging disruptive technologies, contested and crowded seas, interconnected security guarantees, complex diplomacy, political sensitivities, and large states with

hegemonic ambitions. Corbett thought deeply and wrote at length about these issues from the perspective of British maritime power. In the last decades of the 19th century, rapid progress in military technology and tectonic shifts in the global political landscape forced nations to reconsider strategy and how best to educate their officer corps in preparation for future wars. Following the German wars of unification, and in the relatively long period after any major conflict in Europe, it proved difficult to develop tactical and operational concepts, not least strategic doctrine. The solid theoretical base developed by Corbett, tested in his interactions with senior naval officers, provided a coherent framework to overcome the lack of tangible experience in military-strategic affairs and the employment of new technologies.[38]

Third, Corbett was a rationalist who focused his study on inter-state conflict. He had little to say on the modern naval conduct of peacetime diplomacy or humanitarian assistance missions. This omission may appear a limitation, but it is precisely why his theory is so insightful for the great power competition and inter-state brinkmanship that will define the foreseeable geostrategic future. The preponderance of global wealth and power is now in Asia—it lay in Europe in Corbett's lifetime—and the region is home to a substantial maritime environment where national strength is expressed in growing navies.

Fourth, Corbett was, in former naval officer James Holmes's words, a 'prophet of jointness' before the neologism was invented.[39] Indeed, if he had written Some Principles of Maritime Strategy today, he would undoubtedly have integrated air power into his maritime doctrine. Corbett understood the limits of the naval instrument alone, observing that the fleet's victory at Trafalgar mattered less to the outcome of the Napoleonic Wars, and more for allowing the Duke of Wellington's successful land campaign on the Iberian Peninsula.[40] Because of his joint framework and the value he placed on multiple instruments of power in national strategy, practitioners and planners from all services and branches of government will benefit from revisiting his theoretical work and historical case studies.[41] While inter-service rivalry endures in a starkly deteriorating strategic environment, it is worth reminding policymakers of what a relatively small maritime power achieved in a period of intense great power rivalry and war.

Fifth, following a lengthy period of counterinsurgency operations in Iraq and Afghanistan, it is worth returning to first principles for a grounding in theory

to guide praxis in strategy, and to provide clarity to a complex discussion in which there is little agreement on ways and means. While Corbett wrote about recent conflicts such as the Spanish-American War (1898) and the Russo-Japanese War (1904–05), there were few other contemporary examples for him to consider. Both models at his disposal were regional conflicts fought for limited political aims, and neither involved Britain herself.[42] With limited contemporary case studies available, Corbett was concerned that readers would become 'entangled in erroneous thought' and misapply lessons that were outliers derived from 'special conditions' and not common to all wars. Corbett considered the deep engagement of history necessary in the development of a meaningful theory of war. For the Australian Army, for example, an institution that was 'profoundly changed' by its two decades in Afghanistan, the long arc of history viewed through Corbett's lens will likely prove instructive.[43]

Engaging directly with Corbett's work reveals invaluable insights for contemporary strategists. Its enduring significance rewards those who can place his strategic framework in context. The following review is not exhaustive, but rather it is in the spirit of Corbett himself, who adopted the less ambitious title of 'Some', and not 'The', Principles of Maritime Strategy. A review of three of Corbett's core ideas is sufficient to demonstrate his theoretical utility for contemporary Australian strategy. They include his concepts of limited war, joint expeditionary operations (the 'combined approach'), and sea denial ('disputing command of the sea').

Corbett, Clausewitz, and the Theory of Limited War

Corbett's 1911 book Some Principles of Maritime Strategy can be read as an investigation into how Britain, a modestly sized maritime state, was able to overcome the competition from larger continental powers and build a global empire. Corbett argued that maritime powers like Britain should wage war differently to continental powers like Imperial Germany, using limited contingents to secure limited objectives and prevent escalation through the leverage of strategic isolation and sea control. To frame his conception of limited war, Corbett turned to the Prussian theorist Carl von Clausewitz and his celebrated book On War.

Corbett observed that, late in his intellectual career, Clausewitz had distinguished between two kinds of war, where the objective could either be to destroy or completely 'overthrow the enemy', or 'merely to occupy some

of his frontier-districts' for annexation or bargaining.[44] Corbett classified these two types of war as 'unlimited' and 'limited' war, respectively.[45] In Corbett's view, unlimited wars occurred when 'the political object was of so vital an importance to both belligerents that they would tend to fight to the utmost limit of their endurance to secure it' in a manner approaching the Clausewitzian ideal of absolute war. Limited wars, on the other hand, occurred when one or both sides limited their aims, or when the political object was not worth 'unlimited sacrifices of blood and treasure'.[46]

Corbett's rationalism led him to assume that states engaged in limited war would conduct a cost-benefit analysis which would dictate circumstances where one side would rather cede the object than continue to fight beyond its worth. Yet he thought that the circumstances for limited war differed between maritime and continental nations. Corbett believed Clausewitz had in mind war between neighbouring land powers, such as France or Prussia, when he had explained his conception of limited war. In a war between continental states, he asserted, 'the principle of the limited object can rarely if ever assert itself in perfect precision'.[47]

Corbett offered two reasons why wars waged for territory between neighbouring states could not truly be limited, believing geography would encourage escalation to unlimited war. First, such territory was usually an 'organic part' of a belligerent's country, and its importance would demand escalation in order to retain it. A continental state pursuing a limited object would likely encounter an enemy pursuing an unlimited one. Second, lacking a 'strategical obstacle' or geographical barrier, the belligerent pursuing limited aims would be forced to create an artificial one in the defence of his homeland to prevent an 'unlimited counterstroke', using 'his whole force to that end'. Austria failed to do this in the Ulm-Austerlitz campaign, when the Archduke Charles had been sent to seize North Italy from the French Empire. Instead of protecting the limited object, Napoleon marched on Vienna, destroying the Austrian home army and occupying the capital before the Archduke could respond.[48]

Although the tendency for escalation was inherent in continental warfare, Corbett believed Clausewitz had stumbled across the answer to the paradox of British ascent—that is, how 'a small nation with a weak army' had gathered 'the most desirable regions of the earth' at the expense of other great powers. 'It is clear that Clausewitz himself never apprehended the full significance of

his brilliant theory', Corbett claimed: 'he was unaware that he had found an explanation of one of the most inscrutable problems in history—the expansion of England—at least so far as it has been due to successful war'. Clausewitz's continental outlook, thought Corbett, had blinded him to the application of limited war by maritime states.[49]

Corbett compared British maritime strategy to the continental way of war:

> *Our own idea has long been to attack the enemy at the weakest point which would give substantial results, and to assume the defensive where he was strongest. The continental method was to strike where the enemy's military concentration was highest and where a decisive victory would end the war by destroying his armed forces.*

That Britain had never adopted this 'quicker and more drastic' method was because it had never wielded sufficient military force to do so.[50] Corbett termed his modification of Clausewitz's limited war as 'war limited by political object'.[51]

Corbett offered two conditions necessary for limited war to be practical. First, the object must be both limited in area and 'of really limited political importance'. On the continent, such territory was rare, but overseas possessions and colonies were available for capture by maritime powers with the means to do so. Second, the object must be capable of strategic isolation both to prevent the territory itself from being reinforced, and to act as a buffer to protect the homeland from the 'unlimited counterstrike'. This buffer was particularly powerful if it was a vast ocean at the edges of empire, or a moat like the English Channel.[52]

Corbett saw that isolation through naval action revealed the value of 'true limited objects'. He cited the British capture of French Canada and Spanish Havana in the Seven Years War and the American seizure of Cuba in 1898 as examples where naval power secured the home defence and isolated the territorial object. Thus, Corbett came to his conclusion that:

> *limited war is only permanently possible to island Powers or between Powers which are separated by sea, and then only when the Power desiring limited war is able to command the sea to such a degree as to be able not only to isolate the distant object, but also to render impossible the invasion of his home territory.*[53]

Corbett viewed the offensive, being positive in its aim, as 'the more effective form of war' because it led directly to a decision. However, he shared Clausewitz's assessment that the defensive was 'the stronger form of war' because it required less force, conferred the benefits of time and proximity to supply lines, and afforded the opportunity for counterattack on familiar ground. Specifically, Corbett praised Helmuth von Moltke the Elder's interpretation of Clausewitz's defensive maxim: the power of the strategic offensive combined with the tactical defensive. Corbett thought these were the conditions afforded by limited war when correctly employed.[54]

What Corbett called the 'limited form' is based on the advantages of adopting the offensive or defensive at different levels of war and in different phases. By alternating between the two, the limited form raises the enemy's costs of winning while employing relatively smaller forces efficiently. Corbett's three phases afforded the maritime state the advantages of defence while acting offensively to secure the limited object, and the Russo-Japanese War provided him a valuable example to demonstrate his theory.

In the first phase, the maritime state would use speed and surprise to seize an object from an unprepared opponent—in this case, the Japanese capture of Seoul and occupation of Korea in April 1904, supported by the naval Battle of Port Arthur.[55]

In the second phase, switching to a tactical or operational defensive allowed the stabilisation of the captured object and forced the strategic defender to exhaust himself in offensive operations to regain what he had once possessed. The operational defensive was not passive, Corbett emphasised, but an opportunity to seek a decisive counterattack.[56] In 1904, this phase included Japanese victory on land at Liaoyang by threatening the encirclement of the Siberian Army Corps and by securing command of the sea through the naval blockade of Port Arthur and crippling the Vladivostok raiding squadron.[57] By the Battle of Tsushima in May 1905, the territorial object was completely isolated by the sea, and the Japanese position in Korea was 'rendered as impregnable as that of Wellington's [in Portugal]'.[58]

The third phase involves a recommencement of the operational and strategic offensive, which, Corbett explained, was a 'stage of general pressure in which [the maritime power] would seek … to demonstrate that her enemy stood to lose more than he could gain by continuing the war'.[59] In the Russo-Japanese War, this was accomplished by the final advance to

Mukden and invasion of Sakhalin Island, where Japan 'obtained her end far short of having overthrown her enemy'.[60]

The limited form, when applied in a limited war, or a 'war limited by political object', therefore offers a method for smaller maritime states to prevail over larger continental powers. Corbett thought this 'British way of war' afforded unique advantages when fighting for limited objects, but could not account for every contingency. Specifically, political circumstances might dictate that Britain intervene for unlimited ends, or geographic conditions might prohibit the application of the limited form. To solve this dilemma, Corbett sought to apply the limited form to unlimited wars in a method he termed 'war limited by contingent'.[61]

Clausewitz had commenced examining the concept in Book 8 of On War.[62] Corbett argued the Prussian had encountered difficulty incorporating it into his theoretical system but was forced to deal with it because it was so common to the European experience of war. He thought this concept represented the wars of intervention in which Britain thrived, the form of war 'which most successfully demonstrated the potentiality for direct continental interference of a small army in conjunction with a dominant fleet'.[63] Corbett saw that wars limited by contingent provided the British the means to use their powerful navy to deploy expeditionary land forces into vulnerable theatres where disproportionate impact could be achieved in support of their continental allies.

The British called this method 'combined operations'. Corbett noted there were two types of such operations. First, there were those 'designed purely for the conquest of the objects for which [Britain] went to war, which were usually colonial or distant overseas territory'. Second, there were 'operations more or less upon the European seaboard designed not for permanent conquest, but as a method of disturbing [the] enemy's plans and strengthening the hands of [Britain's] allies and [its] own position'. This second type could range from 'insignificant coastal diversions' to those of such unlimited importance that they became 'indistinguishable in form from regular continental warfare'.[64]

Corbett offered the Duke of Wellington's experience on the Iberian Peninsula in the Napoleonic Wars as a persuasive example of unlimited war waged by a limited contingent—in Corbett's parlance, a 'disposal force'. 'Our object was unlimited', he explained: 'It was nothing less than the overthrow of Napoleon'. While victory at Trafalgar had failed to achieve this goal, it

secured the sea control necessary for Wellington's Peninsula campaign, which was 'the most decisive form of offence within [British] means'.[65] With Napoleon preoccupied in Russia, Wellington could land his combined army in Portugal and, applying the offensive-defensive limited form, hold his lines at Torres Vedras and then win a series of victories which forced the retreating French over the Pyrenees in the winter of 1813–1814.

Wellington's invasion of south-western France supported his eastern Coalition allies who, following their victory at Leipzig in October 1813, crossed the Rhine and captured the French capital. The occupation of Paris resulted in Napoleon's abdication, the Treaty of Paris, and the end of the War of the Sixth Coalition. Alexander Mikaberidze explains that Wellington's victories were a distraction for the French Emperor as he campaigned in Germany: '[Napoleon] understood the urgency of delivering a decisive blow to the coalition in Germany so that he could turn his attention to the Pyrenees'. The Allied Trachenberg Plan denied the opportunity to land such a blow. Diplomatically, Wellington's military presence, along with London's vast subsidies, gave Britain considerable bargaining power within the Coalition, despite campaigning in a 'peripheral' theatre.[66]

Corbett viewed the value of the limited form primarily in its contribution to alliances. Whereas Clausewitz thought it 'tidier' if a contingent was 'placed entirely at the ally's disposal' where he would be 'free to use it as he wished', Corbett instead saw that using the British Army as a mere auxiliary had historically been wasteful or accompanied by failure. Corbett argued that the use of a disposal force as an ancillary from the sea provided disproportionate value to coalition strategy. It was in Portugal, the defence of which was a true limited object, and where the British had 'a sea-girt theatre independent of extraneous allies', that the real power of sea control and strategic isolation had brought coalition success.[67]

War limited by contingent allows a maritime state to 'wrest the initiative from the land Powers … by giving the Continental war a new direction'. Sea control enables the use of 'naval and military force against the point where [the enemy] … was weakest, while standing securely on the defensive in the main theatre, where [the continental power's] strength was greatest'.[68] Use of the limited form both weakened the enemy and strengthened the maritime state's position among its allies at the postwar negotiating table. The deployment of expeditionary contingents thus offers a way for a

maritime state to make an outsized and independent contribution without the attendant costs that landlocked allies are forced to pay. This approach had been an integral part of Britain's historical grand strategy in managing the continental balance of power.

The Anglo-American Combined Chiefs of Staff pursued such a peripheral strategy in the Second World War. Allied Force Headquarters (AFHQ) launched a maritime campaign in the Mediterranean in 1942 with Operation TORCH (North Africa), followed by HUSKY (Sicily) and AVALANCHE (Salerno) in 1943. The lengthy decision-making process that led to the Mediterranean campaign was informed, in part, by a desire to relieve pressure from the besieged Soviet Union, the continental ally. Joseph Stalin argued instead for intervention in western France and the opening of the promised 'second front'. Few serious historians would claim that Anglo-American combat power would have been better used as an auxiliary reinforcement to the Red Army in the 'main' theatre in the east.[69]

Corbett's strategic doctrine was ignored in the First World War. The commitment of the British Expeditionary Force (BEF) to France in August 1914 separated it from the fleet it was designed to support and abandoned its doctrinal role in Britain's chief strategic interest: securing and exercising sea control. The initial diminutive contribution of Britain's six divisions added to the 90 divisions fielded by the French and became a guarantee of ongoing British commitment to the continent.[70] The opportunity to employ the limited form and deploy a combined maritime contingent of a 'weight and mobility … beyond its intrinsic power' had been lost. British experience in the First World War is instructive. To contextualise it, it is first necessary to explore Corbett's views of combined operations in greater detail.

The Positive Object: Corbett on Expeditionary Warfare and the Maritime Approach

Corbett was an avowed advocate of the strategic value of joint expeditionary operations, or 'the maritime approach'. His contribution to the concept's development is marked by the prominence of three of his core arguments. First, Corbett's extensive historical study led him to understand the limits to the naval instrument alone. A navy with command of the sea had significant advantages, of course, including the ability to control the lines of communication and prevent an enemy from interfering in the operational theatre. However, Corbett argued that this was not enough to achieve victory,

noting that war with Napoleon continued for nine more years following the French fleet's decisive defeat at Trafalgar.[71] Writing in 1900, Corbett observed that Elizabethan England's naval dominance had failed to secure victory over Spain. 'The navy maintained a high level of efficiency', he wrote:

> *[I]t was almost continually at work under fairly capable officers, and yet the war seemed to draw no nearer to its end … It was an army that was wanting … a force that could reap what the fleet had sown.*[72]

The descent into naval commercial warfare against Spain, Corbett argued, was indecisive and wasteful, and it permitted the Spanish to build a large navy and fortify their ports. In reference to the writings of his near-contemporary Alfred Thayer Mahan, Corbett concluded:

> *We speak glibly of 'sea-power' and forget that its true value lies in its influence on the operations of armies. For a defensive war a navy may suffice alone; but how fruitless, how costly, and how long drawn a war must be, that for lack of an adequate army is condemned to the defensive …'*[73]

It was the disconnect between naval supremacy and military victory that led Corbett to see the value in the maritime approach: multiple instruments of national power in joint pursuit of the state's goals.

This second idea, 'the maritime approach', Corbett argued, exemplified the advantages of a combined effort in national strategy. He explained:

> *We are accustomed, partly for convenience and partly from a lack of scientific habit of thought, to speak of naval strategy and military strategy as though they were distinct branches of knowledge which had no common ground.*

He sought to encourage a discussion among naval officers of 'a larger strategy which regards the fleet and army as one weapon'.[74] Command of the sea was a necessary precondition to successful expeditionary warfare, and Corbett explained that maritime states achieved their greatest success when their 'major strategy' applied a joint approach in which the navy enabled and supported decisive operations on land.

Much of Corbett's strategic theory was out of step with his contemporaries. His argument that navies were best employed as strategic enablers found

little support among navalists who were accustomed to British oceanic dominance and the popularity of Mahan. His maritime doctrine affronted army officers who believed the best way to defeat Germany was through a large land commitment to the European continent.[75] But his deep study of history left Corbett adamant. 'Since men live upon land and not upon the sea', he said:

> great issues between nations at war have always been decided—except in the rarest cases—either by what your army can do against your enemy's territory and national life, or else by the fear of what the fleet makes it possible for your army to do.[76]

Third, Corbett championed the flexibility afforded by amphibious warfare at the operational level. He advocated keeping the expeditionary force in close communication with the fleet. If the army advanced too deep into an enemy's territory, it lost the advantages granted from being 'in touch with the sea', and its operations would come to resemble the continental form of war. Wellington had made this mistake in Iberia, overreaching in the disastrous Siege of Burgos, which one historian described as 'Wellington's only serious mistake on the Peninsula'.[77]

Thomas Edward Lawrence (of Arabia), an occasional dinner guest, once described to Corbett how his campaign in the Hejaz had been supported from the sea by the East Indies and Egyptian Squadron, which supplied him with 'arms, money, fire support, and hot baths'. Like Corbett, Lawrence was an advocate of sea power; fire and air support from the Royal Navy Red Sea Patrol had defeated the Ottoman attack on the Arabian port of Yanbu in December 1916, while amphibious manoeuvre allowed the Sharifian army to outflank the much larger Turkish garrison at Wejh.[78] Lawrence had little taste for the Western Front attrition he called 'murder war', and realised victory in the desert meant obviation of Ottoman strategy, not just destruction of Turkish forces.[79]

The Arab army's mid-1917 seizure of the sleepy port town of Aqaba transformed the character of the Hejaz rebellion, which until then had been contained in the Arabian Peninsula by the Ottoman garrison at Medina. Possession of Aqaba allowed the Royal Navy to transport the Arab striking force directly into Palestine to support General Edmund Allenby's planned campaign.[80] Corbett saw this as 'British' war properly waged, and the antithesis of the continental strategy he, like Lawrence, detested on the Western Front. He called it 'a most interesting case of the value of command

of the sea as a factor in shore operations against an enemy depending entirely on land communications for his maintenance'.[81]

Corbett praised Japan's development of a joint staff for the conduct of its maritime campaign in Korea. He noted that from April 1904, the Japanese war plan became 'essentially amphibious', and the combined forces of the Japanese Navy and Army were so 'intimately … knit together in a single theatre that the work of the one service [was] unintelligible apart from the other'.[82] Amphibious operations provided Japan with 'strategical surprise', due to the 'impossibility of forecasting with any certainty the lines of operation of an enemy attacking overseas'.[83] Similarly, the 1759 British combined force operation to Quebec, under General James Wolfe and Admiral Charles Saunders demonstrated the 'baffling' and 'bewildering' power that was 'the strength of troops afloat'.[84]

By 1914, Corbett's views on maritime strategy were at odds with the British cabinet and the senior officers who came to dictate the war plan. As much as modern Australian strategic culture is arguably the victim of experiential dissonance, British strategy in the First World War represented a dramatic and costly divergence of doctrine, experience and practice. The decision of the War Council to commit the BEF to France represented a distinct break from prewar policy. Britain's grand strategic interest was keeping a prospective hegemon out of the Low Countries, but there was no binding commitment to France, and the army's expeditionary structure was specifically designed to act in tandem with the fleet.[85] Corbett's experience crafting and arguing for the aborted Baltic strategy holds valuable lessons in combined operations and maritime strategy.

Unable to recover the committed expeditionary force, created to conduct joint expeditionary operations in support of national maritime strategy, First Lord of the Admiralty Winston Churchill had no option but to plan purely naval offensives that did not require the use of troops. His First Sea Lord, Admiral John 'Jacky' Fisher, instead wanted to regain control of national strategy, along with the use of the BEF, to wage a maritime war that accorded with his conception of British doctrine, strengths and interests.[86] Consulting Corbett personally, and relying upon his analysis in England in the Seven Years' War, Fisher focused his strategy on the Baltic. The First Sea Lord understood Germany's dependence on oceanic trade, particularly with Sweden, and German difficulty in securing the twin coasts and Jutland Peninsula.[87]

Fisher's intended Baltic strategy eschewed the need for a mass continental army, but it required a credible expeditionary force and an additional Baltic fleet. Fisher's envisaged 'siege fleet' would consist of around six hundred specialist coastal vessels, submarines, and minesweeping sloops, designed to navigate the Danish Narrows and to lodge amphibious forces within narrow seas. The innovative low-draught Courageous-class battlecruisers were the largest vessels of the specialist Baltic maritime force, specifically constructed to traverse the unmined Swedish side of the Sound, where Britain's larger vessels could not go. They combined the firepower to deal with older German battleships, the speed to outrun newer ones, and the endurance to remain forward in the Baltic for prolonged campaigning from Russian ports. The siege fleet would complement the sea control focused Grand Fleet of battleships, cruisers and destroyers, while merchant vessels laid mines in the North Sea.[88] Intending to launch the Baltic campaign in 1916 when his new fleet would be ready, the First Sea Lord's strategy consisted of two phases.

First, Fisher would recover the Belgian coast. Informed by Corbett's analysis, he viewed its loss as a 'strategic disaster'. The first new monitors, obsolescent warships, and a British Army contingent would secure the channel, as well as closing the German naval bases at Ostend and Zeebrugge. The BEF would then be withdrawn from the French line. This strategy would reconnect the military and naval instruments of British maritime power for the Baltic operation. Second, with minefields denying the North Sea, the siege fleet would advance on the Narrows, while a British amphibious force stood ready to secure the Danish islands of Funen and Zealand. In this way, the two main routes of entry into the Baltic (the Great Belt and the Sound) would be kept open.[89]

Fisher's strategy was focused on forcing a German response. He sought to unsettle and confuse the German High Command, anticipating that a threat to the Danish Narrows would provoke a reaction. This reaction, he thought, would likely bring the High Seas Fleet to battle beyond the Baltic where the Grand Fleet could destroy it, or alternatively prompt a German invasion of Jutland, pushing Copenhagen's sympathies towards the Entente. This response would enable the British Army to 'aid' Denmark, securing the islands that held open the Baltic, and threatening Nordic trade with Germany. If Germany did not react as he expected, Fisher's siege fleet would enter the Baltic and use Russian bases to blockade Germany's coast and cut the supply of metals, food and fuel, and threaten further amphibious lodgement.

Thus, more than naval and technical innovation alone, the credibility of Fisher's plan depended on the availability of an expeditionary landing force.[90]

Naval historian Andrew Lambert rejects the common interpretation that the Baltic plan was an 'unrealistic fantasy', or that commitment to the Western Front was 'inevitable', blaming Churchill, among others, for either blocking or misrepresenting Fisher's proposals.[91] Churchill, having supported the commitment of the BEF to France, was thereafter compelled to pursue limited but costly naval offensives. Lambert argues that Churchill's naval advance through the Dardanelles, using obsolete warships and ammunition unsuited to the destruction of forts, was 'testament to his rejection of maritime strategy' and represented an 'anxiety to do something'.[92]

Corbett and Fisher had urged complementing the initial naval attack with a large landing force—the combined strategy they had both long advocated. The Allied fleet, under-resourced as it was, failed in forcing the Dardanelles by March 1915. Subsequent amphibious operations performed no better, arriving both too late and too limited in strength. By April 1915, Churchill had rendered the Baltic strategy all but impossible, reinforcing failure at Gallipoli and stripping key resources, vessels and submarines from the fleet reserved for Fisher's planned campaign. Fisher resigned, unable to influence national strategy, while the Dardanelles fiasco also cost Churchill his appointment at the head of the Admiralty. With the loss of both men, there remained no alternative but continued continental commitment in France. Their departure ensured no maritime strategy would be further entertained, and single-service interests would thereafter dictate national effort in the 'decisive theatre' of the Western Front.[93]

The failure to realise the Baltic strategy was, in Corbett's opinion, the central tragedy of the war. Writing during the war he lamented: 'Now there was to be a complete divorce, and each service was to play a lone hand.'[94] While Corbett believed the central concept of the Dardanelles campaign was consistent with maritime doctrine, he thought it was a poor example of strategic and operational practice, and that the amphibious weapon had been wasted in a secondary theatre.[95] He wrote to Fisher in 1918:

> I wept when I knew our whole Expeditionary Force was going to France, and felt what it would mean, and how Pitt would turn in his grave… when the time came to strike amphibiously for a decision, we had nothing to strike with.[96]

Britain would ultimately emerge victorious over Germany, but it would cost her a million lives and a global empire. As Lambert argues, British war-making had departed from its established grand strategy that prioritised the security of the Low Countries, the balance of power, and the combined employment of the naval and military instruments that best supported Britain's interests and her continental allies.[97] The plight of Corbett and Fisher, the failure in the Dardanelles, and the human cost on the Western Front beg the question of the Baltic plan and maritime strategy. Joint expeditionary operations afford flexibility, surprise and strategic isolation of an opponent or territorial objective, but their ultimate success relies upon adequate resourcing, expertise, sea control, and an operational alignment with strategic ends.

The Negative Object: Sea Denial and Disputing Command of the Sea

In modern nomenclature, 'sea denial' can be described as 'preventing partially or completely the enemy's use of the sea for military or commercial purposes'. Milan Vego of the US Naval War College explains the difference between sea control and sea denial in terms that both Corbett and Clausewitz used: 'Obtaining sea control is a positive object while denying that control is a negative object.'[98] Corbett rejected the simplistic binary distinction that either a navy had command of the sea, or it did not. Instead, he argued that 'the normal condition in war is for the command to be in dispute'. This perspective offered defensive naval strategy as an option for forces confronting stronger opponents. Corbett explained that a 'Power too weak to win command by offensive operations may yet succeed in holding the command in dispute by assuming a general defensive attitude'.[99]

When a navy's relative strength was not sufficient for either securing command through battle or exercising it through blockade, it might be satisfied to hold the command of the sea in dispute. Disputing command of the sea affords options that 'endeavour by active defensive operations to prevent the enemy either securing or exercising control for the objectives he has in view'. In general, Corbett offered two such methods for the weaker navy. First, operating a 'fleet in being', which buys time to address a temporary imbalance in naval force; and second, 'minor counterattacks', a protracted asymmetric campaign of attrition from a position of permanent inferiority.[100]

A 'fleet in being' is the strategy of a fleet that must accept temporary inferiority in certain locations.[101] Corbett thought it an effective stratagem that employed an 'active defence' to postpone a decision until the fleet was in a position of advantage. He explained:

> [W]here the enemy regards the general command of the sea as necessary to his offensive purposes, you may be able to prevent his gaining such command by using your fleet defensively, refusing what Nelson called a regular battle, and seizing every opportunity for a counterstroke.[102]

The use of the phrase 'fleet in being' can be attributed to a study conducted by Admiral Philip Colomb of an event in 1690. Following the Glorious Revolution, contending with a French threat and the deposed King James II in Ireland, the Royal Navy was dispersed in multiple squadrons from the Irish Sea to the Mediterranean, each of which alone was inferior to the large French fleet under Admiral de Tourville. The largest force in the Channel was the Anglo-Dutch fleet commanded by Admiral Lord Torrington. In King William's absence, the English Government was not persuaded by Torrington's argument that to engage in battle would risk his smaller fleet and open England up to invasion. In any event, following his orders, Torrington knew that to avoid battle was untenable, and he was defeated at the Battle of Beachy Head on 30 June 1690. At his subsequent trial, Torrington remarked to Parliament in his defence:

> As it was most men were of the opinion the French would invade; but I was always of another opinion; for I always said that while we had a fleet in being they would not dare to make an attempt.[103]

Corbett saw the fleet in being as an effective strategy of deterrence. He praised Torrington's judgement in holding command in dispute: 'A temporary defensive was the only way to win the command, while to hazard a decision in inferior strength was the best way to lose it.'[104] To emphasise the value of a naval defensive, he cited French strategy during the Seven Years War, with its relative naval weakness, as an example:

> It was their wise policy to avoid a decision at sea, and to keep the command in dispute as long as possible, while they concentrated their offensive powers upon the army ashore.

He added:

> *[T]he essence of the defensive is to pass to the offensive, and we
> cannot look back upon the struggle which the French attitude so skilfully
> prolonged without a shudder to see how nearly they were rewarded.*[105]

For Corbett, consistent with his broader theory of war, effective defensive
naval strategy required more than simply passive defence. 'The essence
of defence', he argued, 'is mobility and an untiring aggressive spirit rather
than rest and resistance'. It meant 'keeping the fleet actively in being—not
merely in existence, but in active and vigorous life'.[106] A fleet in being was
not useful if it was protected within the safety of a port or anchorage; it
ceded command of the sea, as the battles of Aboukir Bay and Louisbourg
had demonstrated. Reflecting on the French loss of Louisbourg, the 'key of
Canada', Corbett observed:

> *No rule of strategy could appear more rigid than that a squadron
> must not be tied to the defence of a maritime fortress … Few naval
> actions had ever hit [the French marine] so hard, and it was directly
> due to [Augustin de Boschenry de] Drucourt's refusal to allow the fleet
> to go to sea.*[107]

Corbett thought the Torrington affair and the overarching French approach
in the Seven Years War demonstrated the potential of defensive naval
strategy, especially where political or military circumstances afforded the
luxury of time.[108] Such strategy has endured beyond the age of sail and past
Corbett's lifetime. In the First World War, for example, the German High Seas
Fleet was not large enough to engage the Grand Fleet in decisive battle,
but it was too large for the British to contend with in reckless offensive
operations. The German naval strategy, a strategic defensive while acting
tactically, prevented the Royal Navy from taking decisive action against the
U-boat threat at its source on the Belgian coast for the duration of the war.
The German fleet in being forced sufficient dispersal of the Royal Navy to
deny it the full rewards of its oceanic superiority.[109]

Following the attack on Pearl Harbor in 1941, the strategic concept adopted
in the Pacific theatre by the Chief of Naval Operations, Admiral Ernest King,
was essentially an active fleet in being. Awaiting the assumption of a strategic
offensive in the Pacific theatre while the European war was prioritised, the

United States Navy's fast carrier fleet forces and destroyers conducted strikes and bombardments in the central and south Pacific, while submarines attacked Japanese merchant shipping and troop transports ferrying reinforcements and supplies to newly occupied positions.[110] More recently, naval historian Geoffrey Till has argued that the employment of precision-guided weaponry, launched from both land and sea as part of an anti-access area denial (A2AD) strategy, acts as a missile-age fleet in being.[111]

Corbett's second method of disputing command, the 'minor counterattack', is employed when confronted with a position of permanent inferiority. He explained:

> *Where a Power was so inferior in naval force that it could scarcely count even on disputing command by fleet operations, there remained a hope of reducing the relative inferiority by putting part of the enemy's force out of action.*

In 1911, he noted this had rarely occurred in history and, when it had, he could find no case 'where the ultimate question of command was seriously affected by a minor counterattack'.[112] However, Corbett studied the age of sail, where the speed, protection, and armament of smaller vessels proved no match for large ships of the line.[113]

The rate of technological change in the years leading up to the First World War afforded 'new possibilities for minor counterattacks' through employing the 'flotilla'.[114] Corbett viewed the flotilla, along with battleships and cruisers, as one of the primary types of fighting ships which constituted a fleet.[115] The flotilla consisted of many smaller vessels, used for controlling lines of communication and for 'coastwise and inshore work' within the littorals.[116] By the early 20th century, small surface warships were fitted with torpedoes, which gave the flotilla 'battle power', a 'feature of warfare that was entirely new'. In addition to the emergence of submarines, numerous inexpensive warships armed with torpedoes were now able to sink capital ships. Strategically, a smaller fleet became capable of employing asymmetric methods to inflict losses on a stronger opponent. As Corbett observed, 'the old principles of [battlefleet] design were torn to shreds'.[117]

In his official chronicle of the First World War, Corbett compared Germany's strategic challenge of disputing Britain's command of the sea to the

predicament faced by France in the Seven Years War. Mines, torpedoes and submarines had given Germany a historically anomalous opportunity as an inferior navy: 'By the enormously increased power of minor attack Germany could at least hope to reduce our margin of superiority.' Corbett said of Germany's 'guerrilla warfare' at sea: 'Indeed, we were faced with a new problem in naval warfare for which our old experience would not serve.' Germany's strategy of 'minor offensives', explained Corbett, had been difficult to counter and had shaken Britain's 'national faith' in the 'old power of commanding the sea'.[118]

The late Admiral Stansfield Turner shared Corbett's view that sea denial was essentially 'guerrilla warfare at sea'. He argued that numerical advantage mattered less against an opponent pursuing such a strategy, because technology had increased both 'vulnerability and potency'. He explained:

> *The denying naval commander strikes at a time and place of his choosing to achieve maximum surprise; he does not have to stand his ground toe to toe with the enemy, but instead hits and runs. In this way a markedly inferior force can successfully thwart a superior force.[119]*

Thus, for some navies, confronting permanent inferiority with an unconventional or asymmetric war at sea presents an alternative to sea control.

Whether by design or obligation, for some states the ability to prevent an adversary from using the sea to harm their interests is all that is necessary.[120] Former Israeli Navy officer Moshe Tzalel argues his nation is one such example. 'Israel had never needed to command the sea in order to prevail in wartime', he says, 'and an attempt to secure such a position at this day and age is a luxury she cannot afford'.[121] Other smaller, defensively minded navies have benefited from the development of smart mines, anti-ship missiles, unmanned aerial vehicles (UAV), and maritime special operations forces. By the 1970s, the exploits of the Bangladeshi Mukti Bahini frogmen and their riverine guerrilla war in the Sunderban delta demonstrated the growing capacity to inflict asymmetrical harm on larger navies.[122]

Figure 1. HIMARS from the United States Army 17th Field Artillery Brigade at Shoalwater Bay Training Area during Exercise Talisman Sabre 2023. (Source: Australian Defence Force image gallery)

Iranian strategy in the Strait of Hormuz is equally instructive. The Iranian Navy plans for 'swarming attacks', in which small, fast boats hidden among littoral inlets and anchorages launch concentrated anti-ship missile strikes from dispersed locations with the aim of overwhelming a missile defence system. Swarming speedboats could be accompanied by unmanned aerial, surface or sub-surface vehicles, a high-tech unconventional approach against large surface combatants.[123] The rise in sea denial capabilities, which Corbett foreshadowed, is especially evident in the congested Indo-Pacific region, making outright sea control increasingly difficult even for powerful navies.[124] For Australia, a middle power with a modest navy and a vast two-ocean operational theatre, sea denial capabilities represent both a threat and an opportunity. Achieving sea denial requires more than nuclear submarines. Only a focused maritime strategy, joint in nature, as part of a consistent national defence policy, is capable of meeting such challenges.

Part 3—Insights

*All forms [of war] alike demand the use of battles … however great
the controlling influence of the political object, it must never obscure
the fact that it is by fighting we have to gain our end.*[125]

Sir Julian Corbett, 1911

Developed through writing strategic analyses of wars from the age of sail
and producing maritime doctrine for the First World War, Corbett's theories
may appear anachronistic at first glance, particularly when they are afforded
only a cursory review or reduced to caricature. But a holistic view of his
strategic doctrine reveals several applicable insights for contemporary
Australian defence planners.

Australian Maritime Strategy and Doctrine

For a nation to have a maritime 'consciousness', it should also have a
maritime strategy. It can be argued that Australia has multiple maritime
strategies, some that appear in various forms in Defence White Papers or
behind higher security classification. Yet there is an apparent absence of a
systemic view of the fusion of land and sea power in Australian strategy.[126]
Corbett's intellectual career was defined by his development and advocacy
of a national maritime strategic doctrine. He observed that it was Britain's
application of a coherent maritime approach over several centuries, backed by
a dominant fleet, that had secured it the riches of empire and the protection
of its island home. For Australian military professionals, there are at least two
ways to contribute to the development of a cohesive maritime strategy.

First, Australian Maritime Doctrine would benefit from joint revision. The ADF
proudly espouses a joint approach, particularly at the tactical level owing to
its modest size and considerable experience operating as part of coalition
task forces. However, there is a paucity of joint maritime doctrine at the
operational and strategic levels. The Royal Australian Navy (RAN) exclusively
owns and authors Australian Maritime Doctrine, employing the document
as its capstone doctrinal authority. It describes the nature of the 'RAN's
contribution to Australia's national security and how the Navy goes about
its business'. While the document covers joint maritime concepts, including
amphibious operations, its primary function is to act as 'an authoritative
guide to current naval thinking'.[127] The substitution of 'naval' for 'maritime'
terminology in its title obscures the single-service nature and methodological

approach of the doctrine. While it is an excellent document, penned as it was by the late naval historian and Rear Admiral James Goldrick, Corbett would probably have described it as a 'minor' strategic doctrine and not a true 'major' framework which fuses multiple instruments of national power.[128]

In its own words, Australian Maritime Doctrine fits alongside such publications as Land Warfare Doctrine (LWD) 1: The Fundamentals of Land Power and Australian Air Publication (AAP) 1000-D: The Air Power Manual. This is not to suggest that the document is flawed for its stated purpose, only that it is conspicuously lacking a higher doctrinal authority—the multi-service coalescence of capstone joint maritime doctrine. Australian joint doctrine exists for amphibious operations, but it is limited to tactical concepts rather than contributing any broader maritime doctrine to national strategy.[129] In addition, Australian Maritime Doctrine's most recent review occurred over a decade ago; it antedates the acquisition and integration of the Canberra-class LHDs, the maturation of the joint Amphibious Task Group Headquarters, and the development of amphibious operating concepts and force structures. At the time of writing, the RAN's Plan MERCATOR: Maritime Domain Strategy 2040 appears to be a step in the 'joint direction'.[130] The Australian Army should contribute to iterations of this strategy as an essential—even central—stakeholder.

Second, operating concepts should be nested under a shared—that is, joint—understanding of Australian maritime strategy. Technological advances may radically alter warfare at the tactical and operational levels, but strategy is more enduring.[131] Development in sensors, electronic warfare capabilities and weapon systems, particularly missiles, have shifted the risk calculus for modern navies, but maritime strategy retains its critical relevance. Sea lines of communication, trade and commerce, and securing sea control remain necessary for freedom of action and regional security. But a sparse amphibious tradition has hitherto meant a limited understanding of how land forces contribute to a wider maritime strategy.

Joint amphibious operations and their tactical and operational application are increasingly well understood in the ADF. Corbett, meanwhile, offers a holistic and historical view of their strategic utility, emphasising the primacy of the political object. The ADF's current amphibious capability, expressed through the acquisition of the LHDs and in its rapidly developing tactical doctrine, requires a clearly articulated expression of its strategic purpose.

This should consider operations beyond humanitarian and disaster relief missions, critical as they are, and contemplate Australian contributions to general conflict. As Peter Dean says, 'warfighting should not be overlooked … Australia's maritime strategy should not be one of peacekeeping'.[132]

Had the ADF not joined the wars in Afghanistan and Iraq in support of American grand strategy in 2002 and 2003, the nascent concepts of joint expeditionary operations might have developed as intended by Army leaders following the 1999 Timor-Leste intervention. Instead, the attention of strategists, commentators and practitioners turned to counterinsurgency and security operations, curtailing any further expeditionary concept development despite further regional crises in Solomon Islands in 2003 and Timor-Leste and Fiji in 2006.[133] More recently, increased strategic competition in the region has important implications for strategic policy— it increases the difficulty for any Australian Government to participate in expeditionary deployments outside the Indo-Pacific region. In adopting a maritime strategy, defence planners should consider the following.

Figure 2. Joint Pre-Landing Force prepares to evacuate the beach after handing over control to the Amphibious Beach Team during Exercise Sea Raider 2023. (Source: Defence image gallery)

First, in addition to its primary mission of preparing for joint land combat, the Australian Army needs to consider how it will support sea control and fleet manoeuvre. These operations occur in the 'near seas', littorals and remote islands. This operating environment calls for further concept development,

capability acquisition and standard operating procedures. Expeditionary basing, counter-access, counter-landing, and littoral operating concept development should be ostensibly sponsored by the Army but co-authored from a joint panel of the ADF's best thinkers and informed by the world's best contemporary practice. The United States Marines Corps Littoral Operations in a Contested Environment (LOCE) concept and the Tentative Manual for Expeditionary Advanced Base Operations (EABO) are useful frameworks to explore while commencing the Army's own journey.[134] These operating concepts should be nested within authoritative joint maritime doctrine, which in turn supports a broader articulation of Australian national defence strategy.[135]

Second, the ADF's international engagement and exercise program should be considered a principal instrument of maritime—that is, 'combined'—strategy. If the ADF is to embrace a 'third way' in a truly joint strategy that regards, in Corbett's words, 'the fleet and the army as one weapon', then historically naval exercises like Indo-Pacific Endeavour would benefit from routinely embarked landing force contingents.[136] These prospective routinised regional deployments might not have the warfighting capacity of a Marine Expeditionary Unit, but they provide the opportunity for normalisation of Australian land force presence in the region, rapid reaction to natural disasters and humanitarian efforts in peacetime, and the pre-positioning of 'disposal forces' in the event of security crises and war-like contingencies. Furthermore, they inculcate a culture of joint integration beyond the annual amphibious force generation exercises and afford an opportunity to train and certify additional landing forces; in Lockyer's words, to 'pump saltwater into soldiers' veins'.[137]

Australian security professionals and military practitioners would benefit from an ongoing discussion on their way of war for a maritime age that transcends any distinction, however contrived, between continental defence and expeditionary strategy. Corbett's theoretical framework reveals that the 'continentalists' and the 'expeditionaries' are mutually complementary when it comes to maritime strategy. Limited war demands strategic isolation, not only of the intended territorial object but also by securing the homeland from any 'unlimited counterstrike'. 'Forward presence' is inseparable from home defence. Sea denial capabilities are as important as those for force projection, and counter-landing operations require credible land forces. In addition, an effective maritime strategy demands astute leverage of, and

support to, an alliance framework. This involves 'paying a bill' in military contributions. Corbett might have advised that Australia can expand its options for the way this bill is paid.

Warfare and the Limited Form

Corbett's employment of disposal forces in wars 'limited by contingent' affords ways for smaller maritime states to make independent and outsized contributions to coalition strategy. These contributions, properly employed, may avoid the excessive costs of otherwise surplus auxiliary addition to campaigns under foreign command. There is a particular significance and urgency to reviewing this idea and considering with strategic clarity how best to manage great power competition, and, if necessary, meaningfully contribute to alliance war-making.

In late 2021, in response to heightened tensions between Washington and Beijing over Taiwanese sovereignty, the Australian Minister for Defence, Peter Dutton, promised military commitment in the event of war. US Secretary of State Anthony Blinken said the United States and its allies would act if China were to use force to alter the status quo over Taiwan. 'It would be inconceivable', Dutton said, 'that we wouldn't support the U.S. in an action if the U.S. chose to take that action'.[138]

Military contribution in this scenario could take several forms. In his analysis and review of potential naval conflict in East Asia, Benjamin Schreer explored Australia's options for contributing to a US-led naval counter-anti-access strategy. One option includes forward deploying Australia's limited air and naval assets to participate in coalition operations in East Asia and the Indian Ocean.[139] The RAN routinely participates in freedom of navigation operations in the South China Sea, and the original 'AirSea Battle' concept envisaged a critical role for Australia.[140] As a deterrent strategy, high-tech, missile-rich, counter-anti-access concepts act as a 'big stick' but have thus far proven ineffective at discouraging small-scale Chinese maritime aggrandisement— what Thomas Schelling called 'salami slicing' or 'tactics of erosion'.[141]

Should deterrence fail, however, contribution to high-intensity naval warfare is a different matter for Australia's modest military capabilities. Australia has the option of leveraging bases and airfields operated by the US and other allies to contribute to such a concept. For example, a rotation of a squadron of F-35 Joint Strike Fighters (JSF) or submarines through Guam and Japan

would be achievable within the current force structure and budget.[142] However, while an auxiliary contribution would make for good politics, Corbett might have argued that it is not necessarily good strategy. Exposing key capabilities to high levels of operational risk and attrition, particularly in the early stages of a protracted military conflict, would need to be weighed against Australia's long-term strategic interests. Three critical factors require consideration.

First, an enduring commitment of aircraft and navy vessels would strain Australia's limited military forces and risk a large portion of the nation's relative combat power at a time when greater regional instability would likely accompany a Sino-American confrontation. Separating key capabilities of the military instrument leaves few options for combined strategy in Australia's immediate region. Moreover, new surface warfare vessels like the Hobart-class air warfare destroyers were acquired partly to protect the new amphibious assault ships, which are not intended for high-intensity operations anywhere near China or other anti-access states.[143]

Second, Lockyer argues that throwing Australia's modest strategic weight into East Asia would do little to tilt the military balance in Washington's favour, or to shape Beijing's behaviour and military calculations. Any contribution would be largely symbolic under the ADF's current force structure and size.[144]

Third, as a minor player in great-power rivalry, Australia would have little role in the direction or application of strategy. In the Second World War, for example, the Australian Army had deployed five divisions during the 1943 New Guinea offensives and contributed the preponderance of Allied land forces in the South-West Pacific Area (SWPA) until 1944. Yet Australia was excluded from the discussion about Pacific strategy at the Sextant conference in Cairo, November 1943, just as its troops commenced opening the Markham-Ramu Valleys and securing the Huon Peninsula.[145] The Australian Government also faced difficulty in dealing with the arrangement whereby the Commander-in-Chief SWPA, General Douglas MacArthur, determined the employment of its forces. According to David Horner, in 1945, MacArthur 'sidelined Australia's troops into campaigns that could not affect the outcome of the war'.[146]

By 1944, the Australian War Cabinet had departed widely from MacArthur's plans to drastically reduce Australia's offensive role in the Pacific. General

Thomas Blamey warned the War Cabinet that any reduction would threaten Australia's voice and weight in the post-war peace settlement. Though there were designs for Australian participation in the Philippines campaign and in the planned invasion of Japan, neither eventuated for various reasons.[147] Instead, in the final days of the war, the 7th and 9th Australian Divisions conducted amphibious operations in Borneo—costly, if operationally successful, actions now widely condemned as strategically unnecessary.[148]

According to Horner, the Borneo landings differed from the other late-war Australian campaigns in the South-West Pacific in at least one aspect. The Borneo 'Oboe' operations were proposed by MacArthur and conducted for strategic purposes of 'doubtful merit'. By contrast, the Aitape-Wewak and Bougainville operations were not supported by MacArthur but were conducted for Australian strategic and political purposes. The controversy over the Borneo operation was, in Horner's words, 'a telling commentary on the shortcomings of Australian strategic decision-making'.[149]

Australia's experience in the Pacific theatre from 1944 supports Corbett's notion that contingents allocated as auxiliaries to larger allies do not necessarily materially alter the broader outcome of a war but do tend to limit that contributor's strategic freedom of action.[150] Corbett's conduct of war limited by contingent, however, offers alternatives for credible support to Washington in escalating great power competition, should the Australian Government require it. Apart from providing basing, logistics support, maritime and space surveillance, and strategic depth beyond missile range to US war efforts, Australian contributions could take more meaningful military forms in support of a prospective alliance strategy.

First, an Australian contribution could constitute peripheral operations by sea and air.[151] As we have seen, 'peripheral' in this sense refers to geography or proximity to a 'main' theatre; the term does not minimise the importance of such operations to an alliance's strategic object. These operations might include intercepting an adversary's merchant shipping through a distant blockade: air interdiction from aircraft operating from Australian bases, including the Cocos Islands, and striking at task forces returning from or entering the Indian Ocean with air, land, sea and littoral capabilities.

Such operations have three key benefits. One, they dispute command of the sea—the Indo-Pacific maritime 'gateway'—and threaten the 'Malacca Dilemma'. A joint, ideally multilateral, blockade causes economic and social

harm to an adversary due to the significant amount of energy and hydrocarbons that transit through the region. Two, they afford an escalation continuum of options short of and including general war by delaying initial direct hostilities in a 'main' theatre further offshore.[152] Three, this option is closer to the Australian mainland, meaning the ADF can leverage its own sovereign strategic effects and capabilities, including over-the-horizon radar, peripheral naval and air bases, and regional security partnerships and joint access.

The proximity of these operations to Australian supply lines and support bases would mean the ADF could employ its joint force synergistically, in the manner it is trained and designed for, even were it to remain part of a larger coalition task force in the US Indo-Pacific Command theatre. A number of capabilities could contribute to peripheral operations at once, including the new air-warfare destroyers, Joint Strike Fighters, long-range maritime surveillance aircraft, land-based missile forces and armoured formations, Army-operated littoral vessels, and the new nuclear submarines acquired under the AUKUS security pact.

Second, a more ambitious strategy could see Australia leverage local sea control in South-East Asia or the Melanesian arc to conduct combined expeditionary operations in Corbett's limited form, dismantling a belligerent Asian power's 'string of pearls'.[153] Depending on the object, this might see a division-sized landing force, with augmented littoral manoeuvre capabilities, operating as part of a joint force maritime component command. Any great-power escalation or outbreak of war lowers the diplomatic cost of seizing limited objects, far from the source of a burgeoning Asian hegemon's source of power.[154] The ability to seize distant and strategically isolated facilities across the Indian Ocean, the Indo-Pacific arc or the Melanesian arc, particularly in concert with other Indo-Pacific allies, represents a potential deterrent to any great power's expansionism.

Third, a mature anti-ship missile network, whether the missiles are employed from the land, sea or air, could enhance the density of existing counter-access capabilities employed by Australia's partners and allies. For the Army, this will challenge thinking about land combat: traditionally a land force unit of action would be supported by joint enablers to achieve decisive effects on shore; a maritime strategy may instead call for land forces to support and protect joint capabilities—potentially some afloat. Amphibious expertise and littoral manoeuvre will be necessary to support the employment and survivability

of maritime strike weapons. The requirement for close combat will remain. Ground-based systems cannot be employed until ground is seized.

The character of modern maritime warfare is such that achieving outright sea control is exceedingly difficult over vast distances against peer threats. But localised control close to Australia and its island partners might be accomplished through long-range fires, air power, and large maritime task forces, along with land-based sea denial capabilities deployed farther offshore.[155] Such a layered posture represents a negative object at the strategic level and a positive object at the operational level, consistent with Corbett's phasing in his limited form. This strategic approach could conceivably secure vital lines of communication in the lower Indo-Pacific and free larger US forces and niche capabilities for commitment to a 'main' theatre. Ancillary operations by a unilateral contingent might be currently beyond the scope of Australia's amphibious capability, but their feasibility improves as acquisition projects mature, as force structure grows, and should they be deployed as part of a broader regional multilateral effort. Such operations therefore represent a prospective leadership role for Australia, with a greater attendant say and stake in strategy, and a stronger diplomatic position in any political bargaining that were to follow a regional conflict.

Force Design and Operating Concepts

It can be reasonably asserted that the nature of war is unchanging, especially those Clausewitzian aspects of human nature, uncertainty, friction and politics. Corbett's affinity for the Prussian's work largely accounts for the enduring quality of his own theory of maritime strategy. However, as Michael Handel explained, 'In all other respects technology has permeated and irreversibly changed every aspect of warfare'.[156] War's grammar is shifting rapidly in the Indo-Pacific, and the ADF's current force structure requires evolution to match the strategic guidance in the 2020 DSU and 2023 DSR. The 2020 strategic guidance was accompanied by the Force Structure Plan, a document which explained the Australian Government's intentions 'for new and adjusted ADF capability investments to implement the new strategic objectives contained within the 2020 DSU'.[157]

With the government's provision of $575 billion to the ADF over the next decade, including $270 billion to capability investment, Australia intends to procure some of the most advanced military equipment it has ever fielded. Albert Palazzo notes, however, that while this is an important

accomplishment, these acquisitions are occurring in 'an intellectual vacuum'.[158] He contends that while the DSU outlined broad strategic direction and intended investments, it fell short of articulating a 'philosophy of war' by which the ADF will secure the nation's sovereignty, or any metrics to measure that goal's success.[159] The 2023 DSR went further with its articulation of a denial strategy and urging transformation to a multi-domain 'integrated force'.[160] An opportunity thus exists to develop a 'strategy of denial' informed by Corbett's deep historical analysis and maritime theory.

Palazzo observes that the region's development trend lines are deeply unfavourable to Australia from the perspective of strategic risk assessment and the generation of military power. The demographic, economic, technological and educational trends all suggest the rapid waning of Australian relative military power, and the increasing likelihood that Australia will be unable to secure positive—that is, 'offensive'—success in future wars. He proposes a philosophy of war that seeks victory through a negative object—maintaining the status quo through strategic defence and limited operational interventions. This strategic approach is not unlike Britain's interest in maintaining the European continental balance of power while securing the British Isles, from which Corbett derived his maritime theory. Consistent with Corbett's limited form, Palazzo argues that such a strategy requires 'aggression', 'initiative' and the operational and tactical offensive.[161]

In an echo of Corbett's observation on the years of warfare that followed Trafalgar, Palazzo rejects the Western emphasis on 'winning battles' and notes strategic victory is predicated only on securing a state's goals. In Australia's case, these goals include continental security and maintenance of the regional order.[162] His analysis raises a series of questions regarding Australia's overall strategic culture and the investments articulated in the 2020 Force Structure Plan.[163] Guided by Corbett and the analysis thus far, for defence planners considering force design, two broad questions are worth asking.

First, where does the Army's conception of land power fit into a prospective maritime strategy? As Thomas Lonergan points out, ongoing intellectual defence debate should focus on 'strategy and force structure … not tactics and tanks'.[164] Leading up to the release of the 2023 DSR, a public debate occurred over a plan to remodel the Australian Army as a predominantly armoured force. This includes Project Land 400 (Phases 2 and 3—Armoured Combat Reconnaissance Vehicles (CRV) and Armoured Infantry Fighting

Vehicles), and Project Land 8116 (Protected Mobility Fires—Self-Propelled Artillery), and the decision to purchase additional armoured vehicles from the United States.[165] Over the coming years, Australia is likely to spend tens of billions of dollars on armoured vehicles.[166]

Figure 3. Boxer CRV disembarks from HMAS Adelaide in Singapore as part of urban warfare training during Indo-Pacific Endeavour 2022 (Source: Defence image gallery)

The Army's current and future envisaged force structure allows it to act as a close combat auxiliary to a coalition joint task force. Indeed, the Army foresees a role for the 1st Division as a subordinate formation to the US Army's I Corps. However, due to Australia's unique way of war, it is often easy to lose sight of a few considerations. Because of its modest size and extensive operational experience, the Australian Army has traditionally focused on tactical expertise—perhaps at the expense of strategic thought. Palazzo points out that, as a junior coalition partner in all the wars it has fought, the Australian military has not had the opportunity 'to foster an understanding of how to wage war above the corps level'. In its most recent conflicts, Australia's military commitment has been defined by the actions of combat teams and battle groups and an over-reliance on special operations forces.[167]

Palazzo argues that, while the Australian Army prides itself on its tactical prowess, this focus has muddied a deeper discussion on strategy. Experience in Iraq and Afghanistan in support of American strategy over the preceding two decades against non-existential threats has distorted Australian strategic thinking. These operations detracted from the ADF's ability to develop capabilities, operational concepts, strategies, and partner relationships specific to Australia's geography and sovereign purpose.[168] Corbett's study revealed that alliances were critical but that effective strategy and doctrine were uniquely national constructs.

Bureaucratic and budgetary considerations tend to drive the development of a 'balanced' force that can meet the entire operational spectrum of potential coalition demand. The existing long acquisition and development lead times might also demand certain 'off the shelf' purchases and niche capabilities to meet urgent threats specific to Australia's regional operating environment.[169] The Army's armoured acquisitions have occurred against the backdrop of expensive long-term projects for new frigates and nuclear submarines for the RAN, and the JSF for the RAAF.[170] Indeed, recent conflicts have reaffirmed the utility of armoured forces based on tanks and infantry fighting vehicles in high-intensity combat and security operations.[171] These platforms are critically necessary, particularly for forward presence, but the Army requires an expanded suite of new capabilities to maximise its value proposition to a joint maritime campaign.

With relatively limited strategic weight and finite economic resources, it is important that the ADF does not forsake the pressing demand for capabilities, in sufficient quantities, for medium- and long-range air defence, long-range maritime and land strike, offensive electronic warfare, littoral manoeuvre, and sea denial.[172] The military's arsenal is home to a number of sophisticated systems that remain at the forefront of strategic competition, largely due to its relationship with the US. But, as Lonergan argues, recent procurement has increasingly led to a boutique force structure that lacks mass in warfighting capabilities and depth in combat enablers, logistics, and materiel holdings.[173] In addition, despite the formidable combat power and protection afforded by the new vehicles, they will require careful integration into a maritime strategy if they are to be employed beyond the Australian continent. If the ADF is to reduce its strategic risks and assert influence in the region, especially in times of crisis or war, it needs to consider how to project a large, credible armoured

force over the ocean, and how to protect and support it, in circumstances that are certain to feature contested control of the sea.

A land force requires protection as part of maritime manoeuvre. The RAN operates both patrol vessels and frigates, but the addition of an intermediate capability—stealth corvettes like the Swedish Saab Visby class, for example—would enhance the survivability of a landing force afloat, particularly among the archipelagic littorals.[174] Either a corvette-type vessel or other advanced, off-the-shelf small surface combatants would provide the amphibious force with 'distributed lethality' and survivability—that is, dense signature proliferation for overwhelming a defending adversary's sensors and systems—as well as enhanced capability for offensive strike and intelligence, surveillance, and reconnaissance (ISR) missions.[175] In time, a littoral-capable corvette fleet could provide the amphibious task force with advanced force protection capabilities including loitering munitions, swarm technology, lasers, unmanned picquet drone vessels, inflatable missile decoys, and additional electromagnetic countermeasures.[176]

Hugh White's complaint that the LHDs are too large and vulnerable for high-intensity warfare may be addressed through the future acquisition of several smaller dock landing ships (LSDs), or variations of the joint support ship (JSS) under Project SEA 2200, or Army's littoral manoeuvre vessels under Projects Land 8170 and 8702, which allow the landing force to be dispersed in smaller packages afloat, enhancing its survivability and post-lodgement integrity.[177]

A land force also requires mobility in the maritime domain. The M113 armoured personnel carrier, in service since the 1960s, weighs 18 tonnes. Its replacement under Land 400 Phase 3, the Hanwha Redback, weighs more than double that at over 40 tonnes. The Australian Light Armoured Vehicle (ASLAV), in service since the 1990s, weighs 13.5 tonnes, and its replacement, the Rheinmetall Boxer CRV, is over three times heavier, at 38 tonnes depending on its configuration.[178] A 2018 Australian Strategic Policy Institute report noted that this additional weight constrained the Boxer's strategic deployability. Its author, Ben Coleman, analysed airlifting these vehicles to countries within Australia's immediate region, noting that a C-130J Hercules could carry an ASLAV but not a Boxer. The ADF's C-17A Globemaster III could carry four ASLAVs but it was capable of lifting only one CRV.[179] Furthermore, a paucity of C-17-capable airfields across the Indo-Pacific archipelagos constrains options for the deployment of combat power.

While the Boxer CRV and infantry fighting vehicle (IFV) replacement are undoubtedly valuable capabilities for the ADF, their weight and size constraints highlight the importance of sea power for their force projection, as well as the need for mature amphibious and littoral operating concepts for their lodgement and employment. Designing a force structure around the explicit purpose of auxiliary military contribution to a larger partner's task force is, according to Clausewitz, 'tidy', but Corbett's maritime doctrine reveals that there is more than one way to contribute to coalition strategy. This should include seeking ways to offset and complement a larger ally's capability gaps and geographic focus and only supplement its existing strengths where necessary. According to Corbett, this was the purpose and method of Britain's way of war. Maturing a unilateral amphibious capability is difficult, but forward-looking platform acquisitions, concept development and maritime doctrine will afford opportunities for disproportionately valuable contribution to alliance strategy while preserving a degree of defence sovereignty.

The second question worth asking is: consistent with Palazzo's 'status quo' philosophy of war and with Corbett's methods of the maritime strategic defensive, what strategic missions best leverage Australia's geographic strengths while mitigating its weaknesses? Australia's force structure should support the development of maritime operating concepts for offensive purposes (to gain access and to project force) as well as for negative ones (to deny access and dispute sea control). This should be the ADF's goal for a 'balanced force', redefining 'balance' to mean that between military strategic missions, beyond simple equity between single-service expenditure. Despite longstanding concerns of the Australian Army's service chiefs over budgetary allocation, the future character of war in the maritime domain is likely to demand an important place for land power.

At the outset of the First World War, Corbett forecast the growing asymmetric advantage of sea denial capabilities, crediting the German Navy's 'guerrilla warfare at sea' with preventing the Grand Fleet from exercising outright sea control. In the Indo-Pacific arc, this asymmetry is represented by the proliferation of the Mature Precision Strike Regime (MPSR) and counter-access states. Numerous regional actors are increasingly demonstrating the ability to rapidly sense within the battlespace and strike across multiple domains with advanced weapon systems and capabilities previously exclusive to the United States and its privileged allies. The missile age was dramatically introduced in 1967 when the INS Eliat was

struck by an Egyptian anti-ship cruise missile, and the 1973 Yom Kippur War featured the first all-missile naval engagement. Recently, the 2020 Nagorno-Karabakh War revealed what many consider to be a turning point in modern warfare: nearly all battle damage was inflicted by unmanned systems.[180]

Within the protection provided by the MPSR, potential adversaries employ actions at or below the level of violence to achieve their political goals. These actions amount to 'salami slicing' strategies that confront status quo powers like the US with the choice of waging or threatening war over relatively minor stakes or accepting faits accompli in the form of local encroachments, annexations, or other threats to liberal norms.[181] Deterrence-by-denial strategies are increasingly prevalent as adversaries wield sophisticated and long-range reconnaissance-strike complexes, augmented by irregular warfare and so-called 'grey-zone' activities. Consistent with Corbett's limited war theory, if the value of the political object is low, incentive to overcome this deterrent effect is correspondingly reduced.[182]

Without persistent presence, the MPSR makes it difficult to re-establish access to a denied area or to gain the sea control necessary for decisive action. The US Marine Corps (USMC) has been considering this problem for some time and is redesigning its structure and operating concepts to 'dispute command of the sea' with ground-based forces and systems. While Australian defence planners should seek to innovate in Australia's unique strategic context rather than imitate its larger partner, concepts such as EABO and distributed maritime operations (DMO) nonetheless offer a basis for historically grounded yet forward-thinking operational approaches that deserve exploration.[183]

EABO is a USMC operating concept born from a desire for institutional relevance following the cessation of operations in Iraq and Afghanistan, as well as a response to a strategic demand to maintain maritime access across the competition continuum. Corbett would recognise the US Navy's and USMC's system of naval advanced bases; it is not unlike the naval station system employed by Britain at the height of its empire. The 'expeditionary' advanced basing operating concept envisages the employment of a land-based reconnaissance force to act in tandem with the fleet and support its manoeuvre, consistent with Corbett's conception of the 'fleet and army as one weapon'.

There are two EABO-related concepts worth considering in Australian strategy and force design. The first is the concept of 'stand-in forces', in contrast to the strategic idea of 'stand-off'. The comparable Australian nomenclature is 'forward presence'. Stand-in forces are designed to maintain persistent access within an adversary's weapons engagement zone, acknowledging that gaining access once hostilities commence is costly and difficult. According to General David Berger, Commandant of the US Marine Corps, stand-in forces are small, lethal, low-profile, reconnaissance elements that are ideally simple to maintain and based on simple operating concepts. They locate a potential adversary's weapons platforms, sensor systems, submarines and other assets in a given area, then track them at a level that facilitates targeting by the fleet or joint fires until they depart. Stand-in forces are designed to be difficult for adversaries to locate by maintaining a low signature, moving frequently and unpredictably, and employing deception.[184]

If armed conflict breaks out, stand-in forces use their acquired knowledge of the adversary to support the fleet and other joint assets to attack quickly, blind or neutralise the adversary, and deny him areas within the maritime domain in order to disrupt his scheme of manoeuvre or move him to areas where the fleet and joint force have the advantage.[185] Building upon this concept, the Australian Army can leverage its existing regional partnerships with its ongoing development in unconventional warfare, division-level amphibious reconnaissance, and future littoral manoeuvre platforms to support escalation management and provide flexible deterrence or response options within a broader coalition strategy.[186]

The second concept worth reviewing is the Marine Littoral Regiment (MLR). The MLR offers a model for a sea denial focused task unit based on manoeuvre, air defence, fires and logistics within the contested maritime zone.[187] If Corbett's 'war limited by contingent' offers a method for maritime strategy in the limited form, the MLR presents a contemporary model for what a contingent might look like. For the ADF operating within the Indo-Pacific littorals, opportunity exists to bolster its maritime contingents with the weaponisation of Project Land 8710 (Army Littoral Manoeuvre), the watercraft replacement program. Under Project Land 8702, Army will receive riverine patrol craft that will provide tactical support to troops ashore, but the Littoral Manoeuvre project offers the potential for more.

Army missile boats should be equipped to strike at both maritime and land targets. As Palazzo points out, there is no reason why Army watercraft cannot launch surface and sub-surface armed and sensor vehicles into sea lanes or send armed strike UAVs into the air, employing Land 129 (Unmanned Aerial Systems) in the maritime domain.[188] Loitering munitions might prove useful as a niche between cruise missiles and armed UAVs. Unmanned underwater vehicles, such as Boeing's Orca or Anduril's Extra Large Autonomous Undersea Vehicle (XL-AUV), could be employed as weapon systems, as decoys, or to resupply land forces ashore.[189] As robotic platforms become smaller, a single boat could launch and command swarms of unmanned vehicles. These missile boats and unmanned submarines represent the modern iteration of Corbett's flotilla—'torpedo boats' with asymmetric 'battle power' that threaten larger navies by holding command of the sea and the littorals in dispute.

Conceptually, a holistic sea denial capability might include a missile-centric 'littoral combat team' consisting of infantry and 'rocket forces' operating anti-ship missiles (including platforms like the unmanned Navy and Marine Corps expeditionary ship interdiction system, or NMESIS); the Spike NLOS ATGM (which can integrate with ground, aviation or maritime platforms for non-line-of-sight targets); and the long-range precision strike missile (PrSM).[190] With the arrival of Project Land 8113 (Long Range Fires), the ADF will strengthen its defensive zone with lethal fires over thousands of kilometres. Inherent in the proliferation of the MPSR, firepower has, arguably, once again tilted war's character in favour of the defender. With the acquisition of land-based long-range precision strike capabilities, the Army will join the Navy and Air Force in contributing to strategic deterrence. This will reduce the security dependence on the US and enable a more sovereign and mature defence strategy.[191] But adopting an Australian A2AD system does not necessarily require the ADF to reduce its American security partnership. Instead, it could grow elsewhere.

For example, such littoral forces could complement a prospective USMC-Australian Army bilateral land-based naval strike network, based on other interoperable ground based anti-ship missile systems, common logistics, and larger littoral manoeuvre capabilities—offering the counter-access deterrence of a coalition-networked, missile-centric fleet in being.[192] These strike systems and littoral manoeuvre units represent a layered and powerful asymmetric sea denial capability that meaningfully employs Australian

Figure 4. Soldiers from 9th Regiment, Royal Australian Artillery, prepare a drone during force protection operations as part of Exercise Talisman Sabre 2023. (Source: Defence image gallery)

land power, protects Australia's continent and its interests, and provides opportunity for partnership, shaping, deterrence, and response in the immediate region.

To achieve Australia's political ends through a maritime defence strategy, operational concepts require review and development. The guiding principles of Australian operational concept development and force design should include exploiting the strengths of Australia's industry, culture, and regional relationships; covering gaps in alliance capability, rather than reinforcing existing 'surfaces'; and seeking asymmetric offsets and solutions to a prospective adversary's military strengths. Above all, operating concepts should be developed with the goal of combining land and maritime power—wielding the 'fleet and army as one weapon'. By seeking balance in the dual strategic missions of maritime denial and combined expeditionary operations, Corbett's doctrine offers a synthesis of Australia's geographically derived strategic theory and its actual operational experience, and a way to conceptually reconcile two schools of strategic thought.

Conclusion

As expanding economies enlarge military budgets in the Indo-Pacific region, national strength is increasingly expressed in naval power. Regional navies are acquiring weapons and systems seemingly intended for use against other navies. Coupled with the growing strategic weight and coercive power of revisionist states like China, Australia's geostrategic circumstances are deteriorating and its strategic risks are rising. The Australian Government recently announced a shift in focus to the immediate maritime region, which presaged increased defence expenditure and the AUKUS security alliance.

Yet this emerging security environment presents the ADF with a dilemma: its demands are at odds with its strategic theory, historical experience, and current force structure. Australia's strategic culture is generally represented by two traditions: the routine expeditionary deployment of niche, single-service capabilities to contingencies in support of its maritime security guarantor's grand strategy; and the continentalist 'Defence of Australia' tradition that perceives the littoral archipelago to Australia's north as an 'air-sea gap' or defensive moat, rather than as manoeuvre space. Together, these seemingly competing strategic subcultures have formed a unique

Australian 'way of war' that has hitherto stalled the development of a
genuine maritime military strategy and amphibious tradition that meets the
challenges of the 'Asian Century'.

With the conclusion of combat operations in Iraq and Afghanistan, strategists
and defence planners have an opportunity to redefine Australian strategy
for the maritime contest that will define the Indo-Pacific in the 21st century.
Despite a dearth of maritime 'consciousness', the ADF can look to theorists
such as Julian Corbett to inform its strategy and force structure. Corbett's
ideas help to reconcile Australia's geostrategic reality and historical warfighting
experience. His theory remains widely applicable to the 21st century.

Corbett's limited war theory offers a way for maritime states to provide
independent and outsized contributions to coalition strategy. Corbett's
'contingents', properly employing the limited form of war, eschew the
excessive costs and strategic constraints of auxiliary contribution to foreign
command. Corbett's doctrine suggests Australian defence planners would
best serve both national and coalition interests through complementing,
rather than supplementing, any ostensible US strategy and capabilities in the
US Indo-Pacific Command theatre. His combined expeditionary operations
and sea denial doctrines afford indispensable guides for operating concept
development for the Australian joint force. Applying Corbett's maritime
doctrine will challenge longstanding assumptions, organisational culture,
and force design. But his strategic guidance allows defence planners to
treat Australia's risks, provide meaningful and credible support to its allies,
preserve defence sovereignty, and systematically fuse land and sea power to
align strategic ends, ways, and means.

Acknowledgements

About the Author

Ash Zimmerlie is an infantry officer in the Australian Army. His operational service includes Iraq, Afghanistan, Timor-Leste, the South-West Pacific, and Queensland state recovery. He has fulfilled a range of regimental, training, representational and staff appointments. He holds a Bachelor of Arts and Master's degrees in Military Studies, Operational Studies, and Strategy and Security. He is a graduate of the Australian Defence Force Academy, Royal Military College Duntroon, University of New South Wales, United States Marine Corps Command and Staff College (distinguished graduate), and United States Marine Corps School of Advanced Warfighting.

Endnotes

1   This essay was researched and produced in 2021 following the release of the 2020 Defence Strategic Update. It was submitted for publication on the eve of the release of the 2023 Defence Strategic Review. Two years of debate and public commentary are not necessarily represented. The author accepts complete responsibility for any errors, as well as any omissions where circumstances have evolved beyond the content analysed herein. See Department of Defence, *Defence Strategic Update 2020* (Canberra: Commonwealth of Australia, 2020), at: https://www.defence.gov.au/about/strategic-planning/2020-defence-strategic-update; Australian Government, National Defence: Defence Strategic Review 2023 (Canberra: Commonwealth of Australia, 2023), at: https://www.defence.gov.au/about/reviews-inquiries/defence-strategic-review.

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20   Frank Broeze, 'Maritime Australia: Integrating the Sea into Our National History', *Maritime Studies*, May–June 1995, 9-16; Frank Broeze, l*sland–Nation: A History of Australians and the Sea* (Sydney: Allen and Unwin, 1998), pp. 1–9

21   Evans, 'Island Consciousness', p. 22; Evans, *The Tyranny of Dissonance*, pp. 35–36.

22   Evans, *The Tyranny of Dissonance*, p. 38.

23   Ibid., 38–39.

24   Dean, 'Amphibious Operations', pp. 23, 35–36.

25   The 'Forward Defence' concept demonstrated the belief, founded in the 1953 Strategic Basis Paper, that control of South-East Asia should be the government's priority as it would afford 'defence-in-depth' to the Australian continent. Its strategy was focused on defeating communism in Asia and supporting its two larger partners—Britain and the US. Britain's commitment to the region wavered under the economic strains of maintaining a global presence, the loss of control of India and the Suez Canal, and its growing commitment to NATO in continental Europe. Britain's withdrawal from Malaysia and Singapore in 1967 preceded American defeat in Indochina, which called into question the Forward Defence strategy. Under its first President, Sukarno, Indonesia appeared more threatening at a time when Cold War priorities were diverging from Australia's own strategic interests. See Dean, 'Amphibious Operations', p. 31; Hugh White, *How to Defend Australia* (Collingwood: Black Inc Books, 2019), p. 50; Stephan Frühling, *A History of Australian Strategic Policy Since 1945* (Canberra: Department of Defence Publishing, 2009), p. 15; Stephan Frühling, 'Australian Strategic Policy in the Context of the Cold War: 1945–1965', in Peter Dean & Tristan Moss (eds), *Fighting Australia's Cold War: The Nexus of Strategy & Operations in a Multipolar Asia, 1945–1965* (Canberra: Australian National University Press, 2021), pp. 11–34.

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39 James R Holmes, *A Brief Guide to Maritime Strategy* (Annapolis, Naval Institute Press, 2019), pp. 119–120.

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42 Corbett, *Maritime Operations in the Russo-Japanese War*, pp. 56–57, 167–170; McCranie, Mahan, Corbett, and the Foundations of Naval Strategic Thought, p. 57.

43 Corbett, *Some Principles of Maritime Strategy*, pp. 15–30, quotations from pp. 18–19; Brendan Nicholson, 'Australian Army Profoundly Changed by Two Decades of War in Afghanistan', The Strategist, 16 April 2021, at: https://www.aspistrategist.org.au/australian-army-profoundly-changed-by-two-decades-of-war-in-afghanistan/.

44 Note of 10 July 1827 in Carl von Clausewitz, *On War*, ed. Michael Howard and Peter Paret (Princeton: Princeton University Press, 1984), p. 69.

45 Corbett, *Some Principles of Maritime Strategy*, p. 41.

46 Ibid., p. 43.

47 Ibid., pp. 52–53.

48 Ibid., pp. 55, 57, 53.

49 Ibid., pp. 52, 58.

50 Corbett, *The Campaign of Trafalgar*, p. 4

51 Corbett, *Some Principles of Maritime Strategy*, p. 60.

52   Corbett, *Some Principles of Maritime Strategy*, pp. 55–56; The defensive blockade of
      Brest in the Seven Years War, for example—see Corbett, *England in the Seven Years'
      War*, vol. 2, pp. 15–16; Corbett had explored multiple case studies throughout his career.
      In the Russo-Japanese War, Corbett explained, the Japanese blockade-in-strength of
      Port Arthur and the occupation-in-force of the Korean Strait zone secured both the army's
      lines of communications and the Japanese home islands from Russian counterattack.
      See Corbett, *Maritime Operations in the Russo-Japanese War*, vol. 2, p. 392.

53   Corbett, *Some Principles of Maritime Strategy*, pp. 56–57.

54   Ibid, pp. 72–73, 310; Moltke's thoughts on the offense and defense are drawn from Daniel
      J Hughes, *Moltke on the Art of War: Selected Writings* (New York: Presidio Press, 1993),
      pp. 52–53.

55   Corbett's descriptions of these phases are drawn from *Maritime Operations in the Russo-
      Japanese War*, vol. 1, pp. 65–66, and Some Principles of Maritime Strategy, pp. 80–83.

56   Corbett, *Some Principles of Maritime Strategy*, p. 33.

57   In the Battle of Liaoyang (25 August to 5 September 1904) and at the naval battles of the
      Yellow Sea, Ulsan and Korsakov in August 1904.

58   Corbett, *Some Principles of Maritime Strategy*, p. 83.

59   Corbett, *Maritime Operations in the Russo-Japanese War*, vol. 1, p. 66.

60   Corbett, *Some Principles of Maritime Strategy*, p. 83.

61   Corbett, *Some Principles of Maritime Strategy*, p. 60; McCranie, *Mahan, Corbett, and the
      Foundations of Naval Strategic Thought*, p. 239.

62   Clausewitz, *On War*, p. 603; Clausewitz did not use the term 'war limited by contingent'
      but explored the concept in his unfinished final book.

63   Though Corbett believed the British excelled in the use of contingents in continental
      interventions, he caveats that such expeditions were usually accompanied by a 'popular
      repugnance'—that is, public sentiment that regarded continental warfare as antithetical to
      British strategic culture. See Corbett, *Some Principles of Maritime Strategy*, pp. 60, 63.

64   Ibid., pp. 60–61.

65   Ibid., pp. 62, 65.

66   Alexander Mikaberidze, *The Napoleonic Wars: A Global History* (Oxford: Oxford University
      Press, 2020), pp. 567, 573; see also Michael Glover, *The Peninsular War 1807–1814:
      A Concise Military History* (Hamden, CT: Archon Books, 1974), p. 279; Rory Muir,
      Wellington: The Path to Victory, 1769–1814 (New Haven, CT: Yale University Press, 2013),
      pp. 517–532.

67   Clausewitz, *On War*, p. 603; Corbett, *Some Principles of Maritime Strategy*, p. 65.

68   Corbett, *History of the Great War*, vol. 2, p. 290.

69   The campaign was primarily conceived to set conditions for a return to the continent.
      In May 1942, President Roosevelt had told the Soviet commissar for foreign affairs,
      Vyacheslav Mikhaylovich, to expect a 'second front' before too long. The Red Army had
      held the Wehrmacht at bay in the Battle of Moscow, but Army Group South countered in
      Operation Fredericus, inflicting over a quarter of a million Soviet casualties in the Second
      Battle of Kharkov. Considering Molotov's entreaties to Roosevelt in Washington, some
      form of Anglo-American offensive in 1942 thus seemed essential to reassure their eastern
      ally. George F Howe, *Northwest Africa: Seizing The Initiative in the West*, United States
      Army in World War II: Mediterranean Theater of Operations (Washington DC: Office of the
      Chief of Military History, Department of the Army, 1959), pp. 11–12, 28.

70   Lambert, *The British Way of War*, p. 309.

71   Corbett, *Some Principles of Maritime Strategy*, p. 210.

72   Corbett, *The Successors of Drake*, pp. vii–viii.

73   Ibid., p. 410.

74   Corbett, *Some Principles of Maritime Strategy*, p. 10.

75   McCranie, *Mahan, Corbett, and the Foundations of Naval Strategic Thought*, p. 32;
      Beatrice Heuser, *The Evolution of Strategy: Thinking War From Antiquity to Present*
      (Cambridge: Cambridge University Press, 2012), pp. 176–177.

76   Corbett, *Some Principles of Maritime Strategy*, p. 16.

77   Ibid., pp. 64–65; McCranie, *Mahan, Corbett, and the Foundations of Naval Strategic Thought*,
      p. 195; Carole Divall, *Wellington's Worst Scrape: The Burgos Campaign 1812* (Havertown:
      Pen & Sword, 2013), quoted by Glover in *The Peninsular War 1807–1814*, p. 210.

78   Lambert, *The British Way of War*, pp. 1–2.

79   Thomas Edward Lawrence, *Seven Pillars of Wisdom* (New York: Doubleday, Doran &
      Company, 1935; Classy Publishing Edition, 2022), pp. 152–153.

80   David Fromkin, *The Peace to End All Peace: The Fall of the Ottoman Empire and The
      Creation of the Modern Middle East* (New York: Henry Holt & Co, 1989), pp. 309–310.

81   Lambert, *The British Way of War*, pp. 1–2.

82   Corbett, *Maritime Operations in the Russo-Japanese War*, vol. 1, pp. 68, 187.

83   Ibid., pp. 205–206.

84   Corbett, *England in the Seven Years' War*, vol. 1, p. 437; vol. 2, p. 219.

85   Lambert, *The British Way of War*, p. 309.

86   Ibid., pp. 312, 318.

87   Ibid., p. 315.

88   Lambert, *The British Way of War*, p. 320.

89   Ibid., pp. 315–316.

90   Ibid., pp. 321, 316.

91   Ibid., p. 315.

92   Ibid., p. 318.

93   Ibid., pp. 327–329.

94   Corbett, *History of the Great War*, vol. 3, p. 246.

95   Lambert, *The British Way of War*, pp. 328, 334.

96   Corbett is referring to William Pitt, 1st Earl of Chatham, the wartime political leader of Britain
      during most of the Seven Years War. Corbett admired Pitt the Elder (Pitt had a son who
      also served as Prime Minister) for his zealous pursuit of maritime strategy and victory over
      France. See 'Letter from Julian Corbett to Sir John Fisher, July 1918', quoted in Arthur J
      Marder (ed.), *Fear God and Dread Nought: The Correspondence of Admiral of the Fleet
      Lord Fisher of Kilverstone*, 3 vols (London: Jonathon Cape, 1952–59), pp. 538–539.

97   Lambert, *The British Way of War*, pp. 307–336.

98   In his definitive text, Clausewitz uses the terms 'positive object' and 'negative object'
      on 32 occasions but does not define them. Corbett defined a 'positive object' as
      something to be acquired or asserted. A 'negative object' is where the enemy is denied
      or prevented from gaining something. He adds, 'Where the object is positive, strategy is
      offensive. Where the object is negative, strategy is defensive'. See Clausewitz, *On War*;
      and Corbett, *Some Principles of Maritime Strategy*, p. 309. Vego considered Corbett's
      methods for disputing sea control as too narrow. He adds 'avoiding or seeking decisive
      encounters, counter-containment, attack or defense of coasts, seizure or defense of naval
      bases, and capture or protection of chokepoints'. See Milan Vego, *Maritime Strategy and
      Sea Denial: Theory and Practice* (New York: Routledge, 2019), pp. 18, 104–314. For a
      contemporary Australian naval description, see Royal Australian Navy, *Australian Maritime
      Doctrine* (Canberra: Sea Power Centre, 2010), pp. 73–74.

99   Corbett, *Some Principles of Maritime Strategy*, p. 209.

100   Ibid., pp. 165–166.

101   Australian doctrine calls this concept the 'force in being'. See *Australian Maritime Doctrine*, p. 74.

102   John Hattendorf, 'The Idea of a "Fleet in Being" in Historical Perspective', Naval War College Review 67 (2014): 43–44; Corbett, *Some Principles of Maritime Strategy*, pp. 224–225; McCranie, *Mahan, Corbett, and the Foundations of Naval Strategic Thought*, p. 154.

103   Philip Colomb, *Naval Warfare: Its Ruling Principles and Practice Historically Treated* (Annapolis: Naval Institute Press, 1990; reprint of 1891 edition), p. 154; for a description of the circumstances leading to the Battle of Beachy Head, see Peter Padfield, *Maritime Supremacy and the Opening of the Western Mind: Naval Campaigns that Shaped the Modern World, 1588–1782* (London: John Murray Press, 2021 [1999]), pp. 148–173.

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105   Corbett, *England and the Seven Years' War*, vol. 2, p. 373.

106   Corbett, *Some Principles of Maritime Strategy*, pp. 211–212.

107   Corbett, *England and the Seven Years' War*, vol. 1, p. 329.

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109   Vego, *Maritime Strategy and Sea Denial*, 138–139.

110   Till, *Seapower*, 222; Vego, *Maritime Strategy and Sea Denial*, p. 136.

111   Ibid., p. 222.

112   Corbett, *Some Principles of Maritime Strategy*, p. 227.

113   McCranie, *Mahan, Corbett, and the Foundations of Naval Strategic Thought*, p. 160.

114   Corbett, *Some Principles of Maritime Strategy*, p. 231.

115   Ibid., p. 227.

116   Ibid., pp. 111, 122.

117   Ibid., pp. 121–122.

118   Corbett, *History of the Great War*, vol. 3, p. 121.

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147 The Princeton/Montclair plan featured roles for the Australian corps until quite late. The 6th Division, the most combat-ready and prepared for a Philippines campaign, were used to relieve the American divisions in the New Guinea-Bougainville area after MacArthur directed Blamey to increase the Australian commitment from seven to 12 brigades. This left only the 7th and 9th Divisions as a striking force, plus corps troops, reducing the likelihood they would be used in the Philippines. When the Leyte campaign was accelerated as a result of the Quebec conference in September 1944, the chances of Australian involvement decreased further. See Horner, *The War Game*, pp. 307–308; and Horner, 'Advancing National Interests', pp. 16–18; Other than operations in Borneo, General MacArthur's decisions led to a dramatic reduction in Australian contribution. British historian Sir Max Hastings accused the Australian military of 'bludging' in 1944–45. See Max Hastings, *Nemesis: The Battle for Japan, 1944–45* (London: Harper Press, 2007), pp. 364–367.

148 See Gavin Long, *Australia in the War of 1939–1945: The Final Campaigns* (Canberra: Australian War Memorial, 1963), p. 547; David Horner, *High Command: Australia and Allied Strategy 1939–1945* (Sydney, Allen & Unwin, 1992); Peter Charlton, *The Unnecessary War: Island Campaigns of the Southwest Pacific 1944–45* (Melbourne: Macmillan, 1983); Peter Stanley, 'An Oboe Concerto: Reflections on the Borneo Landings 1945', in Glenn Wahlert (ed.), *Australian Army Amphibious Operations in the Southwest Pacific 1942–45* (Sydney: Southwood Press, 1995).

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150 As David Horner points out, after 1944, 'Australian forces were deployed for purely political purposes—to guarantee a voice in the peace settlement'. He adds, 'This did not necessarily mean that these commitments did not in some way contribute to Australian security, but if Australian forces had conducted no more offensive operations after 1944 there would have been no change in the outcome of the war'. See Horner, *The War Game*, p. 299.

151 The term is drawn from Benjamin Schreer's study for ASPI, *Planning the Unthinkable War*.

152 Schreer, *Planning the Unthinkable War*, p. 34.

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162 Ibid., pp. 15–17.

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167 Palazzo, 'Planning Not to Lose', p. 14.

168 Lonergan, 'Australia's Defence Debate'.

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Stand-in Manoeuvre in a Contested Littoral Environment

David Kilcullen

Introduction

This paper explores concepts being developed by the United States Marine Corps, UK Royal Marines and Royal Navy (including the US Concept for stand-in forces, and the British Commando Forces concept), in order to inform an Australian approach to stand-in manoeuvre in contested littoral environments. The paper first examines the challenges and implications of a contested littoral environment, identifying the need to operate in a distributed, low-profile, mobile, modular and sustained manner inside the weapon engagement zone (WEZ) of a beyond-peer adversary's anti-access/area denial (A2AD) bubble, within contested littoral or archipelagic space, through phases of competition, pre-crisis shaping, crisis, conflict and transition. Having defined the environment and its implied mission requirements, the paper then evaluates relevant US and UK concepts against that environment, to identify features for the Australian Defence Force (ADF) to consider emulating, along with aspects that would require modifications for Australian conditions. Finally, the paper applies the analysis to a potential Australian operating concept for stand-in manoeuvre in contested littoral environments, suggesting that such a concept would need to maximise survivability for deployed forces, sustainability across multiple phases within a campaign, use of robotic or autonomous systems and human-machine teaming, multi-domain or cross-domain deterrence, and interoperability/interchangeability with AUKUS partners.

Part 1—A Daunting Environment

The problem facing AUKUS partners in the Indo-Pacific is complex and challenging. It requires balancing survivability against mission success for forward-deployed forces, along with trade-offs among stand-in forces, follow-on forces and reach-back capabilities, across multiple warfighting domains and campaign phases. Choices made now—on capability acquisition, capacity, force structure, task organisation, the use of artificial intelligence (AI) and robotic and autonomous systems, operating concepts and campaigning constructs—will affect future conflict in ways that may be decisive, though hard to foresee. The Royal Marines and United States Marine Corps have each developed concepts that address this problem in broadly similar ways, though with important differences.

This paper explores AUKUS partners' approaches, with the goal of deriving useful insights for Australian forces facing the same environment.

Contested Littoral Environments and A2AD

A contested littoral environment is that portion of an operational theatre where the tactical effects of air, land and maritime domains overlap, so that land-based weapon systems can engage sea-based platforms and vice versa. In these environments, littoral hydrography, bathymetry, topography, weather, climate and human activity interact with military operations in complex, non-linear ways. Littoral environments are bounded by military effects as much as by geography: as longer-range weapons and sensors are fielded, emerging and disruptive technologies are developed, or new warfighting domains materialise, the littoral environment expands accordingly.[1]

Over the last 15 years, the Indo-Pacific theatre has seen extraordinarily rapid proliferation in A2AD and counter-intervention capabilities, driven by heightened strategic competition between the United States and China. In China's case, A2AD systems are designed to hold US forces at risk at extended range from contested coastlines, blockade regional US allies and partners, and deter or counter US intervention to support them.[2] Within an overall A2AD construct, anti-access systems impede movement into a contested area while area-denial systems hamper manoeuvre within that area. A2AD generates operational friction through overlapping, cumulative tactical effects which, in combination, delay and disrupt an adversary's

operations by imposing costs in time, materiel and human casualties that deter or deny access to a contested area.[3]

A2AD capabilities include anti-ship ballistic missiles (ASBMs); cruise missiles; integrated air and missile defence; maritime patrol aircraft and ships; submarines; strike aircraft; crewed and uncrewed stealth systems; space and counter-space weapons; cyber and electronic warfare systems; integrated intelligence, surveillance and reconnaissance (ISR); and command and control (C2) networks (often, in combination, referred to as C4ISR).[4] Autonomous systems including drones, loitering munitions, uncrewed surface vessels and autonomous underwater vehicles play increasingly important roles in A2AD, alongside traditional approaches such as mining of harbours, approaches and chokepoints, and close or distant blockades.[5] Containerised missile systems such as China's YJ-18C anti-ship cruise missile can be deployed stealthily under cover of civil shipping, enabling covert insertion of A2AD capabilities into secondary contested areas distant from an adversary's main territory.[6] A2AD may incorporate integrated cyber and electromagnetic activities (CEMA) to degrade, deceive or disrupt C4ISR, data networks and communications, including civilian systems. It may target offshore installations, as highlighted by the destruction of the NordStream pipeline in 2022, underlining an increased threat to seabed telecommunications or littoral resource extraction infrastructure.[7]

A2AD also involves the space domain: in 2021, the People's Liberation Army (PLA) demonstrated a fractional orbital bombardment system employing a space-based hypersonic glide vehicle to engage targets at sea.[8] The same year, China's BeiDou global navigation satellite system (GNSS) became fully operational, reducing Beijing's reliance on the US military's GPS, and making attacks on positioning, navigation and timing (PNT) satellites, as well as satellite communications (SATCOM), more likely—with severe implications for civilian economic activity and military C2 alike.[9]

Weapon Engagement Zones and Stand-in Forces

The WEZ in a contested littoral environment is the zone within which forces can be engaged by adversary weapon systems. It is bounded by weapon ranges, ISR detection and discrimination thresholds, and the ability of sensor-to-shooter networks and C4ISR systems to track, locate and prosecute targets.[10] In the Indo-Pacific, given the proliferation of PLA ballistic and cruise missiles and the militarisation of disputed features in the South

China Sea, the WEZ extends hundreds to thousands of kilometres offshore and includes numerous islands, reefs, atolls and other archipelagic features, inhabited or otherwise. In practical terms, given the density of ISR and long-range weapons in a mature A2AD complex, any force element detected within the WEZ can be expected to be targeted, and is highly likely to be defeated or destroyed.

Traditionally, US forces (and US allies such as Australia and the UK) have sought to enter an adversary's WEZ only to accomplish specific time-limited tasks, with support from enabling assets arrayed to deceive, suppress or destroy adversary A2AD systems long enough to 'shoot in' friendly forces to their objectives and, if needed, extract them afterwards.[11] Several concepts—including the US Department of Defense Joint Operational Access Concept, the US Army's Multi-Domain Manoeuvre, the US Navy's Air-Sea Battle, and NATO concepts for Multi-Domain Operations—take this approach. The aim of these concepts is to open a window in time and space, temporarily suppressing adversary A2AD systems across a cleared corridor, to enable manoeuvre to the objective. In effect, these concepts seek to solve the problem of the WEZ by first suppressing adversary ISR and A2AD defences, then applying massed forces or effects, at high tempo, focused in time and space, to achieve objectives at acceptable cost.

By the 2010s it was becoming apparent that—at least for a portion of the force—the notion of selectively entering an adversary's WEZ only after suppressing it, and then returning to sanctuary, was unworkable. A writer in the US Naval Institute's *Proceedings* journal noted in 2011:

> [S]ince the end of the Cold War, the United States has entered the adversary's WEZ selectively, but that era is coming to an end. As adversaries' weapons envelopes expand, the U.S. military … needs to embrace life within the WEZ.[12]

Forces that can survive and operate inside an adversary's WEZ for protracted periods are designated as 'stand-in forces' (SIF) to distinguish them from those that operate from safe havens outside the WEZ, entering only for specific tasks and with supporting enablers. 'Life in the WEZ' therefore implies the development of capable and survivable SIF able to communicate and operate in a high-threat, CEMA-denied environment.

Implications for Australia

Australia's formal adoption of a maritime strategy in 2013 led to the development of ADF capabilities for 'joint archipelagic manoeuvre'. This approach recognised the increasing range and density of A2AD in Australia's region, the complex archipelagic nature of the operating environment, the role of land-based systems (and hence, land forces) in maritime campaigning, and the need to 'exert persistent control over population centres, forward base locations and other key terrain that contributes to the securing of maritime transit lanes'.[13] This concept, though acknowledging the survivability challenge of 'living in the WEZ', assumed Australia would field a:

> *medium weight army [with] sufficient combat weight and highly survivable land based capabilities [to] contribute to sea and air control bubbles adjacent to key strategic maritime choke points [and] also provide a range of credible options for Government for other contingencies such as stabilisation missions in the crowded, connected urban (and peri-urban) littoral.[14]*

In effect, the concept envisioned an updated version of Second World War 'island-hopping' campaigns in which land forces would seize bases to enable application of naval and air power through archipelagic or littoral manoeuvre. This approach assumed that an Australian joint force, ideally operating in concert with allies and partners, could suppress adversary capabilities and so enable persistent presence and manoeuvre at scale, in a relatively overt manner, inside or on the edge of an enemy WEZ. The Australian Amphibious Force (AAF) and Joint Pre-Landing Force (JPLF) as they exist today, including manoeuvre elements and enablers from across the ADF, reflect this thinking.[15]

But in the decade since the adoption of Australia's maritime strategy, two factors have undermined several of its key assumptions. Externally, the extremely rapid proliferation of adversary A2AD systems with longer range, greater lethality and enhanced sensors has continued to accelerate even beyond what was anticipated a decade ago, calling into question the survivability of any force element that operates overtly, concentrates in time and space, relies on external resupply and maintenance, or masses where it can be detected and killed. Internally, the Australian Government's decision, in *National Defence: Defence Strategic Review 2023* (DSR 2023), to radically reduce the number of protected mobility systems planned for acquisition

under Project Land 400 Phase 3 substantially invalidates the assumption of a medium-weight ADF joint force with 'sufficient combat weight and survivable capabilities' to execute the government's own maritime strategy.[16] While it is, unfortunately, not unusual for Australian governments to adopt strategies which they subsequently fail to resource, this combination of factors makes it especially urgent for the ADF (and Army in particular) to update its operating concepts for stand-in manoeuvre in contested littoral environments.

Essential Features of an Australian Stand-in Manoeuvre Concept

As this analysis suggests, in order to be viable, an ADF stand-in manoeuvre concept would need the following key characteristics:

- **Distributed.** Forces will need to disperse physically to avoid destruction, while still being able to mass effects, strike at range, and draw upon follow-on forces and reach-back capabilities to destroy targets and seize or hold objectives.

- **Low profile.** To survive, force elements will need to maintain a stealthy profile, remaining below adversary ISR detection/discrimination thresholds. In combination with distributed operations, this will invoke a 'dispersion dilemma' whereby forces that physically disperse must then communicate electronically, thereby risking detection and subsequent destruction.

- **Modular.** Unit and task organisations, logistic support, mobility assets and key equipment will need to be modular, to enable forces rapidly to aggregate and disaggregate fires and effects throughout a disaggregated battlespace. Greater modularity, interchangeability among force elements, and tactical self-sufficiency will also reduce the requirement to communicate, relieving (to some extent) the dispersion dilemma.

- **Mobile.** Distributed modular forces in littoral or archipelagic battlespace will be at risk of being isolated, fixed and destroyed in detail unless they remain mobile. Mobility in this sense implies the ability both to enter contested littoral environments from outside, and to manoeuvre within contested space.

- **Sustainable.** Forces 'living in the WEZ' need to be sustainable across critical classes of supply, maintenance and transportation for protracted periods while remaining undetected. This implies self-sufficiency, pre-campaign operational preparation of the environment (OPE), and a light logistic tail.

- **Survivable.** SIF will need to be survivable against a range of adversary weapon systems and manoeuvre assets inside the WEZ, ideally by remaining undetected and hence untargeted but, in a critical subset of cases, through hardened installations, protected mobility and close-in defences.

- **CEMA resilient.** Forces in the WEZ will face intense disruption and degradation efforts from adversary CEMA. Cyberattack, degradation of radio, SATCOM and GPS, and loss of fibre-optic links will hamper C2 and increase detection risk. Forces must be resilient to CEMA disruption while possessing capabilities for cyber and electronic deception, to dissipate integrated enemy CEMA.

- **Beyond-peer relevant.** In contested littoral space, Australian forces will almost certainly face a beyond-peer adversary—larger, more capable and more technically advanced than the ADF in some key areas. As the underdog, ADF elements will need to optimise for delay, disruption and cost imposition, trading space for time while inflicting damage to deter further aggression.

- **Multi-phase.** To deter, delay, disrupt and damage an aggressor, stand-in manoeuvre must be effective across multiple campaigning phases, from competition through pre-crisis shaping, crisis, conflict and transition. Forces must be able to transition in an agile manner among phases as a campaign develops.

- **Multi/cross-domain.** Finally, stand-in manoeuvre needs to be effective across multiple domains (land, sea, air, space, cyber and the electromagnetic spectrum). In addition, cross-domain coercion (applying assets from one domain for leverage in another) and hybrid warfare (operating across a spectrum of military and non-military measures to achieve campaign goals) remain relevant to stand-in manoeuvre in contested littoral space.

Some or all of these elements are already present in Australian concepts, including Adaptive Campaigning, Joint Archipelagic Manoeuvre and Accelerated Warfare, and the foregoing list is not intended to supplant these. Rather, it offers a template against which partner concepts can be evaluated, given key requirements for ADF stand-in manoeuvre. The next section applies this template to two of the most relevant of these partner concepts: the US Marine Corps Concept for Stand-In Forces, and the Royal Marines Commando Force concept.

Part 2—Comparative Analysis—AUKUS Partners' Concepts

USMC Concept for Stand-In Forces

Since 2020, the United States Marine Corps (USMC), under its Force Design 2030 program, has been developing a suite of concepts, capabilities, organisations and doctrine to enable Marines to survive and operate in the WEZ, as part of a broader reorientation towards great-power competition in the Indo-Pacific.[17] Though each USMC concept has much to offer the Australian Army, one in particular, the Concept for Stand-In Forces, is directly relevant to stand-in manoeuvre in contested littoral environments. In addition, the USMC in 2020 disbanded its three tank battalions, reducing protected mobility and optimising for stealth and distributed operations within a lighter force.[18] This decision offers lessons for an Australian Army whose protected mobility under Land 400 Phase 3 has just been dramatically reduced through DSR 2023.

The USMC concept defines SIF as:

> *small but lethal, low signature, mobile, relatively simple to maintain and sustain forces designed to operate across the competition continuum within a contested area as the leading edge of a maritime defense-in-depth in order to intentionally disrupt the plans of a potential or actual adversary. Depending on the situation, stand-in forces are composed of elements from the Marine Corps, Navy, Coast Guard, special operations forces, interagency, and allies and partners.[19]*

Under this concept, SIF will be positioned in the WEZ, working with allies and partners. As stated in USMC Force Design 2030:

> *[A]s the eyes and ears of the fleet and joint force, [SIF] have the enduring tasks of conducting reconnaissance and counter-reconnaissance for [a] naval campaign at every point on the competition continuum. If necessary, these forces will conduct sea denial in designated areas in support of the naval campaign.[20]*

SIF are postured to delay, disrupt and damage an adversary using organic weapon systems, but will also form nodes within 'naval and joint kill webs, helping to bring all-domain effects to bear when needed. In doing so, Marines will extend the reach of the fleet and joint force from inside contested areas'.[21]

In this concept, SIF form the forward land elements of a multi-domain ISR network, seeking to identify adversary activity, building understanding of enemy capabilities, and helping the joint force to make sense of the environment (in physical, human and network terms). SIF operate from within an adversary's WEZ, conducting multi-domain counter-reconnaissance during the competition and crisis stages of a campaign. In the conflict phase, they 'remain forward in the contested area alongside allies and partners to support naval and joint campaigning'.[22]

The Stand-In Forces Concept depicts an environment characterised by proliferation of a 'mature precision strike regime' in which adversaries of all kinds 'are demonstrating the ability to accurately sense the battlespace in multiple domains and rapidly strike' while continually improving ISR and targeting. One conclusion is that SIF must establish persistent presence in the WEZ, and that failure to do so would make it extremely difficult 'to re-establish access from strategic distance … Trying to gain access to a denied area from the outside is a symmetrical response to a counter-intervention approach, which should be avoided'.[23] As discussed below, this aspect—the need to gain access to a denied WEZ from outside, rather than being pre-positioned inside the WEZ at the outset of a conflict—is a significant difference between the USMC concept and the Royal Marines Commando Force concept.

Figure 1. A Navy Marine Expeditionary Ship Interdiction System (NMESIS) launcher, 2021. (Source: U.S. Marine Corps)

The theory of success for SIF, across multiple campaign phases, is that SIF deter adversaries during competition by 'establishing the forward edge of a partnered maritime defense-in-depth that denies the adversary freedom of action'. They operate by 'gaining and maintaining contact (establishing target custody and identifying the potential adversary's sensors) below the threshold of violence', providing early warning of adversary action, disrupting it with organic weapons, or cueing follow-on forces and joint assets as part of a stealthy, forward-deployed kill web. If a crisis escalates into conflict, SIF conduct sea denial, focused on maritime chokepoints, again using a combination of organic and reach-back capabilities.

In effect, SIF represent the contact layer of a maritime cost-imposition strategy that slows adversaries and requires them to commit larger forces, across a wider area, with greater risk and more supporting assets. An adversary surface action group attempting passage of a contested littoral chokepoint or archipelago, for example, would need to allocate more time and greater resources, and accept the possibility of heavier losses, in the face of forward-deployed SIF. In this way:

> *SIF become an operational problem an enemy must address to achieve its goals. SIF impose costs on the enemy by presenting operationally relevant capabilities that cannot be ignored, even as their low signature, high mobility, dispersion, and use of deception make them difficult for an enemy to find and target. Their small footprint and focus on partnership make SIF less burdensome on the host nation than larger U.S. formations.*[24]

(Note the assumption that SIF are declared to a host nation, rather than acting in a clandestine/covert manner in contested territory.)

The concept seeks to deploy the smallest possible force forward, linked into a joint sensor-to-effector network, thus minimising the at-risk force and reducing logistic requirements. It envisions a layered deployment in zones, with the forward-most zone comprising autonomous systems, backed by a layer of human-machine teams to 'control the forward elements, operate an additional layer of manned and unmanned sensors, integrate operations with allies and partners, and … provide direction and support to unmanned systems as they cycle forward'.[25] A rearward zone includes major weapon systems such as missile batteries, with logistics and C2 elements. The SIF concept assumes that anything 'requiring significant sustainment or manpower support

will ideally be postured afloat and/or ashore outside the contested area to minimize the footprint and signature inside the contested area'.[26]

Beyond the force-multiplier aspect of their ability to draw on a distributed kill web, SIF achieve an awareness-multiplier effect by operating with host nation partners, conducting security assistance and joint exercises to build relationships and develop awareness of normality patterns, enabling them better to detect adversary hybrid or grey-zone activity. This preference for operating 'declared' to local partners distinguishes SIF from special operations forces or clandestine teams.[27]

During major combat, SIF are envisioned as tipping and cueing a larger joint force positioned outside the WEZ (or beyond the contested area altogether) so that, as SIF disrupt and delay an adversary, joint forces can exploit windows of adversary vulnerability to enter the contested area. This tactic forms a series of 'pulses of combat power' in which manoeuvre into the WEZ is enabled by persistent SIF presence, feeding sensor data and intelligence to a joint force postured to exploit vulnerabilities, in an archipelagic version of recon-pull manoeuvre.[28] In effect, SIF fight in the manner of a traditional covering force, setting favourable conditions for manoeuvre by naval and joint forces.

In terms of survivability, SIF are 'designed to survive inside a contested area through the application of a "hard to find—hard to kill" approach' through signature management, remaining mobile, dispersing, and defeating adversary sensors. Deception, using physical decoys and cyber or electronic emitters to offer multiple 'false positives' to sensors, serves to dissipate adversary countermeasures, while providing sufficient background clutter for SIF to merge into the environment. This is an indirect protection approach, emphasising the outer layers of the 'survivability onion' ('don't be there, don't be seen, don't be hit') rather than direct protection ('survive a hit'). Modularity, dispersion and stealth thus play critical roles for lightly protected SIF unable to rely on hardened installations or protected mobility.

Royal Marines Commando Force Concept

Like the USMC, the Royal Marines (RM) are engaged in a strategic transformation. This was in response to decades of land-based counterinsurgency and irregular warfare. In 2003, RM Commandos were forced to set aside an earlier transformation effort in order to organise and

operate in a broadly similar manner to the British Army battalions alongside which they rotated through Iraq and Afghanistan. Commencing in 2018, however, increasing great-power competition and the crucial importance of maritime and littoral space for a global maritime power like the United Kingdom prompted the RM, as part of a broader Royal Navy effort, to refocus on amphibious warfare, raiding and special operations. In pursuing this transformation, the RM recognised that while the current Commandos could successfully deliver raiding and special operations, there was a need to reinforce, distribute and modernise these capabilities. The goal was to give the amphibious commander greater flexibility to choose raiding or special operations, and to execute these at smaller (and thus, against today's threat, more survivable) scales.[29] The result was the Commando Force (CF) concept.

Like the USMC concept for SIF, the CF concept involves small, stealthy, mobile, lethal force elements that can enter and operate within an adversary's WEZ, supporting fleet operations and projecting land power as a Littoral Response Group (LRG). The LRG sits within the larger Royal Navy Littoral Strike Group (LSG) and integrates its effects into a distributed kill web in the form of the Naval Strike Network (NSN).[30]

The goal is 'a Commando Force that is more sophisticated, more lethal, more persistently forward and delivering special operations'.[31] The concept thus seeks to provide the one-star amphibious commander with choices beyond current norms. It allows the amphibious group to easily split into two vectors of military opportunity, with each as capable as the overall amphibious group but at reduced scale (and hence reduced signature and improved survivability). This also seeks to create resilience and redundancy. The ability to split and distribute the formation for tactical advantage creates opportunity to deploy task-organised, combined-arms increments of the LSG into contested areas as persistent-presence LRGs. Thus, in effect, the LRGs form an integral part of the Royal Navy's formation-scale amphibious group, but offer the ancillary benefit of persistent presence or SIF action as required.

The CF concept has not been published in an unclassified version, unlike the USMC concept for SIF. However, it follows a similar logic: the need for small, modular, networked force elements that leverage autonomous systems and a wider kill web to operate in contested littoral space in a stealthy manner. CF seek to be agile across multiple domains, including the electromagnetic

spectrum and cyberspace, drawing on joint and coalition capabilities for lethality and survivability.

The CF organisational structure reflects this approach, with each of the two LRGs operating as RM Commando (i.e., battalion) sized organisations within the LSG, alongside Royal Navy amphibious ships, surface combatants, submarines and aviation elements, and able to operate in concert with a carrier strike group (CSG) built around one of the UK's two aircraft carriers. The LSG is a joint one-star commanded grouping optimised for crisis response and joint theatre entry, either independently or to enable massing of other forces. Each LRG is assigned three CF strike company groups (SCGs) plus supporting elements from the RM, along with specialists from the British Army. The SCG, at approximately a reinforced company group in size, is the heart of the concept. It is structured to operate in a stealthy, distributed manner, organised into nine teams, each with its own organic mobility, fires and communications, specialised for specific combat or combat support tasks, and able to aggregate and disaggregate as needed to mass fires and effects. Each LRG maintains one SCG persistently forward-deployed, with another held at readiness afloat, on land or at a home base. Aviation, medical, engineers, reconnaissance and ship-to-shore connectors complement the SCG, forming a land component optimised to support joint littoral manoeuvre by the LSG commander.

Figure 2. Landing Craft from HMS Albion during an exercise. (Source: U.K. Ministry of Defence)

SCGs work with forward-deployed marine liaison assessment teams (MLATs) and a joint interagency cell cooperating with regional allies and partners, along with information exploitation and outreach teams conducting military information support operations, and electronic warfare/signals intelligence teams. Each SCG includes logistics and medical capabilities, fires, organic mobility, engineering assets, and joint effects teams. An SCG can support or operate alongside UK Special Forces (UKSF) in strike, reconnaissance and other special operations while conducting security assistance and ISR in a theatre. This enables a distributed, multi-domain, special operations-capable land component that can operate in a warfighting scenario inside or on the edge of an adversary's WEZ, while retaining utility for missions such as humanitarian and disaster relief, non-combatant evacuation, and defence engagement.

During competition, CF may conduct ISR/counter-ISR and shaping operations, as well as training and security assistance with regional partners. As a crisis develops, they may assist in denying, securing or reinforcing chokepoints to enable an LSG or CSG to manoeuvre in contested littoral or archipelagic space. During conflict, they act as eyes and ears for the joint force to enable the NSN or a coalition kill web to conduct find/strike or deny/defend missions, and disrupt or disable adversary A2AD systems to facilitate follow-on forces or enable massing of other elements. They can also conduct raiding or strike operations independently or with UKSF or allied forces.

Like USMC SIF, RM CF expect to make extensive use of robotic and autonomous systems and human-machine teaming to minimise human force elements at risk inside an enemy's WEZ, via the NSN and the Royal Navy's broader autonomous systems initiative.[32] They expect to operate in a distributed, low-profile manner, relying primarily on indirect rather than direct protection for survivability. Like USMC SIF, RM SCGs possess hardened vehicles for protected mobility, along with direct and indirect fire weapons and ship-to-shore connectors such as landing craft and helicopters. Unlike USMC SIF—which are presumed to already be present, operating concealed inside an adversary's A2AD bubble (but below its detection/discrimination threshold) before the onset of conflict—CF recognise that they may need to initially operate from outside an adversary's A2AD bubble, and therefore may have to penetrate contested space, including entering an adversary's WEZ, in a joint theatre entry operation. This is not to suggest that the RM concept underplays the risk of theatre entry, or deliberately seeks to invoke a requirement to 'pierce the bubble' of an adversary A2AD

system. Indeed, one key goal is for routine LRG deployments to create persistent presence in contested areas so as to avoid the requirement for a full-blown theatre entry. Rather than seek a theatre entry scenario, the RM concept represents a recognition that—like it or not—LRGs will need capabilities to do so if required.

This requirement for a potential theatre entry, along with the need to mass for offensive operations and the explicit special operations tasking of CF, represent some of the key differences between the CF and SIF concepts. Another is scale: RM CF, even augmented by British Army units and allies, are still significantly smaller (at roughly 4,400 personnel) than the multiple brigade-sized marine littoral regiments envisaged under the USMC SIF concept. At the same time, the LRGs need to cover multiple environments, with LRG (North) operating in a NATO- and Europe-facing posture (thus likely involving mountain and cold-weather warfare) while LRG (South) is Indo-Pacific facing and expected to routinely engage in tropical and desert warfare. An environmental split between the two LRGs is not part of the CF concept, which recognises that over-specialisation or 'streaming' each of the LRGs for one specific environment reduces flexibility. Rather, both LRGs expect—as increments of the globally deployable LSG—to fight in any environment, preparing accordingly.

Evaluation of AUKUS Partners' Concepts

The criteria established in Part 1 enable an evaluation of the key features of the SIF and Commando Force concepts. These can be summarised as follows:

- **Distributed.** Both concepts rely on distributed operations, dispersing force elements across a wide area in small teams that cooperate by massing effects and fires rather than physically co-locating. In both concepts, forces make extensive use of robotic and autonomous systems and human-machine teaming in order to generate the greatest possible effect while placing the smallest possible number of humans in harm's way. As noted earlier, the distributed aspect of both concepts invokes a dispersion dilemma—to survive in the WEZ, units need to disperse, but at the same time, in order to mass their effects, distributed force elements need to communicate with each other and interact with a broader kill web, creating risk of electronic detection

and targeting. This is a common feature of both concepts, and also an issue that would apply to Australia's JPLF and AAF under similar circumstances. In Australian doctrine, distributed manoeuvre:

> *seeks to close with and destroy the enemy without presenting a targetable mass. Importantly, it seeks to harness the synergies that come from combining precision joint fires and manoeuvre elements into small, agile combined arms teams that 'burrow' into complex terrain to detect, identify and kill or capture the enemy with precision, discrimination and an understanding of the potential second and third order consequences that may arise.*[33]

This aligns closely with the US and UK concepts for stand-in manoeuvre.

- **Low profile.** The USMC SIF concept relies on a 'hard to find, hard to kill' indirect protection model, with small teams operating stealthily from pre-selected locations. It assumes that SIF are already present inside the WEZ at the outset of conflict, and hence that there is no requirement to penetrate the WEZ from outside in the face of adversary A2AD systems. In contrast, the CF concept assumes that some elements of the LRG (indicatively, one SCG) will be persistently forward-deployed in the theatre, with the remainder afloat or in a land base. Thus, while some parts of the CF may be inside an adversary's WEZ at the outset, others may need to penetrate a contested area against A2AD systems, running the risk of detection and destruction as a result. This imposes a requirement (though, as noted, not a preference) for joint theatre entry on CF. The UK concept thus is closer to the circumstances Australia might face, in that the JPLF might be forward-deployed conducting ISR and counter-reconnaissance ahead of the main force and thus be inside the WEZ from the outset, whereas the main landing force would need to conduct a joint theatre entry—and possibly an opposed transit in amphibious and sealift shipping—before engaging the adversary. Also of note, both concepts assume that SIF/CF are 'declared' to the host nation, which brings benefits for situational awareness but also imposes some vulnerability to disclosure by third parties. In Australia's case, force elements from Special Operations Command (SOCOMD) and the JPLF may or may not be declared to host nations depending on the circumstances.

- **Modular.** Both concepts envisage a modular force structure, in which SIF/CF teams are self-supporting interchangeable squad/section-sized teams that can aggregate and disaggregate fires, forces and effects. The USMC SIF concept is somewhat more modular than the UK approach in that it includes multiple functionally and organisationally interchangeable teams performing multiple combat and combat support tasks (albeit deployed in three distinct layered zones and with different characteristics in each). The UK CF concept currently envisages each team within the strike company performing different roles with specialised equipment, but this is an evolutionary stepping-stone towards an optimal future organisation where every team is interchangeable and equally capable across all tactical functions. In Australia's case, the JPLF (and any SOCOMD elements committed) would probably operate similarly to CF, while the main AAF and follow-on forces would be organised similarly to SIF.

- **Mobile.** As noted, the USMC concept assumes SIF are already in the WEZ, and emphasises stealth and dispersion rather than mobility. Some elements have the multi-modal organic mobility to move from one island to another in a protected manner, while others would be vulnerable to being fixed in place if an adversary were to destroy (or simply force further offshore) the sealift and ship-to-shore assets they depend on. In the UK concept, all elements of the CF have organic mobility on land, but only some—primarily, specialised ISR and boat teams—have organic seaborne mobility. The RM concept sees specialist boat squadrons that (like the strike teams) are cross-functional and distributable as smaller echelons, retaining potency across the tactical functions down to each individual boat, with 'dumb' landing craft a thing of the past. These boat squadrons will be allocated to manoeuvre, ISR or strike missions as needed, either task-organised with strike teams embarked or as independent fighting elements in their own right.[34] In the Australian case, helicopters and landing craft provide ship-to-shore mobility but the force, once landed, has less organic mobility (and significantly less protected mobility) than UK CF or USMC SIF. Thus, Australian forces run the risk of being fixed in place if supporting sealift and amphibious assets are disrupted.

- **Sustainable.** Both the UK and US concepts recognise logistic sustainability (particularly resupply and maintenance) as critical concerns. As in the dispersion dilemma already noted, there is a sustainability

trade-off for distributed, stealthy forces. Forces that rely on frequent resupply can be lighter and more organically mobile, but they run the risk of being compromised by resupply assets and destroyed in position, whereas those that instead rely on cached supplies or attempt to carry more in first- or second-line transport are less mobile and less stealthy due to larger loads and fixed installations. Host-nation support (where forces are declared) and pre-conflict operational preparation of the battlespace are only a partial solution to this problem.

- **Survivable.** UK CF are arguably most vulnerable when entering or transiting the WEZ, either airborne or afloat, in assets belonging to the LSG. Once ashore, SCGs have a mix of mobility and protection assets, and can be expected to disperse, hide and harden their positions in order to improve survivability. The USMC SIF concept does not directly address this problem since its 'hard to find, hard to kill' approach emphasises stealth and dispersion. However, in both cases, the broader kill web is likely to play a critical role in the force's survival, as long as forward-deployed elements can sense, communicate, and pass targeting information to joint fires assets. In Australia's case, reliance on joint fires would be even more significant since the JPLF lacks organic protected mobility and the AAF would need to call for air and maritime fire support.

- **CEMA resilient.** This reliance on a distributed joint fires network makes resilience to CEMA attack an extremely important aspect of all three AUKUS partners' concepts. Should an adversary successfully disrupt or deny sensor systems, C4ISR networks, and/or space-based PNT and navigation assets, forward-deployed forces would be unable to call for joint fires and would be correspondingly vulnerable to defeat in detail. Minimising emissions, signature management, use of civilian systems where authorised, and employing low-power/no-power systems will be necessary wherever possible. Likewise, deception—seeding a contested littoral environment with decoys, emitters and simulated forces—is recognised as an important aspect in both the UK and US concepts, and would be equally important for Australian forces.

- **Beyond-peer relevant.** While the US, arguably, does not face a beyond-peer adversary, both Australia and the UK would do so if operating outside an alliance framework. Indeed, even when operating together all three AUKUS partners might face a locally or temporarily superior adversary. There is an implicit trade-off between holding forces back from a WEZ, and running the risk of losing any assets committed.

The USMC construct of pre-deployed forces already 'living in the WEZ' and engaged in continuous shaping operations addresses this to some extent, but only if such forces can successfully avoid detection. UK CF and Australian forces (with the possible exception of SOCOMD and some JPLF assets) would potentially need to enter the WEZ after the outbreak of conflict, and could therefore suffer significant losses. Moreover, since both the UK and Australia have very limited numbers of sealift assets and amphibious shipping, loss of a major surface platform could have strategic implications beyond the immediate campaign.

- **Multi-phase.** Both the US and UK concepts envisage operations across the full competition continuum, including in pre-conflict shaping, crisis and conflict. The USMC SIF concept optimises for combat in the Indo-Pacific during overt conflict, whereas the UK requires the LSG and supporting LRGs to be relevant across the full range of military operations. In Australia's case, the AAF is required 'to employ a landing force of up to battlegroup strength over the spectrum of operations, from the provision of humanitarian assistance and disaster relief to high-end warfighting' and—after the JPLF has secured an area of operations—conducting strategic shaping; humanitarian operations; non-combatant evacuation, peace and stability operations; and joint combat.[35] Accordingly, the UK approach is likely to have broad utility for Australian forces, noting that neither the UK nor Australia has the force size to conduct multiple missions simultaneously, at scale, across the continuum of competition.

- **Multi/cross-domain.** Both the UK and US concepts emphasise the need for multi-domain manoeuvre in contested littoral environments. The ability to draw on assets and effects from one domain and apply them in another is inherent in the NSN and multi-domain kill web constructs, as is the notion of deterring an adversary's cross-domain coercion in hybrid and grey-zone operations. The UK concept is somewhat more explicit about this aspect, but this is arguably because US planners tend to take cross-domain and multi-domain manoeuvre for granted. In Australia's case, deterring adversary aggression would certainly require multi/cross-domain activity, often including alliance and partner assets such as space, cyber and ISR assets. Of note, one potential trade-off for all three AUKUS partners would exist between the need for stealth and concealment as part of a 'hard to see, hard to kill' survivability approach, and the need to deter adversary aggression by telegraphing actual or potential presence in a given contested area.

Part 3—Adapting AUKUS Concepts for Australian Conditions

Based on the foregoing analysis, it is clear that both the USMC and RM concepts have much to offer Australia, as the ADF considers the need for an enhanced capability for stand-in manoeuvre in contested littoral environments. Since 2013, the ADF has expended considerable effort in the rapid development of an Australian amphibious capability to be reckoned with.[36] At the same time, however, the environment is rapidly becoming considerably more challenging as US-China competition heightens across the Indo-Pacific, in Australia's region of primary area of strategic military interest, 'encompassing the north-eastern Indian Ocean through maritime Southeast Asia into the Pacific' and including Australia's northern approaches.[37] At the same time, regional nations and even some non-state actors are acquiring A2AD systems that leverage distributed, low-profile, improvised and advanced technologies in ways that increase the threat even without peer or beyond-peer adversaries. As new A2AD and counter-intervention systems are fielded across this region, and as tensions increase around specific flashpoints including the Taiwan Strait, Korean Peninsula, Japanese outer islands and South China Sea, the ability to avoid stand-in manoeuvre—to stay out of an adversary's increasingly capable WEZ— is rapidly evaporating.

It is beyond the scope of this paper to develop a detailed Australian concept for stand-in manoeuvre. However, in outline, it is clear that such a concept would need to emphasise the four main criteria discussed above: survivability for deployed forces, sustainability across multiple phases in a protracted campaign, multi-domain or cross-domain deterrence, and interoperability/interchangeability with AUKUS partners.

Given the limited size of the AAF, the available number of amphibious ships, and the government's decision in the DSR 2023 to reduce Army's protected mobility to a single battlegroup, any failure in survivability of the deployed force could have significant strategic implications for Australia. Loss of a *Canberra*-class landing helicopter dock (LHD), destruction of an Army battlegroup, or loss of a number of ship-to-shore connectors such as landing craft and helicopters, could cripple Australia's power-projection capability and render the nation dependent on allies for a rescue that might never come, if partners were simultaneously committed to their own fights. Given the lack of force size and protected mobility, a distributed, stealthy,

modular approach—fielding company-sized or smaller combat groups that follow an indirect protection and 'hard to see, hard to kill' model—clearly makes sense. While some SOCOMD elements and parts of the JPLF could conceivably already be pre-deployed in an adversary WEZ before the outbreak of a conflict, the broader AAF and follow-on forces will most likely need to penetrate an adversary A2AD bubble (and indeed to create their own A2AD bubble) in order to seize or reinforce contested points. For this reason, and because the forces are closer in size, the UK RM Commando Force concept offers a useful starting point in this regard.

Multi-phase sustainability through a protracted campaign will be a key requirement for Australia, as for the other AUKUS partners. The dispersion dilemma, the trade-off between forward-deployed and on-call logistic support, the risk of compromising concealed forces through too-frequent resupply, and the need for medical support and casualty evacuation are all aspects of sustainability that will need significant analysis, ideally through wargaming and exercising alongside AUKUS partners. As both the US and UK concepts note, trusted relationships with regional partners will be an important force multiplier, suggesting that strategic shaping and operational preparation of the environment will be particularly important pre-conflict elements, in order to set the conditions for subsequent campaign success.

Of course, far better than engaging in conflict would be to successfully deter an aggressor through a demonstrated ability to impose costs, or through pre-emptively securing contested areas. Enhancing short-term deterrence is thus also important in the AUKUS context, since capabilities such as the conventionally armed, nuclear-powered submarines to be acquired under AUKUS will take such a long time to implement, even as regional competition rises rapidly. Beyond AUKUS, working with partners such as Japan, the Republic of Korea and NATO nations with capable amphibious forces can enhance deterrence, as can cooperation with like-minded regional powers. Demonstrating the ability to conduct stand-in manoeuvre in contested littoral areas, ideally but not necessarily in concert with partners, could be enhanced through defence cooperation and exercise activities.

Clearly, the three AUKUS partners already possess a high degree of interoperability across a range of capabilities including amphibious operations. The Australian government's move away from the protected mobility needed for a medium-weight Army significantly reduces Army's

ability to operate in a high-threat land-centric environment alongside the US Army, suggesting that a focus on interoperability with the USMC and UK RM (along with other British Army elements of equivalent mobility and protection to the Australian Army) may make more sense.

More broadly, the similarity of concepts among the three AUKUS partners—along with compatible capabilities held by other NATO countries and regional partners such as Singapore—offers opportunity to craft a coalition capability for joint stand-in manoeuvre in contested littoral environments. The UK CF concept, for example, is explicitly set within a coalition context. The beyond-peer capability offered by British LRGs under the CF concept lies in the coalition contribution that such a force could make to combined joint littoral manoeuvre, and the same potential would be offered by an equivalent Australian concept. Thus, the opportunity here goes well beyond mere interoperability, towards a deterrent capability of significant strategic utility for Australia as well as for other AUKUS partners.

Conclusion

This paper has explored two concepts currently being developed by the United States Marine Corps, UK Royal Marines and Royal Navy (the US Concept for Stand-In Forces, and the British Commando Forces concept) to inform an Australian approach to stand-in manoeuvre in contested littoral environments. As the paper has identified, an increasingly daunting set of A2AD and counter-intervention capabilities have proliferated within the Indo-Pacific over the last 15 years as a result of increasing strategic competition between the United States and China. The challenges inherent in a contested littoral environment emphasise the need to operate in a distributed, low-profile, mobile, modular and sustained manner inside the WEZ of a beyond-peer adversary's A2AD bubble, within contested littoral or archipelagic space, through multiple phases along a competition continuum including pre-crisis shaping, crisis, conflict and transition. Both the US and UK concepts offer important features for the Australian Army to consider emulating, and aspects on which to improve, or which need modifying for Australia's specific circumstances. This suggests that a future Australian operating concept for stand-in manoeuvre in a contested littoral environment should seek to maximise survivability for deployed forces, sustainability across multiple phases in a protracted campaign, multi-domain or cross-domain deterrence,

and interoperability/interchangeability with AUKUS partners. It could also offer a beyond-peer coalition contribution which, once fully developed, would carry significantly enhanced deterrence for a potential adversary.

About the Author

Dr David Kilcullen is Professor of International and Political Studies at UNSW Canberra and CEO of the analysis firm Cordillera Applications Group. Professor Kilcullen is a theorist and practitioner of guerrilla and unconventional warfare, counterinsurgency and counterterrorism, with operational experience over 25 years with the Australian and U.S. governments as an infantry officer, intelligence analyst, policy adviser and diplomat. He served in Iraq as senior counterinsurgency advisor to Multinational Force—Iraq, then as senior counterterrorism advisor to Secretary of State Condoleezza Rice, deploying to Afghanistan, Pakistan, Somalia, Libya and Colombia. He is the author of eight books and numerous scholarly papers on terrorism, insurgency, urbanization and future warfare, and was awarded the 2015 Walkley Award for his reporting on the rise of Islamic State. He heads the Future Operations Research Group at UNSW Canberra, and teaches contemporary strategy, special operations, urban warfare, military innovation and adaptation. He works with advanced research agencies in the United States, Canada, and UK on technology, artificial intelligence and future conflict.

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Book Review

Born of Fire and Ash: Australian Operations in Response to the East Timor Crisis, 1999–2000

Craig Stockings (Sydney, University of New South Wales Press, 2022, ISBN 9781742236230, 975 pp)

Reviewed by Jean Bou

Australia has a unique tradition of official histories of its military commitments. In most countries, official histories reflect the tradition of the 'staff history'. Produced by the military services themselves, the emphasis is on military matters and how those services went about things with the resources at their disposal. One consequence is that they tend to minimise contextual events to derive 'lessons learned'. Another is that, prepared for a specialist military audience, they tend to be rather dry. Australia's tradition was, conversely, spawned after the First World War to chronicle the nation's effort, started by journalists cum historians, and sponsored at the highest levels of government rather than by a service headquarters. The result, while still focused on military action, tends to take a wider view of government's role and general context, and makes for more satisfying history.

Born of Fire and Ash is the latest book to appear in this tradition and is the first of the two-volume Official History of Australian Peacekeeping Operations in East Timor. The same team is also producing a four-volume

series on this century's Australian commitments to Iraq and Afghanistan. Craig Stockings, a professor of history at the University of New South Wales–Australian Defence Force Academy, is the official historian appointed to oversee these volumes. Once a junior infantry officer in the International Force for East Timor (INTERFET), he is well suited to the task.

The book Stockings has produced has six parts and numerous appendices. It begins its examination of INTERFET's operations by outlining the history of Australia and Portuguese/East Timor going back to the 1940s and earlier. It finds its feet going into the 1960s and 1970s, when revolution in Portugal emboldened an East Timorese independence movement, leading to Indonesian anxiety about a potentially small, weak and maybe communist-aligned state in the archipelago. Indonesia soon invaded, precipitating a decades-long resistance. Jakarta's conquest broadly suited Canberra, where governments of all colours were driven by the urge to keep relations with Indonesia positive and by their concerns about a 'mendicant' East Timorese state. Australian policy can certainly be criticised for its callousness in this regard, but subordinating East Timor's independence aspirations suited successive Australian governments—as Stockings repeatedly points out, *realpolitik* prevailed. Inconveniently for Jakarta and Canberra, many East Timorese refused to acquiesce, and the matter became a recurring irritant in the relationship as East Timorese sympathisers in Australia and elsewhere, ensured the issue never died away. Then in the late 1990s Indonesia, reeling from an economic crisis and amid an uneasy transition to democracy, unexpectedly agreed to an Australian proposal to remove the ceaseless irritation by allowing the East Timorese a vote on their future.

This process soon led to violence when they voted for independence. Rival groups in East Timor clashed and an affronted Indonesian military proved reluctant to give up what it had bled for. It was not what John Howard's government had counted on with its proposal, but the events had to be addressed. The result was the creation of an international force, with Australia at its head, which deployed in September 1999 to restore stability and ease the path to independence—INTERFET. The Australian Defence Force (ADF) and other government agencies had already been involved in efforts to supervise and conduct the vote, and then carry out evacuations as things deteriorated. Stockings outlines and analyses these developments with clarity, before moving on to his examination of the ADF and INTERFET, which makes up the remaining four sections of the book.

In reading these sections it is necessary to periodically remind oneself, and Stockings is careful to do so from time to time, that the ADF did in fact manage to carry out its mission, and that INTERFET was a success. Without that reminder it might be easy to wonder, because the book makes for often discomforting reading about an ADF that, undertaking—and indeed leading—its first large joint operation since its creation in the mid-1970s, creaked into action after decades of no or relatively minor commitments, and various defence retrenchments. What shines through is individuals and units striving to make things work through sheer determination, good will and hard work. This successful extemporisation is laudable in one sense, being testimony to the skills and temperament of the ADF's personnel. Inescapably, however, it is also clear that in doing this they were too often papering over significant institutional cracks, particularly regarding planning and logistics. In regard to the former, Stockings frankly concludes that, in planning the deployment, the ADF was more or less out of its depth. While this situation can be blamed in part on circumstance and government cost-cutting, the reality was that 'jointness' was only skin deep, and the command and control arrangements either poor or insufficiently robust. These difficulties were most apparent in relation to the ADF's logistics, to which little more than lip service had ever been paid, and which seems to have been held together only by the barest of threads.

These problems might be thought excusable, or at least understandable, as this was the ADF's first major foray since Vietnam, but similar problems had been shown up by smaller deployments earlier in the decade. The general similarities with, for example, the deployment to Rwanda, are striking, but this time the problems were writ large.

This is a huge book, totalling nearly 1,000 pages, and many important themes run through it—the importance of American support and how vital the coalition partners were, even if they sometimes caused headaches, being but two of the issues addressed. Though it reads well, at times the book's weightiness is exacerbated by its being longwinded or too 'down in the weeds'. Like all such books, it is destined to be more often dipped into than read in its entirety. Nevertheless, UNSW Press has priced it keenly and I would urge investing in one of its formats to read an excellent history of a vital and successful, but often very imperfect, Australian-led joint coalition operation. Aside from its undoubted quality as history, it contains plenty to provoke individual and, hopefully, institutional reflection.

About the Reviewer

Dr Jean Bou is a widely published historian and a member of the Strategic and Defence Studies Centre at the Australian National University, where his responsibilities have included convening and teaching courses for a decade at the Australian War College. He was part of the team that produced the multi-volume Official History of Australian Peacekeeping, Humanitarian and Post-Cold War Operations and he wrote the history of the ADF's deployment to Rwanda, among others. He is a Captain in the Australian Army Reserve and a member of the Australian Army Research Centre.

Book Review

The War Game. Australian War Leadership from Gallipoli to Iraq

David Horner (Allen & Unwin, 2022, ISBN 978 1 76106 595 8, 464 pp)

Reviewed by John Nash

Eminent historian David Horner's latest work is concerned with Australian war leadership and asks the question: 'Why has Australia gone to war nine times in a century?' It focuses on the politicians and top-level military leaders in Australian history and examines why and how Australia committed its troops to wars, from the First World War through to the second Iraq War in 2003. The nine wars that he examines comprise both World Wars, Korea, the Malayan Emergency, the Confrontation with Indonesia, the Vietnam War, the First Gulf War, operations in Afghanistan, and finally the 2003 Iraq War. Not surprisingly, the First and Second World Wars take up the first half of the book, with three and four chapters respectively.

This is not a book about leadership in battle, or the conduct of military campaigns. Instead it is focused on the politicians who commit to war and on the high-level military officers and public servants who advise and assist them before and during the conflict. This approach offers a fresh perspective from previous works. In this sense there are two parts to the examination of

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each war: the first is the commitment to the war, and the second part looks at the conduct of the war.

For Australia, the decision to commit was straightforward when it came to the two World Wars. Where the mother country Britain went, Australia followed, even into war. This sense of obligation is best encapsulated by Horner's quotation of Prime Minister Menzies's radio address on 3 September 1939, when he declared to his fellow Australians that it was his 'melancholy duty' to tell them that, as a result of Britain declaring war on Germany, 'Australia is also at war'. As Horner points out, technically Australia could have made its own declaration of war in 1939, but the connection to Britain was still so great that it was taken for granted Australia would be there.[1]

Less straightforward were the political decisions taken during these wars. Australia's lack of agency was often highlighted by its forces being committed to battles or campaigns by the British High Command, with little or no consultation, leaving Australia to find out after the fact. In the case of Australian troops landing at Gallipoli, the Australian Government found out four days afterwards.[2] Likewise in the Second World War, the Royal Australian Navy was under British Admiralty command and Australian Army divisions were often committed with little to no Australian input, or with inadequate information provided to its commanders.

After the Second World War, the policy of automatically following Britain into battle came to be replaced by a heightened awareness of how Australia engages on the world stage, including what conflicts Australia commits to and how its forces operate. Australia's military response to the Korean War marked the beginning of this change. Being under the auspices of the United Nations, the commitment itself was rather uncontentious. While Australia controlled its forces' commitment carefully, it nevertheless still had little say in their operational employment while they were in Korea. In contrast, by the time of the Vietnam War and Indonesia's confrontation with Malaysia, Australia was carefully controlling both what forces it committed and how those forces were employed.

To illustrate this progression, Horner cites several examples. He contrasts Australia's lack of oversight during the two World Wars with Cabinet's deliberate decision-making concerning the possible commitment of 4 RAR

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for operations in Sarawak, Malaysia, in 1966. He also shows how close oversight of military personnel commitments became a predominant government consideration throughout the period from the Vietnam War to the Gulf War. Indeed, it is apparent that successive governments have had an obsession with personnel numbers. For instance, in 1966 when Australia already had 4,554 troops in Malaysia, the chairman of the Chiefs of Staff Committee, General Wilton, had to seek formal approval from the Minister for Defence to increase the force by 69 personnel.[3] This 'cap' on personnel numbers in theatre would become a contentious issue in 2003, during Operations BASTILLE and FALCONER in Iraq, when the deployment cap of 2,058 Australian Defence Force personnel was seemingly a hard ceiling.[4]

What is made clear by Horner's history is that Australian defence policy on military commitments has followed a fairly basic principle since Korea:

> *Australia was finely calibrating how much military support it needed to commit to gain approval form the United States, while ensuring that the commitment was not too burdensome, and that casualties were limited. It was a strategy Australia had applied since 1950 and one that would be pursued for the next 60 years.[5]*

This is not a new sentiment, but Horner's work helps explore how this basic strategic principle has played out in the post-Second World war era. What is less clear are his prescriptions for the future. Horner quotes pessimistic views on the risk to Australia of tying itself to the supposed decline of American power but does not proffer a view as to what the alternative might be. Exhortations to do better in the future when committing Australian forces to war ring hollow without a guide as to what strategic threshold would better support Australian military commitments, or how Australia would defend itself in lieu of its primary alliance.

The book is well referenced, using a variety of sources including interviews, archival material, and secondary literature. There is a nice selection of black-and-white photos included in the middle section, focused on the politicians and military leaders that appear throughout. However, as Horner acknowledges, a major issue bedevilling the final chapter of the book on Afghanistan and Iraq is the lack of publicly available records. This gap will no doubt be filled by the Australian Government's forthcoming four-volume Official History series on operations in the Middle East, Afghanistan and Iraq from 2001 to 2014. In that series, decisions relating

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to Australia's commitment to Afghanistan and then Iraq will undoubtedly be better unravelled, especially with regard to decisions around what forces and capabilities would be committed and why. So too might the issue of personnel caps be better illuminated. Overall, *The War Game* is recommended reading for anyone with an interest in the history of Australia's strategic policy.

About the Reviewer

Dr John Nash is an Academic Research Officer at the Australian Army Research Centre and a Reserve Naval Officer. Before that he was a Researcher for the Australian War Memorial's *Official History of Australian Operations in Iraq and Afghanistan*. His research focuses on sea power, maritime and naval history, and strategic studies.

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Endnotes

1   Horner, *The War Game* (Allen & Unwin, 2022), p. 84.

2   Ibid., p. 32.

3   Ibid., p. 292.

4   Ibid., p. 375.

5   Ibid., p. 298.

Book Review

Urban Warfare in the Twenty-First Century

Anthony King (John Wiley & Sons, 2021, ISBN 9781509543670, 288 pp)

Reviewed by Charles Knight

> *We run into a curious void in the literature of warfare. Those practitioners of the art who were also its ablest theorists, scholars and writers dwelt on its varied aspects to the limit of their imaginations. One thing, however, they did not touch upon—combat where life is centred. Run through the list of writers and their works—Frederick, de Saxe, Clausewitz, Jomini, Kuropatkin, Bernhardi, Henderson, Foch, Fuller, Hart, et al. Not one has anything to say about military operations within or against the city.*
>
> SLA Marshall, *Notes on Urban Warfare*,
> Army Material Systems Analysis Agency, 1973.

The crux of SLA Marshall's lament was that none of the great military thinkers have provided us a theoretical foundation for urban war. Since a large proportion of all conflict has occurred in—or for—cities, to isolate and then synthesise the essence of this diverse subset has always been a daunting project. Worldwide urbanisation and the dramatic changes

wrought by information technology in recent decades have only made comprehending urban war harder. This challenge is explicit in the Australian Army's label for such conflict: complex operations. The term refers to the systems idea of complexity and captures how, during conflict, the interaction of myriad physical, human and informational factors makes urban war *emergent*, meaning resistant to conventional analysis, uncomputable and unstable. While, by definition, a complex system can never be fully understood or predicted, a holistic, big-picture approach is best. This is what Professor Anthony King has provided in *Urban Warfare in the Twenty-First Century*, and it fills a gap.

While there are many excellent case studies, reports and analyses (a good selection of which can be found at the Australian Army Research Centre's website), there are few books that deal broadly with the subject of urban warfare. The most important are those by Professor Alice Hills and Professor David Kilcullen. The former's *Future Wars in Cities* offers a rigorous academic analysis across the spectrum of military operations, while the latter's *Out of the Mountains* anticipates asymmetric or guerrilla warfare in cities. Both are excellent but future focused. King's book echoes his colleagues' warning that the future of war is urban, but he takes a wider view to look back into history.

Urban Warfare in the Twenty-First Century provides an introduction to the topic as well as a conceptual framework to unpack it. It is both a textbook for newcomers and a structure for specialists to theorise and debate. As such, it is a major contribution to the field of urban warfare studies. The work reflects King's background as a sociologist. Specifically, his thematic approach uses a wide-angle lens, only briefly zooming in on aspects of cases to illustrate a point. Some historians may be disappointed by King's repeated reference to a select handful of battles, including Stalingrad. And while King sets out to take a multidisciplinary approach to the topic, he is limited by space to substantial contributions only from his own field and from history and geography. Despite these limitations, however, the book provides an excellent start point for alternative perspectives. King has carefully judged how far to delve into pertinent but (to the average reader) inaccessible matters such as the architecture and French philosophy underpinning Aviv Kokhavi's and Eyal Weizman's concept of walking through walls. With his deft prose, King ensures that the text remains accessible to a broad audience.

The major thesis of the book is deceptively simple. The world is urbanising, cities are far larger than ever before, and armies are far smaller. As a result, urban warfare is both changing and increasing in frequency. As King puts it, historically 'Mass armies swamped cities … Today cities envelop the Armed Force'. In support of this thesis, in the second chapter King assembles the empirical evidence, and multiple arguments flow from this. Drawing persuasively on the work of Christopher Duffy and other researchers, King argues that 'Battles for cities now take place inside those cities … as contracted forces converge on decisive points'. Proceeding from this, the urban battle is portrayed by King as a series of 'localised micro-sieges', acknowledging that he is departing from the historical meaning of siege as total isolation from resources. In a deduction based on the declining force to space ratio, King argues that the advantages historically enjoyed by governments in defeating guerrilla movements in the city are waning. King also presents some of the important debates within the urban operations community, for example the question of whether urban war is a new problem deserving of special attention and resources or whether it has always been part of warfare and we have simply forgotten that fact. King does not take a position on the issue, rather prompting the reader to reflect and perhaps follow up the sources mentioned.

Rather than organise the book temporally or around key historical cases, King has chosen to dissect urban warfare using distinct and memorable conceptual themes to provide his chapter structure. This approach successfully breaks down the topic so that the reader is offered cognitively accessible and manageable chapters. To begin and end each chapter, King uses biblical titles that convey horror and destruction. The introductory 'Gomorrah' overviews past and current urban warfare, while the concluding 'Armageddon' chapter recaps key ideas to postulate possible futures. The nine chapters in between are 'Numbers', 'The Urban Guerrilla', 'Metropolis', 'Walls', 'Air', 'Fire', 'Swarms', 'Partners' and 'Rumour'. Each construct is writ large, so, for example, 'Fire' refers to firepower and effects and 'Rumour' to contestation in the information and narrative domains. Throughout, historical examples and vignettes are used to explain the ideas gathered under each theme. In addition to the conceptual framework defined by the chapter structure, King also offers us a novel (to the reviewer) model of urban warfare as having three elements: cities, weaponry and forces. This is a very neat device for beginning a conversation.

Introducing the challenges of urban warfare is itself a challenge, as this reviewer can attest from his own future-focused attempts. Developing a definitive framework for understanding urban war is likely to require extensive scholarly debate and many iterations. What Professor Anthony King has provided is a solid foundation for the future work of other scholars, a tool for military training and an accessible, engaging textbook. *Urban Warfare in the Twenty-First Century* offers a grounded account which should be 'required reading' for leaders at all levels in the Army. For decision-makers, the book shines a spotlight on Western unpreparedness for peer-to-peer conflict in cities. It quietly highlights the alarming implications of changing force to urban space ratio, army tardiness in conducting more than token training in combined arms tactics and techniques in urban environments, and the related misapprehension that counterinsurgency-derived close-quarters battle ('interior combat') is an appropriate priority preparation for urban war. While there is risk in drawing premature conclusions from the information operations dominated picture of the Ukraine conflict, Professor King's warnings have been robustly borne out by Russian and Ukrainian failures and losses.

About the Reviewer

Dr Charles Knight is a senior operations analyst. His main research examines combat amongst structures and populations with a recent focus on uncrewed capabilities and how the urban fight is portrayed and contested in media. As a university lecturer he taught strategic security, unconventional/asymmetric warfare and terrorism. He is affiliated with Charles Sturt University, the University of New South Wales and the Thereisian Military Academy in Austria. His PhD that examined coercion during counterinsurgency, and his master's study of asymmetric vulnerabilities in cities are informed by fieldwork during the Lebanese civil war and in Cambodia as well as by operational service with several overseas militaries. In Australia he commanded 2/17RNSWR, served for over a decade with the Special Forces and remains a reservist with the AARC.

Book Review

War, Strategy, and Military Effectiveness

Williamson Murray (Cambridge University Press, 2013, ISBN 9781107614383, 332 pp)

Reviewed by Chris Roberts

Professor Emeritus Williamson Murray, a Vietnam veteran, has written, and co-edited over 20 books on strategy, military effectiveness and military history. All are worth reading. Murray bases his works on sound research of past events, keen analysis, and a deep understanding of the realities of politics, strategy and war. Underlying his work is a strong belief in the value of studying military history as an aid to guide current policymakers and military leaders in confronting the problems of the future. Murray does not argue that a study of history provides a clear path for understanding the future—rather he believes that, despite the uncertainty and ambiguity of its lessons, and its discontinuities, history writ large provides the best laboratory we possess for understanding the future and avoiding the disastrous mistakes of the past. Both the introduction and the initial chapter of this book provide thoughtful essays on this theme.

War, Strategy, and Military Effectiveness presents 13 essays written during Murray's productive career. They cover a range of issues, from a comparative study of the value of the writings of Thucydides and Clausewitz,

to an analysis of the air effort during the First Gulf War. In between, he discusses a diverse range of topics, including the intrinsic value of military culture; German military effectiveness between 1900 and 1945; an analysis of the Combined Bomber Offensive of the Second World War; the effectiveness of red teaming in challenging assumptions; British intelligence during the Second World War; and questioning the value of a set of 'Principles of War'.

All of these chapters are insightful and, while one may not agree with some of Murray's comments, they are persuasive and thought provoking and they make compelling reading. Underpinning each of them is the historical analysis that supports Murray's case, and his firm belief that we can learn from the past.

Running through several of these essays is the underlying theme that many military leaders since the Second World War have been sadly lacking in a truly professional education. Instead they have relied on their own combat experience as junior or middle-ranking officers, which is hardly a basis for providing sound strategic advice. Consequently their knowledge of past events and of the political, cultural and historical background of potential adversaries is weak. Others, in more recent times, have been seduced by the theoretical, technological and template-based approaches to war, which claim to provide a panacea for solving what in reality are the complex human activities through which strategy, war and military effectiveness evolve. Murray eschews these fads and quick fixes, disdaining the fallaciousness of their assumptions and demonstrating their failure to deliver in recent wars. Instead he emphasises that, while technology plays a key role, war is a social phenomenon in which human thinking and decisions, good and bad, have driven events, and that human genius is a rare commodity. He argues, therefore, that today's leaders 'must possess the historical and cultural background to offer sage political and strategic advice about the consequences involved in war'. In reading his essays, it is hard to disagree with him.

War, Strategy, and Military Effectiveness is a book seeking to understand these complex issues and the factors that influence them. Presented in an easily readable style, it covers subjects that are at the core of planning and preparing a militarily effective force to meet the challenges of the future, and issues associated with strategic considerations in a complex world. This is

where its real value lies. Although initially written for an American audience, Murray's reflections have a universal message, and one the Australian Army should heed as it grapples with the future in an increasingly fraught international environment. Part of that future lies in the professional military education of its senior officers and, importantly, practising in demanding exercises and scenarios. Today's military leaders would do well to place this book on their essential reading lists and, more importantly, take heed of the messages it conveys.

About the Reviewer

Chris Roberts graduated from RMC Duntroon in 1967 and saw operational service in South Vietnam with 3 SAS Squadron. More senior appointments included Commanding Officer The SAS Regiment, Commander Special Forces, Director General Corporate Planning—Army and Commander Northern Command. Retiring in 1999 he spent 7 years in executive appointments with the Multiplex Group. He is the author of *Chinese Strategy and the Spratley islands Dispute* and the seminal and highly acclaimed *The Landing at Anzac, 1915*; and is co-author of *Anzacs on the Western Front* and *The Artillery at Anzac*.

Wargame Review

Littoral Commander: The Indo-Pacific

Sebastian J Bae (Dietz Foundation, 2022)

Reviewed by Robert C Engen

Wargaming is a fast-growing discipline within professional military education (PME). Much of my new job here at Deakin University's Centre for Future Defence and National Security in Canberra involves wargaming for PME, and the Australian Army Research Centre has kindly provided a venue to review wargames relevant to PME and the Australian Army context.

Littoral Commander is a professional wargame that explores future tactical concepts, emerging technologies, and all-domain warfare. It is an 'intellectual sandbox' in which to study emerging concepts through a series of 'what-if' conflicts in a near-future Indo-Pacific. Although it features land, sea and littoral capabilities, air and cyber power are also included as supporting elements, and in the more complex scenarios the information space is opened up as well. This game was originally crowdfunded as Sebastian Bae's *Fleet Marine Force* and became *Littoral Commander* at the insistence of the US Naval Infantry Corps trademark office. Regardless of the name change, it remains an engaging study of the littoral combat environment, a force design and experimentation exercise in every box.

The gameplay centres on platoon- and company-sized forces ashore, individual missile frigates and destroyers at sea, and a wide array of joint capabilities held at theatre level to support them. Logistics are an abstracted but critical consideration. There are four maps that come with the game: the Luzon Strait, the Taiwan Strait, Okinawa, and the Malacca Strait / Singapore. The game includes a robust set of scenarios. It scales very well and does not take long to learn, even for those with no wargaming experience. The box says that it is designed for two to six players, but I have run it with almost 20 in a PME environment, adding greater gradience for individual team roles.

Littoral Commander is a game about long-range strikes (LRS), an abstraction for all long-range land and naval munitions, and how they might dominate warfare in the near future (if they do not already). The myriad missile and air defence platforms are the critical capabilities, as are the logistics units that keep them firing. I've played many *Littoral Commander* PME sessions and rarely has anyone drawn close enough to fix bayonets, though they are always welcome to try. Rather, this is a game of over-the-horizon hunters and prey. As per the rules, all units are either REVEALED or CONCEALED to the enemy, and anything that is REVEALED can be targeted by LRS. Surveillance and reconnaissance need to be constant, because if you can see something you can kill it—or make it exhaust its supply of integrated air and missile defence (IAMD) munitions. Shooting, scooting, and then fading back into concealment as quickly as possible is key. Since launching salvoes of rockets REVEALS a unit to the enemy, players must exercise supreme awareness of the sensor footprint that every action leaves behind it. As one participant observed after a game I recently facilitated at the Australian Army Research Centre, 'We used to fire to enable manoeuvre. Now we manoeuvre to enable fire.' This sentiment captures the central idea of *Littoral Commander*. Modern precision munitions combined with multiple-avenue intelligence, surveillance, and reconnaissance (ISR) exercise a serious interdiction effect on the battlefield. The game is therefore a thought-provoking representation of modern and near-future peer-adversary warfare, and what will be required to fight in this space.

The game is not perfect, and the current second printing comes with errata and rules clarifications. Sometimes the validation method used to assign strengths, scores and costs to certain units or capabilities seems opaque. Some of the 'Joint Capability Cards', representing theatre-level persistent

or single-use assets, are more in the realm of science fiction than current capability, particularly the cyber cards. But I think the game's faults are best overcome by treating it as a highly serious game that requires legwork and customisation. For example, *Littoral Commander* begs to be played double-blind, with the two adversary teams (and possibly even the task forces within those teams) working in separate rooms with their own maps, feeding decisions and orders back to a centralised 'White Cell' that maintains and adjudicates on a ground truth map. Combine that with a rigorous and transparent validation process for units and capabilities and you have a very serious professional wargame that can be used for testing all manner of force design hypotheses. I believe the underlying mechanisms are that good.

Sebastian Bae's educational wargame needs to be widely played in Australia, especially by the Army. It mirrors many of the trends we are seeing with the sensor-saturated environment of Ukraine, except on a platoon- and company-scale rather than the scale of a brigade or a division. Its 'task force'-centred play dispenses with service siloes and forces players to address complex problems jointly. The Indo-Pacific battlegrounds are a tour of some of the areas of greatest concern and likeliest future intervention for Australia. *Littoral Commander* is realistic in important areas, skilfully abstracted where realism would be burdensome to smooth play, and evocative throughout of some of the key dilemmas and difficulties of modern high-intensity warfare.

Imitation is the highest form of praise. I am currently designing a custom *Littoral Commander* scenario and map for Australia: an update to the Kokoda Track campaign that will see the Australian Army battling across the Papua New Guinea highlands, with the full array of modern munitions and capabilities at their disposal.

There are many wargames out there, but most of those you can buy at the store are by and for hobbyists and military history enthusiasts. I have encountered few of them that are better suited for professional and serious use straight out of the box than Sebastian Bae's *Littoral Commander*. While certainly fun, accessible, and good value considering what comes in the box, it has been built from the ground up with the PME context in mind. I highly recommend it to anyone interested in exploring the future tactical dimensions of the littoral Indo-Pacific.

About the Reviewer

Dr Robert C Engen is Senior Lecturer in War Studies at Deakin University's Centre for Future Defence and National Security, attached to the Australian War College in Canberra. A specialist in professional military education, he has previously taught at the Canadian Forces College in Toronto and RMC Canada. He is the author of *Canadians Under Fire: Infantry Effectiveness in the Second World War* and *Strangers in Arms: Combat Motivation in the Canadian Army*, co-author of *Through Their Eyes: A Graphic History of Hill 70 and Canada's First World War*, and lead editor of *Why We Fight: New Reflections on the Human Dimension of Warfare*, all from McGill-Queen's University Press. He is the official regimental historian for Princess Patricia's Canadian Light Infantry. His views are personal and do not reflect the views of the Australian Defence Force or the Australian War College.

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A 100-word (approx.) biography should be included with a summary of your educational history and professional experience.

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