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Editor

Irene M. Coombes

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Front Cover HMAS *Darwin* outside Sydney heads.



*Gunners from 8/12 Medium Regiment fire in support of the final live-fire phase of Exercise Tandem Thrust 01
Photographer: Corporal J. Weeding*

Letters to the Editor

NAVY INVITES SUBMISSIONS TO HMAS SYDNEY (2) SEMINAR

Dear Editor,

The Royal Australian Navy is inviting interested individuals and organisations to provide submissions to a forthcoming seminar on the sinking of the cruiser HMAS *Sydney*.

On 19 November 1941 *Sydney* was sunk with all hands off the Western Australian coast in an engagement with the German auxiliary cruiser HSK *Kormoran*.

On 16 November 2001 the Royal Australian Navy will be sponsoring a seminar in Fremantle.

The seminar, which is being organised in conjunction with the Western Australian Maritime Museum and the HMAS *Sydney* Foundation Trust, will consider the likely sites of the wreck, review any recent information and assess viability of mounting a possible search for the wreck.

Prior to the seminar, three workshops will be held to review all the available evidence from archival, oral and oceanographic records, while a fourth workshop will examine the technical feasibility of finding the wreck. These

workshops will present their findings at the seminar.

On conclusion of the seminar a report recommending future actions, including any possible search for the wreck, will be forwarded to the Chief of Navy, Vice Admiral David Shackleton.

Much of this information is already in the public domain. However, the seminar organisers are keen to explore any new information that might have come to light since the 1997-99 Inquiry into the loss of *Sydney* by the Joint Standing Committee on Foreign Affairs, Defence and Trade.

Any person or organisation that believes it has information that may be of use to the seminar is encouraged to submit it to the organisers as soon as possible.

Further information and details of seminar registration are available from the Naval History Directorate, Sea Power Centre, Defence, Canberra.

Telephone (02) 626 64797,

Facsimile (02) 626 62782,

Email: navyhistory@cbr.defence.gov.au.

Dr David Stevens (02) 626 62423

Naval History Directorate

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Australia's Regional Environment Blunting the Knowledge Edge?

By Lieutenant Colonel Dean K. Bowley and Major Steven R. Brewer

A widely accepted paradigm in the development of the Australian Army After Next (AAN) is that technology will continually improve the ability of future land forces to acquire knowledge. Technology, however, is only one of many factors contributing to the "knowledge edge". We argue that increases in effectiveness in the land environment provided by technological innovation are not as great as originally anticipated; but are limited by the complex nature of the land environment and the adaptive nature of the enemy. This article focuses on the impact of the physical and enemy environments on the information domain; aspects that are normally constrained through assumptions that may oversimplify their nature. Observations and results from the recent Restructuring The Army (RTA) and Army Experimentation Framework (AEF) Studies have provided insights about these aspects and their likely impact on information age technologies. It is the impact of the physical and enemy environments that is the emphasis of this article, not the technical characteristics of new technologies.

Introduction

It is not the strongest that survive, nor the most intelligent, but the most adaptable.

Charles Darwin

The Australian Army is embracing the concept of "the knowledge edge" as a decisive advantage it requires in future combat. The doctrinal realisation of the knowledge edge is network centric warfare, or in Australian terms network enabled warfare.¹ Where network enabled warfare relies upon three key technologies: sensors, information management and transportation, and precision weapons. While this direction is not disputed, what is needed is a thorough and challenging investigation of the capabilities required, so that informed conclusions can be made about how the knowledge edge is best pursued for land operations within Australia's region and when network enabled warfare should be the dominant concept of operations.

Four broad factors must be understood to make informed decisions: the friendly environment, the physical environment, the enemy environment and the neutral or non-participating environment, and how these factors shape the application and utility of

knowledge edge technologies. The approach adopted in this article is to analyse the impact of the physical, neutral and enemy environment on the capabilities that support the concept. This is a different approach to normal force development studies where a number of friendly force options are usually compared against a narrow set of scenarios with tightly constrained physical and enemy conditions (environments). Therefore our analysis is constrained by assumptions made about friendly factors, not physical or enemy factors. The result is an analysis of the flexibility and robustness of a force structure as well as its effectiveness. The key outcome of this analysis is an understanding of the enemy and physical environments in which the capabilities are useful and when and where the concept of network enabled warfare is likely to be valid.

The focus of this article is, therefore, on the analysis of the physical and enemy environments (the effect of the neutral environment is the subject of ongoing study within the current AEF program) and how they affect the application of knowledge edge technologies. These two factors correlate closely

with the “enduring characteristics of war”.² These characteristics include weather, climate and terrain (the physical environment), the enemy, and uncertainty, friction, chaos and danger, (which arguably are a consequence of the physical and enemy environment).

To conduct an analysis of this breadth, a number of assumptions must be made. As much as possible we have made these assumptions about the friendly environment as this is considered the most predictable of the factors; some generalisations are made about the physical environment, but as few constraints as possible are applied to the enemy. Consequently this article is relevant to sensor technologies, and the tactical level of land operations in Australia and her region of interest. As such, the conclusions may not be directly relevant to the operational or strategic levels of war or the maritime and air environments.

Friendly Environment

... an age where firepower can be projected from afar with great selectivity.

Francois Heisbourg, quoted in LWD 1

The Australian Army’s present strategic environment can be summarised as “an element of a joint force conducting operations to defend Australia’s interests within a maritime strategy”. Within this strategy there are two primary modes of employing land forces: as the “back stop” on mainland Australia for combined air and maritime forces attempting to close the air-sea gap to the north of Australia, or as a manoeuvre force within the maritime approaches (the “inner arc”, see Figure 1 on page 9).³ Since 1940 the Australian Army has operated mainly within our region, for example, the South West Pacific in 1941-45, Korea, Malaya, Borneo, Vietnam, Cambodia, Bougainville, Papua New Guinea and East Timor, and throughout the spectrum of conflict from general war to peacekeeping operations and humanitarian assistance. The

question this raises is: what are the capabilities required for operations within the region throughout the spectrum of conflict, including peace, asymmetric and conventional operations?

Australia’s current strategy reflects an enduring preference to prevent the conditions under which a direct threat to the mainland could develop. Now, as previously, Australia will seek a decision in its northern approaches, before a threat reaches the continent. These regions will remain strategically important to Australia because, for the foreseeable future, any sustained and substantial threat to Australia’s physical integrity must arise from or move through this area. For this reason, Australia will continue to work cooperatively with regional states, to prevent or defeat the emergence of security threats that may have a destabilising effect on the near region.

The Australian Army’s philosophy on warfighting can be broadly summarised as winning the land battle through close combat, manoeuvre and the indirect approach with combined arms teams using their initiative and teamwork.^{4,5} Command is exercised by applying a doctrine that seeks to influence the flow of action rather than to control each event (Directive Control).⁶ While fighting war is conducted through many mediums (e.g. electronic or psychological warfare), close combat will remain a key component of the land battle but “the knowledge edge” is seen as a major force multiplier.

The knowledge edge is usually described as a system, made up of command and control, communications, computers, intelligence, surveillance and reconnaissance (C4ISR) integrated with weapon systems and logistic support. The weapon systems are characterised by improved precision, accuracy and discrimination, especially in *open terrain* (author’s italics). Knowledge is an important aspect of the Army’s “fighting smart” concept and is to be gained from, and disseminated

through, the C4ISR system, information operations and professional mastery. Information operations include the protection of our information systems and the penetration of the enemy's. Professional mastery is the composite of training and experience that allows commanders and staff to quickly process information, weigh up risks, then make and implement operational decisions.

Enemy Environment

... the enemy has three courses open to him, and of these three he will adopt the fourth.

Attributed to Von Molke (the Elder)

Broadly there are only three legitimate assumptions that can be made about an enemy, especially when dealing with future scenarios. The first is that the enemy will study our methods of fighting, seek weaknesses and try to exploit them, the second is that they are intelligent and will learn from experience, and finally they will attempt to deceive us. Based on these assumptions, assessing what the enemy is likely to do becomes a game of "Catch 22", subject to significant uncertainty. A means of reducing this uncertainty is to conduct a rigorous analysis of our own capabilities to establish our strengths and therefore determine what courses we can realistically deny the enemy (and which are therefore the enemy's least likely courses). For example, with a defence force based on air and maritime superiority (through the possession of fighters, strike aircraft, submarines and ships) Australia claims the ability to close the air-sea gap in the Timor and Arafura Seas.⁷ Therefore, an enemy may conclude that, if they are to strike at Australia, they should avoid conventional approaches and may attempt "asymmetric crossings" to minimise combat losses.⁸ When likely scenarios are viewed from this enemy perspective, possible threats become less ambiguous and risks can be properly assessed (for probability and importance) and mitigated. The assessments of

the enemy courses of action then become matters for risk evaluation and management.

It is reasonable to conclude that in defence of the Australian mainland, the current program of investment in air and maritime platforms and C4ISR systems may force an enemy into an asymmetric approach for attacks on the Australian mainland and Australia's vital interests. This means that the Army may fight campaigns anywhere within Australia against coercive threats by terrorists (a prospect not considered further in this article) or, against threats of insurgency or raider operations by enemy special forces in northern Australia.

In the defence of Australia's regional interest, that is operations in the littoral or maritime approaches, Australia is likely to have to project her influence offshore and the land component is a key element in this strategy. The land force must seize the initiative in order to achieve national goals within the constraints of time and limited resources. The ADF may be required to allocate forces to physically protect assets while simultaneously seeking out the enemy. The enemy may have the initial advantage of a local knowledge of the physical environment.

The likely enemy can be bounded; by massed conventional forces with some high technology inserts at the upper end, and by dispersed infantry forces (again with high technology inserts) at the lower.⁹ Massed conventional forces are optimised for relatively open country and are susceptible to long-range detection and fires, particularly when moving. Leading edge technologies in sensors, information management and transportation are making this type of battlefield more and more lethal. However ground forces continually seek to shroud themselves in terrain or civilian populations to minimise the effectiveness of long-range precision engagements. Probably more difficult is dispersed infantry concentrating for specific actions and dispersing again. They may be

equipped with shoulder launched anti-aircraft missile such as the SA-7 or even SA-16/18, which presented a significant threat in Kosovo because they are small, hard to detect and rely on passive guidance.¹⁰ Other equipment may include shoulder launched anti-tank weapons, which proved effective against helicopters in Mogadishu and against armour in Grozny.¹¹

Our assumptions about the enemy in the opening of this section lead us to the conclusion that likely operations will be against dispersed infantry-based forces because of our (especially US conventional forces) strengths in defeating conventional massed forces. It should be stressed that this is the likely enemy course of action, not the definite enemy course of action, and contingencies must be developed for other courses. If we were to build a system designed for operations solely against dispersed infantry-based operations we would be susceptible to massed conventional forces.

Physical Environment

The physical environment includes natural elements such as weather, terrain and vegetation, the local electromagnetic environment etc., man-made infrastructure and the like. Terrain can be classified as either open or close, based on a simple definition. Terrain is considered open if the probable detection range is greater than the effective weapon range, and close if the probable detection range is within effective weapon range. Open terrain is characterised by long fields of fire and observation, such as deserts, grasslands or farmlands. Close terrain has short fields of fire and view, for example, forests, jungle and savannah. Complex terrain is characterised by terrain in a mosaic of close and open with areas or lanes of open terrain and clusters of close terrain, for example urban, mixed agricultural and forest, and villages etc.

This simple analysis of terrain leads to two important classifications of range for combat; the range at which detection, identification and

recognition are “likely” and the “effective” engagement range of the major weapon systems. An important characteristic of complex and close terrain is that detection “envelope” (particularly recognition) often lies within the engagement envelope, when this is the case these can be termed constrained environments.¹²

Regional Characteristics (U)

Australia’s approaches include the archipelagos of South-East Asia and the South West Pacific. These regions, depicted in Figure 1, will remain strategically important to Australia because, for the foreseeable future, any sustained and substantial threat to Australia’s physical integrity must arise from or move through this area.

The curved line in Figure 1 depicts the inner arc, which is that area of the archipelago which, if controlled by a power with interests inimical to Australia, could directly threaten Australia. The shading in Figure 1 indicates the range of ship-based land attack missiles and land-based anti-shipping missiles anticipated being commercially available by 2010. The entire near region can therefore be characterised as a *littoral environment* in which the operational effects of sea, land and aerospace power overlap.¹³

There are two major vegetation biomes of South-East Asia: forest (mainly low latitude evergreen rainforest, monsoon forest) and savannah (mainly broadleaf tree savannah). There is some alpine tundra in New Guinea. Outside the normal biomes there are mangroves in coastal regions and urban and cultivated areas. The percentage of area covered by each of these biomes is listed in Table 1. TRAC White Sands Missile Range (WSMR) conducted a study of world vegetation types to provide a better understanding of line-of-sight in vegetated areas; particularly with respect to dismounted infantry combat. The results of this study are listed in Table 2 as an indication of the impact of vegetation on the ability to detect infantry

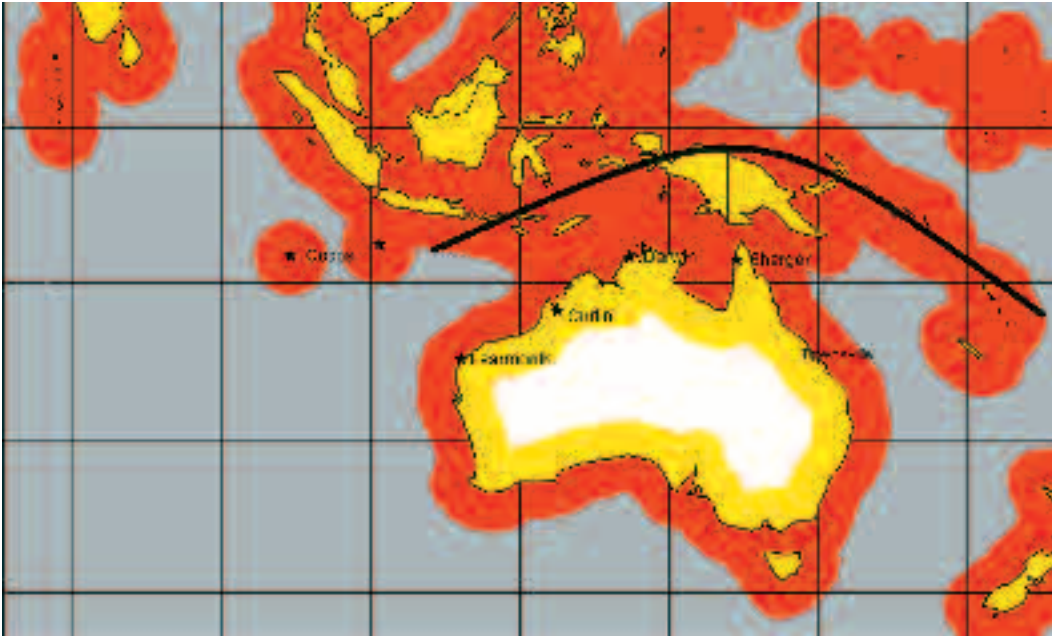


Figure 1 (U) *Australia's Near Region and Inner Arc*

targets. Combining the data in each table shows that in over 60 per cent of South-East Asia, ground detection ranges are less than 100m and canopy closure is over 65 per cent (over 50 per cent with canopy closure of over 90 per cent). This indicates that achieving line-of-sight with a target is extremely difficult for both air and ground-based line-of-sight detection devices. It also indicates that most of South-East Asia can be classified as close, complex or constrained terrain, because detection ranges are likely to be within engagement ranges, for all weapons from small arms through to missiles. The complexity of South-East Asia is accentuated by weather factors. The impact of weather, and other obscuration is shown in Table 3.

Consequences of the Enemy and Physical Environment

The future is not the son of Desert Storm, but the step child of Somalia and Chechnya.

General Krulak, Former Commandant USMC

There are at least three key components of technology critical to realising knowledge systems; communications, data processing and fusion, and sensors. It is not within the scope of

this article to discuss the likelihood that future communication technologies will provide the necessary bandwidth, or that data processing algorithms will provide the compression and fusion required. It could be assumed they would, without invalidating the subsequent analysis. Aside from enemy action to interdict the wide bandwidth communication network, it is only the physical environment, in the broadest sense, which impacts on communications and data processing. Importantly, the C4ISR system depends on the Surveillance and Reconnaissance elements for its usefulness in determining the enemy's intentions. Thus, it can be argued that it is sensor performance (both electronic and human) that has primacy in the utility of the C4ISR system and it is the sensors (again both electronic and human) that are most affected by the physical and enemy environment.

In the timeframe of the Enhanced Combat Force (ECF) and possibly for the Army After Next (AAN), it is unlikely that technologies that enable the detection, monitoring and identification of dismounted infantry targets will be available (certainly not without

Table 1 (U) Vegetation Types in South-East Asia

Classification	Biome	Percentage of Area Covered
Alpine vegetation	Alpine Tundra	0.6%
Cultivated land	N/A	36.8%
Savannah	Savannah	1.6%
Sub-Tropical and temperate forest	Forest	6.5%
Tropical evergreen forest	Forest	44.6%
Tropical deciduous forest	Forest	9.9%

Table 2 (U) Vegetation Data

Classification	TRAC WSMR Data ²⁷	Canopy Closure	Under Growth Density	Maximum Range
Alpine vegetation	No data			
Cultivated land	No data ²⁹			
Savannah	No data ³⁰	15-30%	Medium	<500 m
Sub-Tropical and temperate forest	Florida - Eglin AFB	65-85%	Medium to Dense	<100 m
Tropical evergreen forest	Panama - El Valle	90-95%	Very Dense	<50 m
Tropical deciduous forest	Panama - Ft Sherman	90-100%	Very Dense	<50 m

Table 3 (U) The Degradation of Sensors by Weather and Other Effects

Weather Parameters	Visible and Near IR	Shortwave IR	Midwave IR	Long Wave IR	MMW
Low Visibility	Severe	Moderate	Low	Low	None
Rain/Snow	Moderate	Moderate	Moderate	Moderate	Moderate/ Low
High Humidity	Low	Low	Moderate	Moderate	Low/None
Fog/Cloud	Severe	Severe	Moderate/Severe	Moderate/Severe	Moderate/ Low
Phosphorus/ Dust	Severe	Severe/Moderate	Moderate	Moderate	Low/None
Fog Oil/ Smoke	Severe	Moderate	Low	Low	None

significant uncertainty in all physical environments). Consequently, there is a strong argument that force structures should be designed for land operations in environments where there is incomplete information about these target types.

Historical Examples

In Yugoslavia's shrouded, springtime skies, NATO commanders discovered that, despite almost a decade of continuous operations, US air forces still have two obvious weaknesses - an ability to identify and strike moving targets beneath a layer of cloud and a pronounced difficulty in locating well concealed or camouflaged targets.¹⁵

The outstanding conclusion from studying

recent campaigns is how a relatively benign environment can dramatically degrade the effect of precision weapons. For example the air attack system developed by the US air forces during Vietnam (1962-75) and used to devastating effect in the Gulf War (1991) failed to destroy Yugoslavian ground forces in Kosovo (1999). The deficiencies identified during the NATO air campaign in Yugoslavia occurred in a physical environment that is much less demanding than South-East Asian complex terrain.¹⁵ The Serbian Army remained basically intact through dispersing their armour throughout villages and towns and hiding in buildings. The clutter, and in some cases complete concealment, available from the physical environment, coupled with the proliferation of shoulder launched passively

guided weapons meant target acquisition and damage assessment was extremely difficult.

*To be able to target a guerrilla force ... it must be found, fixed, targeted, and engaged ... before he breaks and flees. To do these things when an elusive enemy can be seen and engaged with direct fire is very difficult. It is extraordinarily difficult when he is distant and unseen...*¹⁶

Australian forces in Vietnam (1945-54 and 1962-75) and Malaya (1948-61) fought an enemy whose tactics were based on dispersed guerrilla action supported by larger conventional infantry forces. They were an elusive and fleeting enemy operating in extremely difficult terrain, using dispersion and infiltration to avoid contact and concentrate at the time and place of their choosing. The single biggest tactical problem of finding and then fixing the enemy in extremely difficult terrain was partially solved by the use of long-range patrols to identify deep targets for air and artillery strikes. Patrols operated out from the base area for weeks covering large areas on foot and consequently being able to surprise the enemy and prevent them establishing safe base areas. However the allied forces used more conventional tactics when the terrain and enemy demanded.

*We were no longer in jungle warfare, where small patrols could wander through and meet small enemy patrols. We tended to keep battalions concentrated in defensive positions and patrol in strength. We still had to patrol ...and this was done by company patrols.*¹⁷

Brigadier R. Hughes

This mode of operation was an adaptation of the successful techniques employed by Commonwealth forces in Malaya. The Commonwealth forces conducted constant patrolling, searching and ambushing by living in the field for weeks on end, which disrupted and eventually defeated the communists. These tactics were combined with policies that

removed popular support for the communists. The Government succeeded in winning the “hearts and minds” whilst disrupting the guerrilla campaign. The tactical consequence of the political campaign was to establish a vast human intelligence network that effectively drove the guerrillas into the jungle and cut them off from support.

The desert operations of the Gulf War were predominantly in open terrain with optical, thermal and radar devices all being able to detect forces well outside engagement ranges. Operations in Vietnam were generally in complex terrain, the enemy being nearly invisible except at very close ranges (infantry often having to withdraw before using artillery). The war in Vietnam was consequently characterised by decentralised command, with platoons and companies fighting a hidden and well-dispersed enemy with centrally controlled indirect fire support. Even in the Gulf the US Army’s philosophy of command was decentralised (directive control); however the fire support elements, air and artillery were centrally controlled.

All of these examples demonstrate how the environment dramatically reduces the effectiveness of “knowledge edge” systems based on line-of-sight detection devices and precision weapons. The more dispersed the enemy, and the closer the terrain, the more the reliance is on human intelligence to provide information. It can be in the form of a Human Intelligence (HUMINT) network, NORFORCE style local force patrolling and observation posts,¹⁸ or light infantry conducting long-range patrolling and ambushing. The systems that succeeded in defeating a dispersed infantry enemy were based on decentralised command of infantry patrols supported by powerful and responsive suppressive firepower. The emphasis is on a dispersed searching system and suppressive fire because of the very short detection and engagement ranges and the very short exposure times. This military system was supported by a political removal of the

guerrilla's popular support. Both aspects are pre-requisites for success.

(U) In summary the combination of a hostile environment and a cunning adaptive enemy conducting dispersed dismounted infantry operations is a likely scenario for Australia for two reasons: our own investment in aircraft, ships and the knowledge edge pushes any thinking adversary into this mode of warfare, and secondly, the likely locations and operations we will be required to conduct are conducive to this style of warfare.

Observations from RTA Phase 1 1998¹⁹

...the effect of terrain still requires that the land force be able to fight and win close combat and that this continues to require a mix of infantry, armour and artillery.

RTA Final Report to the Australian
Minister of Defence

The key analytical insights from RTA Phase 1 concerned close combat and the impact of the physical environment on military systems. In summary the analysis reinforced that close combat was likely and combined arms effects were important. The results also highlighted what has been termed "The Tyranny of Terrain", meaning that the effect of terrain is unlikely to be nullified by sensor technologies in the medium term. There remains significant technical challenges in detecting and identifying infantry armed with missiles in forest and urban areas. The following is a summary of the key insights from the trials.

Complex terrain restricts line-of-sight (LOS) to the extent that either the enemy or friendly forces may achieve first detection. In very close country, detection may be coincident and an encounter battle is likely to result. Therefore, protection, firepower and mobility remain important conditions for success in close combat. In addition, artillery fired without the benefit of forward observers was found to be completely ineffective in suppressing the enemy. When ground forces closed with the

enemy, indirect fires became extremely important for suppression. Ideally targets would have been destroyed by precision guided munitions (PGM), however, the identification and designation of targets in the terrain of northern Australia was almost impossible.

Close country poses intricate synchronisation problems when attempting to achieve detection, identification and monitoring then dislocation or defeat of the enemy. Where monitoring cannot be achieved after an initial cue, friendly forces must search to re-establish contact with a target. The re-acquisition of the enemy is difficult and is likely to involve mobile sensors (either infantry or cavalry patrols). In these circumstances, it is important that the command and control procedures for the coordination of fire support are responsive to the needs of the patrol commanders. The fire support system must be designed to ensure rapid concentrated support to dispersed searching (and then fighting) elements.

Monitoring the enemy after detection is vital to provide the time needed to decide and then act. This is extremely difficult to achieve in practice, especially in close country, and becomes dangerous for the monitoring force should the enemy become aware of their presence. A theory tested in RTA Phase 1 was that sensors could support the detection and monitoring functions and that information technology could quickly process and distribute information. It was thought that this would increase the tempo of decision-making and focus the main effort. Therefore, less combat power would be required in reserve to provide for contingencies.

Unfortunately, the trial results indicated that the technological capabilities to achieve such situational awareness in complex terrain are not available. The Regional Force Surveillance Unit's (RFSU) and HUMINT network provided a good rate of cueing but the inability to monitor and confirm enemy locations meant that

detection led to a focussed search not a decisive response. In dispersed operations, where there are few troops in a large area of operations, combat power must be increased to permit the friendly forces that detect the enemy to initiate combat action. The realisation that the detection force is also likely to be the force tasked to monitor and respond to the enemy leads to deductions about the capabilities it requires. Tasks for the force include mounted and dismounted patrols by day and night to search for the enemy in close country. On detection, tasks may be to cordon the enemy location or demonstrate to force the enemy to move.

There are four elements normally required for close combat, all of which contribute significantly to the outcome. These elements are: indirect fire support, direct fire support, intimate support and the assault group. If all four elements are employed and their effects coordinated then the probability of success is maximised. Artillery and mortars normally provide the indirect fire support for ground forces. When the battlefield is constrained, indirect fire assets are more likely to conduct suppression and neutralisation missions of major enemy systems such as artillery, anti-armour weapons or other crew served weapons to enable the assault forces to close with and destroy the enemy. In close country the assault force normally includes infantry and combat engineers. Armoured vehicles, especially tanks, when used in intimate support, greatly decrease friendly casualties in the assault.²⁰

To defeat the enemy, fire and fire support assets may be tasked to assault, ambush, or provide cut off. Observations from RTA Phase 1 noted that Light Armoured Vehicles (LAV) equipped with night vision goggles (NVG), protection and firepower could overmatch enemy patrols but were vulnerable to anti-armour weapons fired at short range in close country. The Armed Reconnaissance Helicopter (ARH) was a great asset with the key attributes of speed, flexibility (in-flight briefing), target

acquisition systems and firepower, but the realities of line-of-sight meant that helicopters had to expose themselves to make designations. Direct fire support and intimate fire support systems require greater physical protection as the terrain tends to close, or complex. The choice of ARH or Armoured Gun System (AGS) is primarily driven by this factor. There is clear evidence from war-gaming that the best choice is to use a balance between them so the enemy has a number of different threats to defeat.

A Proposed Broad Concept of Operations (U)

The force package of a combined arms team, bound by intent and informed/supported by situational awareness is a more robust, enduring and rigorous philosophy.

Major R. M. Noble, A Squadron 2nd Cavalry Regiment 1997-98²¹

Major Noble's quote is included because it succinctly captures the essence of the concept developed through the analysis during RTA Phase 1. The essential components are combined arms teams (combat and manoeuvre), intent (command and control) and situational awareness (information acquisition).²² These are broadly in agreement with the Australian warfighting philosophy, that is, the key tenets of manoeuvre warfare, the indirect approach and attempting to achieve asymmetry are all part of the concept proposed.

Combat and Manoeuvre

The important insight from the RTA Task Force Trial results is that the combined arms team is likely to be conducting the searching and the fighting. There is unlikely to be a split between the sensor and the shooter. The greatest effectiveness is achieved through a combined arms combat and search team. A force with many complementary capabilities confronts the enemy with a "multi-horned dilemma."²³ By deploying to meet one threat the enemy may well expose themselves to

defeat by another. They are forced to combat a wide variety of threats. Additionally, the weaknesses of one system in a given situation can be compensated for by the strength of another system. For example, ground reconnaissance may find surface-to-air missile (SAM) systems that can be suppressed by artillery so as to allow ARH to operate against enemy armour. There is the potential for significant increases in effectiveness by using combined arms teams in all environments because of the complementary nature of each weapon system. The basis of the team is likely to be infantry in close environments and cavalry in the open.

For operations in the constrained battlefield, the likely tactical building block is the company, and in urban areas the platoon. These blocks are networked vertically and horizontally by the commander's intent. These forces must be self-sufficient in combat (with external fire support) until the next echelon can reinforce them. The level of operation is as much a factor of the environment as of the enemy. This concept requires highly trained soldiers capable of fighting at troop, platoon and section level. The parallel of this for commanders is that relatively junior commanders will be required to possess high levels of skill to coordinate helicopter, air and gun fire support with the intimate support and direct fire support used in the assault. Their initiative must be encouraged and risk taking institutionalised. These are significant challenges for the training system, especially in a peacetime Army, and is a method of gaining a "knowledge" advantage.

The impact of precision weapons will be reduced on the constrained battlefield because of the uncertainty associated with the enemy location and short exposure times. Precision fires are likely to only be available from intimate support direct fire assets whereas indirect fires will at best be employed for "precision suppression".²⁴ In

open country precision indirect fire systems are effective, but vegetation and terrain reduce their impact as exposure times are reduced. Therefore, indirect fire support assets must be able to provide precision strike and suppression to give the commander flexible response across a range of physical environments.

Command and Control

*Centralisation versus decentralisation is not an issue of technology, it is an issue of uncertainty.*²⁵

Centralised command and control and information technologies appear to offer the greatest increase in effectiveness in the open battlefield (that is under conditions of certainty). The more constrained the battlefield the more emphasis must be placed on directive control (directive command?) of manoeuvre elements while retaining centralised control of support assets. The level of uncertainty will remain high on the constrained battlefield despite advanced sensors. Tempo needs to be achieved through concurrent planning, with the unit and formation HQ planning for the next one to seven days, and immediate operations conducted at company level. The role of the unit and formation HQ within the next 24-48 hours is to synchronise the sub-units and provide additional assets if required. Knowledge-based technologies should be developed to support these concepts of command and control and not to try and change the concepts to fit the technologies unless clear enhancements in effectiveness to the combat performance can be demonstrated.

Information Acquisition (U)

The force used to obtain information is dependent primarily on the physical environment, then on the target characteristics and finally on the sensor technology. In close country, the backbone of the detection system is likely to be dismounted infantry conducting a wide patrol program with the flexibility to

concentrate quickly. There should be a wide Human Intelligence network amongst the civilian population providing support for the patrols. Aviation, cavalry observation posts and other remote sensors complement these two systems. Technology may eventually provide reliable non-line-of-sight sensors to supplement this surveillance and reconnaissance web. In open country, satellites, aviation, SAR and other stand-off detection systems provide high probabilities of detection, are able to support the cavalry-based patrols and can cue precision fires or mounted responses.

Conclusion (U)

Knowledge warfare, information operations, the knowledge edge and any other term for the use of information and sensor technologies is seen as an essential aspect of gaining a decisive advantage in future operations. It is prudent to assume that the enemy knows this as well as we do, that they are intelligent and will determine weaknesses in these concepts and will adapt, deceive and exploit these weaknesses. The enemy is aided in these aims through the passive compliance and complexity of the physical environment in Australia and our region. They are further assisted if Australia decides to “project our influence” into the region. The overall effect of these conclusions is that land forces, more so than air or naval, must be prepared to operate in an environment of great uncertainty against an adaptable enemy. This requires an ability to construct a deployable force of many complementary capabilities that cover each other's weaknesses, and provides the enemy with a “multi-horned dilemma” to defeat. The key tenets of force structuring should be flexibility and the by-word of operational planning should be synchronisation. The real benefits of the knowledge edge in the land environment may be an enhanced ability for the commander to coordinate many different capabilities into a single cohesive team that can pre-empt and dislocate the enemy.

The first aim of the knowledge edge should

be to reduce friction through friendly situational awareness and increase the synchronisation of different force elements while supporting the philosophy of directive control (or more correctly directive command). The second aim is to train our soldiers and commanders to use their initiative, take risks and to be able to flexibly employ a multitude of different systems in a synchronised force. Our force development should not be based on the hope that RMA technologies will reduce uncertainty (particularly in respect to the enemy) in the near term.

Acknowledgements (U)

The authors wish to acknowledge the officers and soldiers of 1st Brigade who provided the inspiration and material for this article through their efforts during RTA Phase 1. Many observations and ideas were developed through lengthy conversations with many people in many different locations; the discussions with Brigadier Jim Wallace and Major Tony Devine were particularly important.

This article is a modified version of a Plenary Session Paper presented by Lieutenant Colonel Dean Bowley to a Military Sensing Symposium.

NOTES

1. Network enabled warfare is an acknowledgement that we are unlikely to be able to afford the technologies of a full network centric operational architecture.
2. *Land Warfare Doctrine 1: The Fundamentals of Land Warfare*, is a current capstone document for Army Doctrine.
3. P. Dibb, “The Relevance of the Knowledge Edge”, *Australian Defence Force Journal*, No. 134 January/February 1999 p. 39. See also M. Evans, “Conventional Deterrence in the Australian Strategic Context”, *Land Warfare Studies Centre Working Paper No. 103* p. 24.
4. Manoeuvre seeks to shatter the enemy's cohesion through a series of orchestrated actions that create a turbulent and rapidly deteriorating situation with which the enemy cannot cope. Australia's warfighting tenets therefore describe a mindset that emphasises boldness and decisive action.

5. The authors' synopsis based on *Land Warfare Doctrine 1* and their previous training and experience.
6. The characteristics of the Australian Army's warfighting philosophy listed are predicated on extremely high levels of individual and collective training and skills from individual infantry to operational commanders.
7. Closed to conventional force projection platforms and techniques such as amphibious forces, air, land etc.
8. The enemy may utilise commercial vessels or aircraft and enter through civilian ports and airports.
9. As an example, it is estimated that four launcher vehicles and 10 theatre ballistic missiles are available on the world market for around US\$35m. Hypersonic missiles will be commercially available in 2010 for about \$200k each.
10. *The Evolving SAM Threat: Kosovo and Beyond*, S.J. Zaloga, JED, May 2000.
11. "Grozny: Lessons Learned", 1-27 Infantry (Marine Corps Intelligence Activity- Arthur Speyer) Unclassified Presentation to MCCDC.
12. Open environments – long detection and engagement ranges.
Close environments – short detection and engagement ranges.
Complex – mixtures or mosaics of terrain types.
Constrained – detection ranges within enemy detection and engagement ranges.
13. Manoeuvre Operations in the Littoral Environment, Director Future Land Warfare.
14. *Aviation Week and Space Technology*, August 2 1999.
15. European terrain has been described as "close" with detection and engagement ranges of three kilometres.
16. *Firepower in Limited War* p. 114.
17. Brigadier R. Hughes, Commander 1 TF in Vietnam 1968 as quoted in *The Battle of Coral*.
18. NORFORCE is an Australian regional based surveillance force.
19. The observations and analysis that this article draws from were conducted by DSTO (primarily Land Operations Division) in conjunction with 1st Brigade during RTA Phase 1 in 1998. The activities included wargames, seminars, field trials, historical analysis and modelling.
20. This is supported by CAEN, CASTFOREM and Janus results.
21. Personal communication with the authors October 1998.
22. The RTA reports emphasise the difference between situational awareness (a tool for the commander) and situational understanding, a cognitive process.
23. General Sheridan is quoted as saying that the enemy should be kept on the horns of a dilemma through deception and indirect marches to the true objective. B.H. Liddel Hart, *Strategy*, 2nd Revised Edition Meridian 1991, p. 134.
24. Systems with a high probability of the first round being in the target area, with small dispersion to support the assault as it closes with the enemy will remain essential.
25. *Command in War*, Van Creveld.
26. Effects of Vegetation on Line of Sight for Dismounted Infantry Operations, TRAC-WSMR-TR-99-001.
27. Less than five *per cent* of an infantry target exposed from an observer at ground level.
28. Line-of-sight in this environment is determined by the size of fields and infrastructure and has not been determined for this article. It is reasonable to estimate detection ranges as below 1 000 m for infantry targets.
29. Data for savannah is inferred from experience in northern Australia.
30. Restructuring of the Army Task Force Trials Scientific Framework Paper, Mr D Bowley, DSTO-GD-0169.

REFERENCES

- Bowley, D.K., Restructuring of the Army Task Force Trials Scientific Framework Paper, DSTO-GD-0169.
- Bowley, D.K., RTA TF Trial – Summary of DSTO Analysis 1998, Presentation to the 1st Bde Optimisation Seminar October 1998.
- Brewer, S.R and Bowley, D.K., RTA Combat Insights LOD Client Report, LOD-98-15-CR, 1998.
- Dibb, P., "The Relevance of the Knowledge Edge", *Australian Defence Force Journal*, No. 134 January/February 1999.
- Evans, "Conventional Deterrence in the Australian Strategic Context", Land Warfare Studies Centre Working Paper No. 103.
- Gaertner, P., Characteristics, Requirements, Measures of Effectiveness and Methods of Analysis for the A21 TF Tactical Command and Control System.
- Gaertner, P., Command and Control Evaluation and Analysis: Summary Report 1998, Presentation to the 1st Brigade Optimisation Seminar.
- Land Warfare Doctrine 1: Fundamentals of Land Warfare* Commonwealth of Australia (Australian Army) 1998.
- Liddel Hart B.H., *Strategy*, 2nd Revised Edition, Meridian 1991.

- Lovasy, S., Tailby, D., Stanford, C., Brewer, S., CASTFOREM Modelling of the RTA Motorised Company, LOD-98-14-CR.
- Lovasz, S., Brewer, S., Bowley, D.K., Exercise Phoenix 98, Janus Wargaming Study, 6 –19 September 1998, LOD-98-13-CR.
- McAulay, L., *The Battle of Coral*, Century, Hutchinson, Australia, 1989.
- Millikan, J., Castles, T., Modelling the Tennant Creek Scenario Using CAEN, (draft) LOD-98-16-CR.
- Nicholson, R., RTA Logistics Modelling Report, Presentation to the 1st Brigade Optimisation Seminar.
- Press, D.G., “Lessons from Ground Combat in the Gulf: The impact of Training and Technology”, *International Security*, Fall 1997, Volume 22 No. 2.
- Scales, R.J Jr., *Firepower in Limited War*, Revised Edition, Presidio Press, 1994.
- Van Creveld, M., *Command in War*, Harvard University Press, 1985.
- Wallace, J.J., Restructuring of the Army Task Force Trial Phase 1 Trial Report, Commonwealth of Australia 1998.



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Australian Perspectives on Network Centric Warfare: Pragmatic Approaches with Limited Resources

Ed Kruzins and Jason Scholz

The term Network Centric Warfare (NCW) describes the concept proposed by the US Navy to describe the paradigm shift central to the revolution in US naval affairs.¹ It is defined as a concept of operations that generates increased combat power by networking sensors, decision-makers and shooters to achieve shared awareness and synchronised activity. The emergent properties of sharing results in increased speed of command, higher tempo of operations, greater lethality and increased survivability.

Australia is determining its own response to NCW, which it terms “network enabled warfare” (NEW). NEW necessarily seeks jointness with our three Services and is also being seen as a mechanism for seeking a Joint capability focus. The development of a joint C4ISREW environment is an important staging point for NEW.

In this article we describe the current activities and mechanisms being undertaken to seek NEW within the Australian Defence Organisation (ADO) and suggest some new perspectives for representing NEW and the acquisition process for supporting it.

Introduction

Admiral W. Owens while serving as VC of the US Joint Chiefs of Staff noted that superior technologies were emerging in three areas: Intelligence, Surveillance and Reconnaissance systems (ISR), Command, Control, Communications and Computing systems (C4) and systems involving Targeting and Weaponry.^{2,3} Networking these is enabling the creation of new types of information-based relationships. The shift to an information basis to warfighting also heralds the shift from platform enabled to network enabled operations.

The ADO has recognised that a NEW approach will raise organisational, training and doctrinal issues that will need to be effectively analysed and overcome to maximise the potential inherent in the network enabled paradigm. This raises a resource allocation problem for NEW investment decisions which must be analysed.

An approach is to weigh upon the measures of effectiveness for the warfighting

advantages promised by NEW to compare cost effectiveness, however this only makes sense if we balance advantage with potential susceptibility as a result of networking previously un-networked systems.

Potential Advantages to:

- Battlespace Awareness;
- Agility/Manoeuvre;
- Lethality;
- Synchronisation;
- Engagement Diversity;
- Operational Tempo; and
- Decision Speed.

Potential Susceptibilities:

- Emergent unforeseen network and node interactions;
- Multiple enemy attack points;
- Increased enemy stand off range;
- Selectable precision of enemy attack; and
- Difficulty in identifying attacker and responding proportionally.

It is obvious that we could reduce foreseen susceptibilities by the adequate engineering of

contingencies and protection methods. It is important that the cost of protection and contingency does not out-weigh the warfighting advantage gained, so any study of NEW must be followed by an equally rigorous study of metrics and measurables to be employed in order to make meaningful comparisons.

Measures of advantage are likely to be composed of foundation elements and sub-elements in coupled, federated and/or integrated networks. These measures, alongside the anticipated cost of acquisition enable the resource allocation question to be approached.

It is unclear whether the advantages of NEW will be able to be met in a manner, cost effective to the ADO. However we suggest it is also not clear that the current migration path to complex, expensive platforms offers the best approach to forming a future force.

We can suggest that as new technologies enter the battlespace it would appear that platforms are becoming more visible and costly, while the munitions required to destroy them are becoming comparatively more cost

effective.⁴ At the same time networking and integration of C4ISREW elements is becoming more flexible, capable, accessible and cost effective.

Network Enabled Warfare and the ADO: A Strategic Outlook

Australia’s current strategic policy recognises potential military roles for the ADF spanning a spectrum of conflict wide in scale, intensity and geographic diversity.⁵ Currently this guidance broadly includes:

- Defending of Australia (DA);
- Contribution to the Security of the Immediate Neighbourhood (CSIN)
- Strategic Wider Interests (SWI)
- Peacetime National Interests (PNI)

Although defeating attacks against Australia’s territory (DA) remains the core force structure priority, decisions may be influenced by the ability of Australia’s military forces to also contribute to the task of defending regional (CSIN, SWI) and even global peacetime interests.

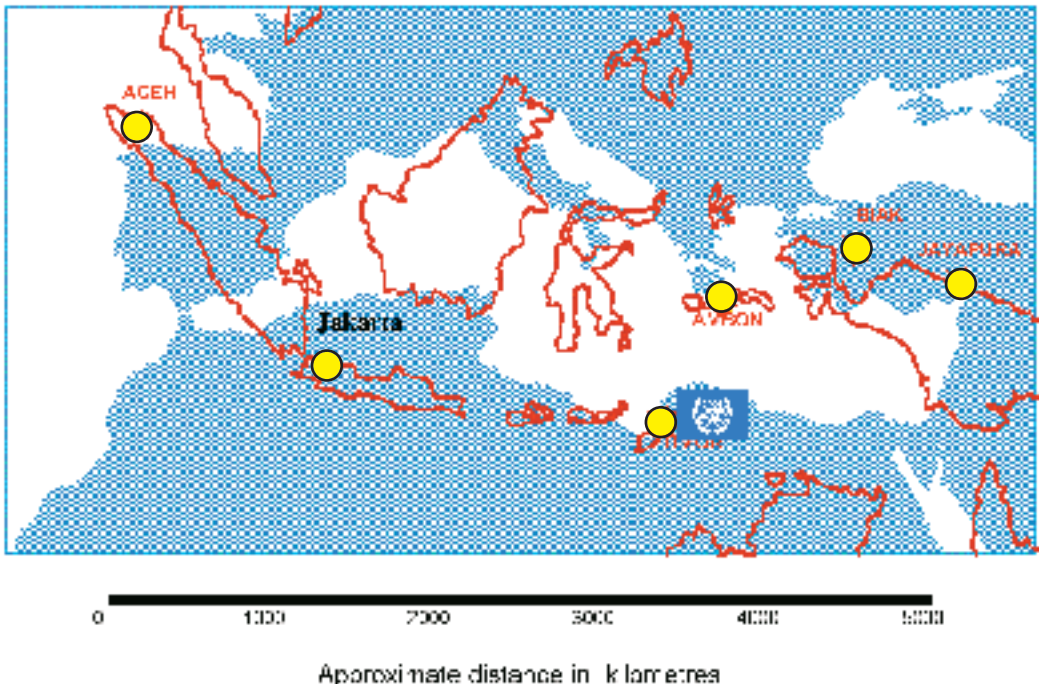


Figure 1. Australia’s area of regional strategic interest has a rich and extensive geo-political diversity of a scale similar to Europe.⁶

Regional Interests

Australia’s regional interests stem from our support to stabilising the local strategic environment and taking our positions with UN peacekeeping operations. The size of our local region and geo-political diversity can be conceptualised in Figure 1. This shows an overlay of regional interests over a map of Europe indicating that the area of immediate security is extensive, volatile and will challenge Australia’s diplomatic skills and defensive capabilities. Australia is currently serving in several UN-brokered peacekeeping zones, first among which is our role in East Timor.

Joint Operations

The concept of joint operations involving components of sea, air and land forces is well established and is a key consideration in our defence capability development. Joint operations form the cornerstone of ADF force structure and doctrine. Indeed many believe that a central tenet for NCW or NEW is the requirement of a much greater role for joint operation.⁷

Self-Reliance and Coalition Operations

Australia is dedicated to defend its territory without relying on the combat forces of other countries. With self-reliance comes self-sufficiency where Australia can undertake independent military action with capabilities that can be sourced from overseas but supported through local industry involvement and a network of allies. Our need for a NEW that supports coalition operations is therefore critical.

The sea-air gap to our north provides a natural impediment but also the main gateway to the Australian mainland. The employment of a range of capabilities within and across the sea, air and land environments in protection of Australia (DA) is a key focus for NEW.

Spectrum of Future Conflict

The ADF may be called upon to undertake both operational and non-operational roles associated with the application of military power across a wide spectrum of conflict. An indication of the range of potential operations is given in Table 1.

The ADF has been called upon to supplement the civil emergency services in times of exceptional demand, however it does not normally provide these services to the civil community. Two exceptions to this principle include the provision of specialist support to counter-terrorist operations, and support to customs, immigration, fisheries and other civil authorities. It does this by providing surveillance and response forces in Australia’s coastal waters.

The ADO’s civil and regional roles under the UN flag sit within the spectrum of conflict that NEW is being designed to meet.

Steps Toward NEW

To meet its military objectives, the ADO has recognised that its network structures are not optimal for its purposes. This recognition was further catalysed in 1996 by the Command and Control Support Study (C2SS), which highlighted the scope and extent of barriers to

PEACE	OOTW	WAR
Emergency Relief		Peace Enforcement
Support to Civil Authorities		Peacekeeping
Counter Terrorism	Sanctions	Local Conflicts
Evacuation	Humanitarian Aid	Regional Wars
		General War

Table 1: Possible future roles for the ADF which will influence an ADO based NEW. ⁸

achieving an integrated joint NEW system within the ADO.⁹

Some of these barriers include the current heterogeneous network infrastructure that inhibits efficient information interchange from legacy software-intensive systems. Many of these have been separately specified and acquired, and difficulties arise for legacy systems to automatically and quickly interpret the meaning of information from other legacy systems without human assistance.

Many of the systems that the ADF acquires has found origins from various overseas COTS sources and such systems have been shown to have difficulties interoperating effectively between other systems acquired from alternative sources.¹⁰

Several initiatives to support NEW within the ADO have been followed over the last few years. These have centred upon developments originating from future warfare, military strategy and research and development.

Network enabled warfare related initiatives within the ADO include:

- The Defence Information Environment;
- Future Concepts
 - Project Sphinx; and
- Research and Development
 - Takari Program (including Project EXC3ITE).

Defence Information Environment

The Defence Information Environment (DIE) concept was endorsed in 1998 as an initiative to coordinate and scope all information that supports the command and control of operations and Defence business.

The elements of DIE include:

- C4ISREW;
- Information Policy and Strategic Coordination;
- Information Management and Interoperability;
- Information Security and Operations; and
- Research and development, including liaison with industry.

The elements of DIE are co-coordinated by the DIEB, which meets on a biannual basis and is attended by senior representatives from various areas of Defence. This forum is the highest authority for co-coordinating NEW within the ADO and its many programs form the foundations to the structure of an ADO NEW approach.

An Architecture Based Analysis of NEW under the DIE

An architectural approach to representing business enterprises has in recent years found its way into commercial and Defence representation.¹¹ Architectural practices such as the C4ISR AF and others are examples that have enabled a formal representation of the entities and their relationships within the Defence enterprise.¹²

In 1999 the DIEB endorsed the formation of the Architecture Office and Architecture Review Board (ARB) to support the adoption of an architectural approach to understanding its defence activities. This has progressed several initiatives using architectural representations.¹³

Research for improvements in Architecture practices suited to ADO requirements has progressed.¹⁴ Extensions to information architecture approaches include the added dimensions of mission tasks and resources (assets and people) to supplement the defence representation. Information, task and resources perspectives are shown in synergy in Figure 2 and we suggest this could form one of the representation methods for NEW.

The synergy of tasks, information and resources is shown in Figure 2. The horizontal flow of information can be shown by the lines left of centre (*dark blue*) and right of centre (*pink*), this indicates information input and output. Vertical lines top of centre (*light blue*) and bottom of centre (*brown*) indicate tasks and resources respectively. Figure 2 represents a capability view of one node within an OV-2 product, itself being within a suite of products (OV 1 to N, SV 1-N and TV 1 -N) that details

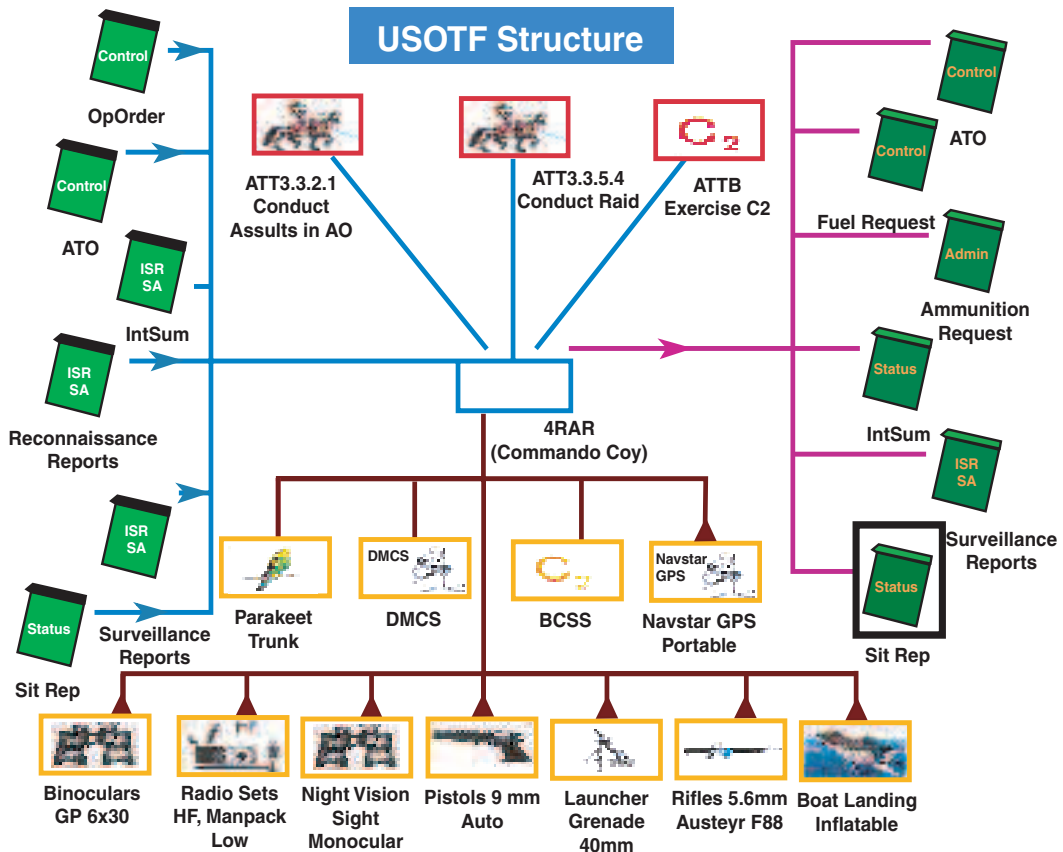


Figure 2. A capability view of one node within an architectural representation for the ADO Army unit (4RAR) during a hypothetical mission. The C4ISREW AF has a suite of products and this single product representation is enriched using the combined dimensions of mission task, resources (assets and people) and information.¹⁵

all aspects of this particular enterprise and which formalise the representation.

Future Concepts – Project Sphinx

Conducted by the ADO’s Military Strategy Branch, Project Sphinx is examining the nature of future warfare (in the period to 2025) and the implications for Australia’s strategic planning.¹⁶ The project identified five key future warfare concepts:

- Intelligence, Surveillance and Reconnaissance;
- Command, Control and Adaptive Interoperability;
- Tailored Effects (Precision Firepower);
- Force Projection and Protection; and
- Force Sustainment.

These are being examined by the seminar war-games series termed KRAIT. Sphinx has identified that by inference any NEW system should strongly support the following warfare concept.^{17,18}

Intelligence, Surveillance and Reconnaissance

The objective of ISR within NEW is to ensure that commanders have a tailored, more complete, battlespace awareness. Given the increasing availability of accurate commercially sourced information to whoever can afford it, superiority over future adversaries is not guaranteed. With a predicted shift to urban warfare the integration of commercial and military ISR resources, including those of allies, will

remain a critical determinant of the success of Network Enabled warfare.

Command and Control

The objectives of C2 within NEW will be to provide effective decision-making at strategic, operational and tactical levels that synchronises planning and intent of force elements in a multi-dimensional campaign. The major challenge will be to balance hierarchical command responsibilities with dispersed, networked control in joint, combined and coalition situations.

Tailored Effects

The use of Tailored Effects support by NEW will be to apply selective, accurate and sufficient force to dislocate, disorient and defeat an adversary. The force effects will be achieved through a combination of both lethal and non-lethal means delivered either directly or indirectly. The effects are tailored to meet the desired outcome in terms of accuracy, proportionality and cost effectiveness.

Force Projection and Protection

The objective for NEW will be to project the appropriate level of force to achieve the desired impact on the adversary. The capacity shall exist to either project sufficient effects at long range or rapidly deploy the assigned forces to the area of operations, or a combination of both. Synchronisation of joint, combined and coalition force elements will generate an appropriate presence, consistent with the military objectives.

Force Sustainment

The ADF seeks NEW enabled logistical support to effectively sustain joint, combined and coalition forces throughout the execution of the campaign plan with no impediment to operational tempo. This shall be supported by the efficient integration of available national, commercial and military logistic support.

Research and Development – TAKARI Program

The TAKARI program frames the research and development activities from which a NEW is being conceptualised. It has established a number of CTIDs and facilities that have been

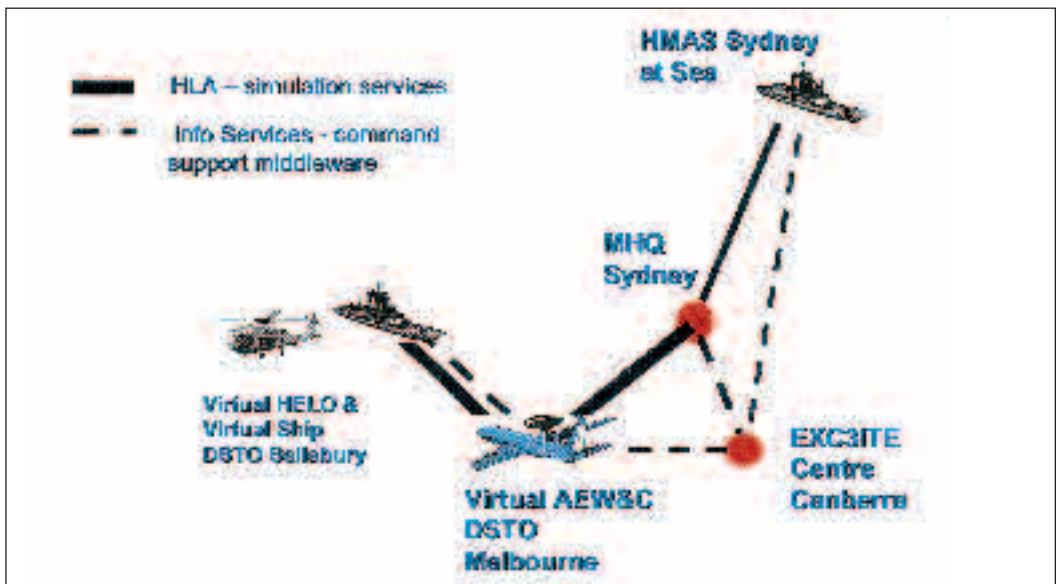


Figure 3. Example military experiment for surface ship air warfare, based on the use of EXC3ITE information and simulation services overlays on a broadband network.

important in providing both interim capability as well as guidance for further refinement of acquisition requirements for C4ISREW and NEW.

Examples under the TAKARI program are described but specific examples related to NEW development and conceptualisation include a mix of virtual laboratories, network technology demonstrators and virtual platforms.¹⁹

Virtual Laboratories and Technology Demonstrators

- TDRAP - Technology Demonstrator for the Recognised Air Picture.
- CCISIL - Command and Control Information System Interoperability Laboratory.
- EXC3ITE - Experimental C3I technology environment.
- ECC - Experimental Command Centre.
- FOCAL - Future Operations Centre Analysis Laboratory.
- CFBLnet Combined Federated Battlelab Network.
- SERF - Synthetic Environments Research Facility.

Virtual Platforms

- Armed Reconnaissance Helicopter.
- Virtual Ship and Submarine.

Many of these are focused upon refinement of C4I elements using research concepts based in both real and virtual environments. (further details see note 19). These are also coupled to ongoing support to terrestrial and satellite based communications activities such as TBS - the Theatre Broadcast System and the introduction of tactical data systems within the ADF such as TDL's link 16 where considerable investment is being made to achieve allied interoperability.

Project EXC3ITE

The Experimental C3I Technology Environment (EXC3ITE) is a joint Defence project.²⁰ EXC3ITE is an enabling information network infrastructure and supporting

organisation for research and development permitting the definition and demonstration of architectures to support decisions in the development of the DIE.

EXC3ITE contributes to improvement of existing systems, and supports doctrinal and organisational experimentation. A central feature of EXC3ITE is the exploitation of middleware concepts in the construction, functioning and re-use of software components for flexible military applications. These concepts are echoed in the development of modern component-based software systems (including for example Microsoft Office applications) and at an enterprise level, are reflected in the Next Generation Internet (NGI), and Internet 2 initiatives.

The EXC3ITE network consists of six fixed and three mobile nodes providing wideband connectivity and access to information services at secret and restricted security levels.

The EXC3ITE vision encompasses the ability to construct an application in an hour. To achieve this requires the ability to locate and assemble an application on an *ad hoc* basis from a multitude of component parts. Component parts are military specific software entities including for example, user interfaces, services for visualisation, simulation, imagery processing, geospatial repositories, collaboration, etc.

In addition to information services, EXC3ITE is developing a suite of simulation services based on the use of HLA middleware to support the integration of distributed synthetic environments and simulation components in DSTO (including the virtual ship, synthetic environment research facility, virtual submarine, and virtual air platforms) and in industry.

Experimentation and Interoperability

The development of simulation services for EXC3ITE in conjunction with information activities is to facilitate military experimentation or "military innovation". Military innovation

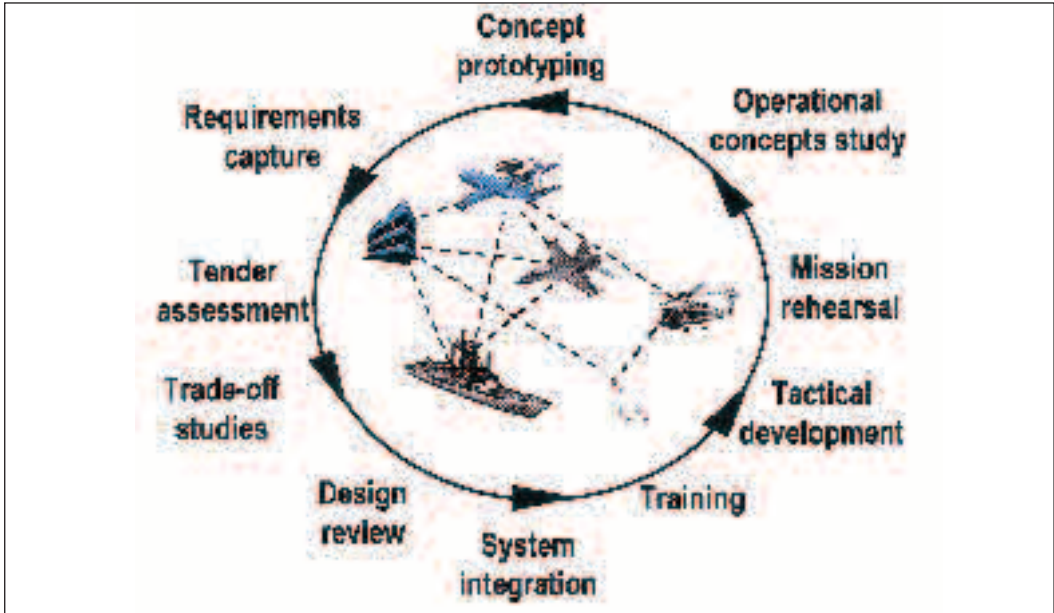


Figure 4. *Network Enabled Warfare supported by simulation services throughout the life cycle of a capability.*

may be applied throughout the life cycle of a capability, as illustrated in Figure 4. From supporting the development of operational concepts in wargaming through to mission rehearsal, the applicability of such a service may be ubiquitously applied.

Other examples of simulation include wargaming under the Army's "Headline" series, which has been shown to be an important process for restructuring the Australian Army.²¹

Distributed Virtual Environments: A Coalition Perspective

The ADO is involved with the Combined Federated Battlelab Network (CFBLnet). This is a network involving Western allied nations and NATO countries. Based on the success of annual Joint Warrior Interoperability Demonstrations (JWID), the CFBLnet intends to support demonstrations and experimentation throughout the year. CFBL management teams are in the process of seeking, selecting and supporting demonstrations based on sponsored, common requirements, which have an exploitation strategy for development of capabilities.

Specific areas of interest to DSTO that may be supported by CFBL include:

- Situation Awareness in Coalition Operations;
- Information Operations;
- CINC21. For the development of advanced theatre-level headquarters;
- Synthetic Environments. Synthetic environments (e.g. virtual platforms) may be interconnected to facilitate international experimentation for concept prototyping, doctrine development, mission rehearsal, tactical development, training and requirements capture. This may be supported by the use of distributed simulation based on use of High Level Architecture (HLA) middleware; and
- Interoperability of Theatre Broadcast System (TBS) and Global Broadcast System (GBS).

Australian experience in coalition operations has identified the need for improved logistics information management systems as described earlier. Australian involvement in the

Coalition Theatre Logistics-Advanced Technology Concept Demonstrator (CTL-ACTD) will support development in these areas. CTL is a US Pacific Command (PACOM) proposal to enhance combat support to coalition forces by providing operational and logistic staff with access to timely, integrated and relevant logistic information and decision support tools.

Australian involvement in the PACOM CINC21-ACTD is expected to aid in the development of advanced theatre-level headquarters. Some key areas of interest to Australia include:

- **Visualisation.** The Australian Future Operations Command Centre Analysis Laboratory (FOCAL) is developing an advanced visualisation environment to underpin situation awareness and planning;
- **Virtual Presence.** FOCAL will employ the use of avatars and advanced agent technology;
- **Information-Enterprise.** The Experimental C3I Technology Environment (EXC3ITE) is a key DSTO capability in this area; and
- **Knowledge Management.**

Network Enabled Warfare and its Support to Logistics

In 1999, Australia led a peacekeeping force into East Timor as part of its UN responsibilities. In nearly all aspects this was a very successful mission but inevitably improvements in various areas could always be made.

An important enabler for the ADO's activities within the region was force sustainment and in particular, logistics where improvements could be made possibly by the use of better networking between HQ's, transport assets and personnel.

Areas where potential improvement could be identified included:

- Concurrency of Logistics Support;
- Logistics Command and Control;
- Asset VI visibility; and

- Logistic Management Information Systems.

Concurrency of Logistics

Further improvements of logistics related communications within the regional arena is required. Networked communications systems both for mobile and fixed communications for materiel centres and transport assets could support improved concurrency of logistics with NEW.

Asset Visibility

Lack of visibility of materiel and equipment results in unnecessary bottlenecks in the distribution pipeline, and leads to the over-commitment of limited transport resources. NEW offers a means to support efficient inventory collation of delivered assets. This would enable a fast delivery of materials to users as well as efficient unloading and an improved turnaround of transport assets and storage space.

Logistics Command and Control

The harmonisation of cultures and process across the force is an emergent property of NEW which offers a means to synchronise logistics planning across distributed command centres thereby allowing a common understanding of intent. The need for consultation and approval at multiple levels of the organisation, which may be tolerable for non-operational conditions, typically results in unacceptable delays under operational conditions.

Logistic Management Information Systems

Many problems experienced were related to adapting ADO activities during peacetime to operational conditions. The problems under coalition-based logistics support arguably would be orders of magnitude worse. Allied NEW for force sustainment and logistics remains a problem to be solved. However NEW seeks an ability to provide compatible and interoperable information systems.

Incompatibility of information standards and a lack of information distribution capabilities still provide difficulties for logistic management.

An Integrated NEW Acquisition Process: Linked Portfolios

The current acquisition processes within the ADO are not well suited to a network enabled warfare approach. They are also not well integrated with capability analysis, concept development, force structure development and the planning processes. The current capability analysis, force structure and planning processes are also disconnected from future warfare studies. There is therefore currently no mechanism to inform and tune acquisitions to achieving a network enabled synergy nor respond to rapidly evolving strategic and fiscal environments.

The current process could be patched to achieving a network enable fix but we suggest that if the ADO wholly embraces NEW then an acquisition process, which could be better tailored to NEW, could be based upon military portfolios. The portfolio concept was introduced in reference for C4ISREW systems of systems but we suggest it can be generalised for overall military force development.^{22,23} The principles of portfolio-based force development (Pbfd) include:

- Continual assessment of current and future strategic, economic, political and societal environments;
- Development of processes to acquire appropriate capabilities and tailor force structure to meet a wide range of current and future contingencies;
- Establishment of guidelines for ensuring adequate interoperability and managing evolution of capabilities; and
- Optimal use of funds to meet preparedness and capability development.

A portfolio-based approach to force development has the potential to provide NEW the flexibility and feedback needed to meld

annual budgeting with five-year development plans, long-term planning (ADO purple book and future studies), major capital equipment proposals (ADO pink book), approved acquisitions (ADO white book) and existing capabilities. Applying this concept to the acquisition part of the process we arrive at the notion of portfolio-based acquisition (PBA).

PBA is composed of acquisition strategies, techniques and tools for developing, exploring and assessing interoperability, competing options and the processes, which facilitate effective and efficient acquisition and entry into service. Thus the acquisition portfolio should provide:

- A more effective military capability as PBA can tune the NEW acquisition process to the strategic environment;
- A more efficient and faster acquisition process for NEW because PBA adapts to the scale and type of acquisition;
- Processes and mechanisms for ongoing force development and a close coupling between military capability, force structure and the supporting acquisition; and
- A heuristic approach that facilitates ongoing development of new acquisition strategies and processes for NEW related acquisition.

A central tenet of PBA and Pbfd is interoperability of systems, its analysis and relevance to achieving strategic policy and enhancing military response options. Methods of achieving this underpin the above points.

The Migration of Network Enabled Warfare within ADO Policy Space

The strategic environment in the geopolitical neighbourhood of Australia is currently dynamic and will continue to be so, for the foreseeable future. This will demand military systems that are not only adaptable and tuneable but can be easily migrated to embrace the rapid pace of technology. Any acquisition process for NEW requires a migration path that

may be dimensioned against the ADO's policy space to determine its extent and complexity.

NEW occupies all space within the three dimensions of epoch, policy and military level, conceptualised in Figure 5 but is punctuated by sub spaces which includes the Littoral Information Environment (LIE), Joint Tactical Information Environment (JTIE) and C4ISREW Information Environment (C4ISREW-IE). If we examine any single bubble within this policy space such as the JTIE, we observe another multi-dimensional space scoping the spectrum of theatre variations and activity. This suggests a significant complexity to any NEW-based system and its acquisition migration path, even for relatively small forces such as the ADF.

A means of scoping the exploration of NEW is to choose focal areas within policy space that allow the generation of immediate “deliverables” to the ADO, enlighten a prioritised migration path for acquisitions and inform us of an aspect of the larger picture. One such bubble is the DAA centred JTIE and within that, the LIE.

A Joint Tactical Information Environment

Current research at the DSTO is analysing Network Enabled Warfare.²⁴ One aspect of this research includes the exploration of joint information flows between combatants, across Services and allies within a JTIE. A focus within JTIE has been upon the exploration of network enabled warfare within the littoral domain.²⁵

The objective of JTIE research is to provide a scientific basis to ADO policy for joint information (richness) and command/control to identify the options for achieving information exchange and interoperability across the Services (reach).²⁶ Combatants under consideration within JTIE represent a mix of new and current platform systems where tactical information interoperability policy is still under development or refinement:

- AIR 87 (Armed Reconnaissance Helicopter);
- Land 117 (Ground Based Air Defence);
- FA-18 Upgrade;

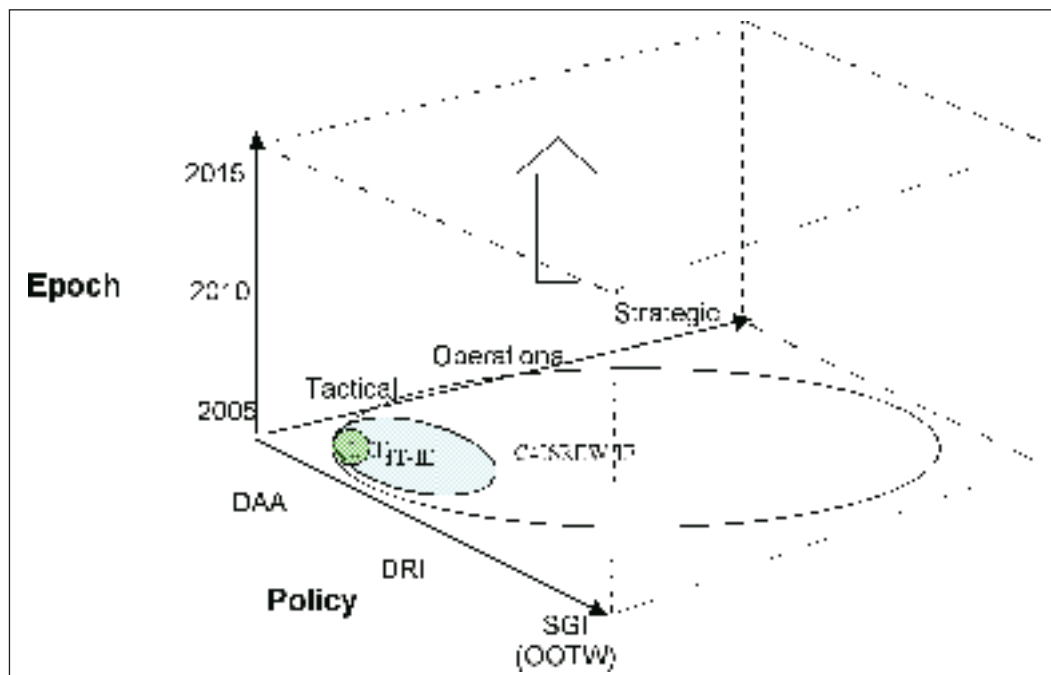


Figure 5 Research space for NEW indicating migration along the epoch axis through ADO policy space. Policy space is likely to vary with the dynamic strategic environment.

- AEWG; and
- LPA.

To scope the necessary breadth of NEW the research is examining the ability to achieve improved situation awareness, synchronisation of command and planning, logistics and interoperability between several operating and developing command support systems. They are:

- Joint Command Support System (JCSS)-Joint HQ;
- Battlefield Command Support System (BCSS)-Army; and
- Tactical Data Link System (Link 16)-Navy, Air Force.

A methodology has been to examine JTIE within a selection of relevant scenarios and to record the variability of information requirement sensitivity to the dynamics of the scenario under a C4ISR Architecture Framework.²⁷ A conceptualisation is shown in Figure 6 which additionally highlights the objectives determining network effects on:

- Options for Information Architectures;
- Tactical decision density;

- Information criticality and mission sensitivity; and
- Tactical decision C2 - who is best placed.

Determining information flows between combatants in the tactical theatre is the initial step to enabling a capability-focused approach to determining the value of NEW to the joint operation.

In contrast, a platform centric view of this problem may well have considered the worth of the network to the performance of the asset within its environment, thus losing the perspective of the assets joint capability value.

A Way Forward for the ADO

Building on the technologies, systems, services, applications, simulations, and networked synthetic environments described in this article is the opportunity for the ADF, ADO and DSTO to build new tiers of capability using network enabling concepts. The logical growth of capabilities and the balance between pragmatic Research and Development and ADO leverage is shown in Figure 7.

We see that network enabled warfare and the component elements within experimental and operational networks facilitates training,

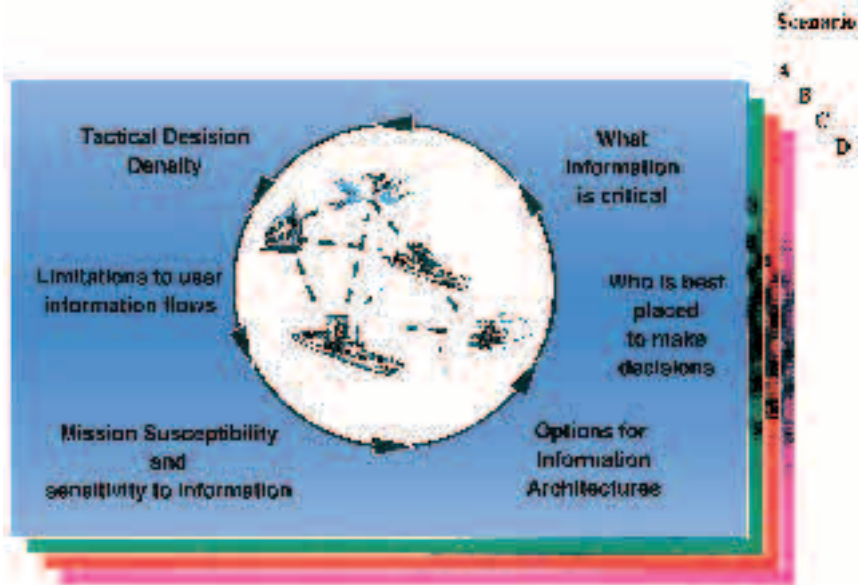


Figure 6. Exploring a users perspective of NEW under a Joint Tactical Information Environment (JTIE).

Operational Concept (OPCON) development, capability development, smart acquisition, OPCON experimentation and force structure options.

Without the military specialisations present in larger nations, we must capitalise on our limited range of military capabilities through mutual interoperability to flexibly perform a wide range of tasks. This flexibility impacts on systems integration of capability development and may be an important factor in realising the potential of NEW.

A Network Enabled force constitutes an organising principle for future warfare, a direction for acquisition, and a concept for training.

Conclusions

Australia is determining its own response to network centric warfare (NCW), which it terms “network enabled warfare” (NEW). NEW differs from NCW because the network is perceived to enable enhancements to war-fighting. The ADO has taken this pragmatic perspective observing that NEW may enable a practical jointness with our three Services and

offer a mechanism for seeking a joint capability focus.

The emergent “warfighting deliverables” (increased tempo, enhanced synchronisation etc.) under NEW represent emergent properties, which arise as suitable components of C4ISREW are networked and arranged within a joint concept of operations. Furthermore, we see that the development of a joint C4ISREW environment is an important staging point for NEW.

NEW offers an inherent jointness, which is aligned to supporting the ADO’s strategic policies. Our policies share a regional focus with allied interoperability being a key focus. Operations other than war (OOTW) are likely to have a strong place in a NEW tailored for the ADO.

The ADO’s steps toward a NEW include initiatives within research, future concepts and the overall Defence enterprise under the Defence Information Environment (DIE). The predicted areas of NEW will provide enhanced capability for ISR, C2, Tailored effects, force protection, projection and sustainment.

NEW must span many dimensions within the ADO scoping defence policy, epoch and

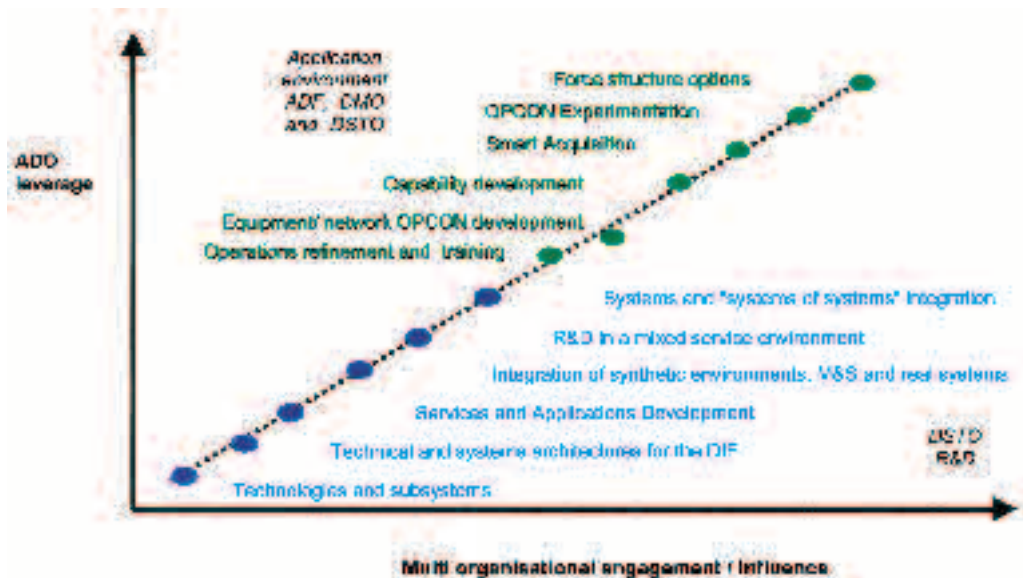


Figure 7. The steps within a Network Enabled Warfare development path for the ADO and its relationship to R&D.²⁸

theatre level. We suggest that initially, NEW should focus on the Joint Tactical Information Environment (JTIE) to inform the ADO of the potential advantages to selected areas such as enhanced battlespace awareness, synchronised planning and logistics. With a single first focus, we could assess whether a single NEW system of systems could meet the anticipated ADO spectrum of potential usage.

The importance and value of coalition interoperability is being considered in various research initiatives within the ADO. These include the development of simulation services to facilitate military innovation such as under the EXC3ITE project.

The ADO is actively responding to coalition interoperability research with the Combined Federated Battlelab Network. CFBLnet intends to support demonstrations and experimentation between allies. CFBLnet could offer a means to investigate the allied joint tactical information environment by seeking information interoperability between a selection of virtual combatants within the same virtual theatre or scenario. Combatant players or simulators may be physically distributed across various Western command centres.

Australian experience in coalition operations has identified the need for improved logistics information management systems. Australian involvement in the Coalition Theatre Logistics-Advanced Technology Concept Demonstrator (CTL-ACTD) will support development in these areas.

If we carefully scope the potential advantages (deliverables) and adequately become cognisant of the susceptibilities, then NEW offers the ADO the logical next step in the development of the ADO's Combat Capability.

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NOTES

1. D. Alberts, J. Garstka, and F. Stein, *Network Centric Warfare: Developing and Leveraging Information Superiority*, CCRP Publications, 1999.
2. W.A. Owens, *The Emerging U.S. System-of-Systems. Dominant Battlespace Knowledge*, 1996, (Eds, S. Johnson and M. Libicki,) National Defense University Press, Washington DC.
3. R. Laird and H. Mey, *The Revolution in Military Affairs: Allied Perspectives*, National Defense University Press, Washington DC. 1999.
4. M. Libicki, *Illuminating Tomorrow's War*, National Defense University Press Washington DC. 1999.
5. *Defence 2000*, Defence White Paper, Australian Defence Headquarters, Department of Defence (2000), Canberra.
6. "Defence Information Environment" Generic Presentation Brigadier T. McKenna, ADFHQ Canberra ACT, August 2000.
7. op.cit., R. Laird and H. Mey.
8. T. Moon and M. O'Brien. "Underlying Principles for Joint Systems of a New Aerospace Combat Capability" DSTO General Document GD 0241, June 2000.
9. J.E. Clothier, "Command and Control Support Study", DSTO Report, Canberra 1996.
10. J.S. Allison and S.C. Cook, "The New Era in Military Systems Thinking and Practice", In Proceedings of Systems Engineering 98, Canberra 1998.
11. E. Rechtin and M. Maier, *The Art of Systems Architecting*, CRC Press, 1997.
12. "The C4ISR Architectural Framework", C4ISR Architecture Working Group. CCRP Publications, 1996.
13. "Workshop for a Mobile Communications

- Architecture based upon a Meta Group Approach” discussions with A. El Saka, G. Bullus, and Lieutenant Colonel D. Burns, DSTO and ADHQ, July 2000.
14. M. Chin, “Operational Architecture”, Presentation at the Defence Architectures Workshop, ADFHQ, August 2000.
 15. *ibid.*
 16. M. Ramage, “Project Sphinx: The Twenty-five Concept Groupings and Technology in 2025”, Office of the RMA, ADHQ, Canberra, 1999.
 17. R. Martinage, “Wargame Structure, Scenario, and Force Overview KRAIT Wargame I” CSBA Presentation at Royal Military College, Duntroon, Canberra, October 1999.
 18. E. Kruzins and J. Rigter, “Outcomes from the KRAIT Wargame Series 00/01”, Presented to the Office of the RMA, ADHQ, May 2000.
 19. Project TAKARI DSTO Website
<http://www.dsto.defence.gov.au/corporate/publicity/brochures/takari.html>
 20. EXC3ITE Website
<http://www.dsto.defence.gov.au/corporate/publicity/brochures/exc3ite.html>
 21. Headline description
<http://www.dsto.defence.gov.au/corporate/publicity/articles/landlinedec99.html>
 22. D. Matthews and P. Collier, “Assessing the Value of C4ISREW Systems of Systems Capability”, Proceedings of the International Command and Control Research and Technology Symposium October 2000.
 23. J. Clothier, “Approaching Systems of Systems: A Strategic View”, Draft 1, DSTO Joint Systems Branch, August 2000.
 24. “Network Enabled Warfare” Proceedings of the 1st DSTO workshop on NEW August 2000.
 25. G. Calbert, “A Systems Perspective on Australian Littoral Operations: Issues and Objectives” Accepted for the Proceedings of the International Command and Control Research and Technology Symposium, October 2000.
 26. P.B. Evans and T.S. Wurster, “Strategy and the New Economics of Information”, *Harvard Business Review*, September-October 1997.
 27. E. Kruzins, “The Joint Tactical Information Environment” Activity Plan, DSTO June 2000.
 28. “An Australian R&D Approach to Network Enabled Warfare” Scholz Presentation at the conference for Revolutionising Military Affairs in the Pacific Region, Canberra 17-19 May 2000.





Mortar platoon, 2RAR, loading onto HMAS Tarakan during Exercise Tandem Thrust 01

Photographer: Sergeant M. Dowling

A Force for All Seasons ... and all the right reasons

By Lieutenant Commander John P. Robinson, RANR

“...The fleet and the army acting in concert seem to be the natural bulwark of these Kingdoms.”
Thomas More Molyneux, Conjoint Expeditions (1759)

“...Amphibious flexibility is the greatest strategic asset that a sea power possesses.”
Captain Sir Basil Liddell Hart, Deterrence or Defence (1960)

Introduction

The Defence White Paper, *Defence 2000* provides the ADF with the first comprehensive and detailed blueprint for Defence in 25 years. It enunciates Australia's strategic policy for the next decade and provides details for the further development of the ADF, in the form of the Defence Capability Plan. Whilst *Defence 2000* provides the ADF with clear strategic guidance on the way ahead, it is timely to review the capabilities required of the ADF and to critically examine whether the current ADF structure is sufficiently optimised to meet these requirements. The current structure reflects established and proven capabilities, but these capabilities and their relevance to Australia's future Defence strategy must now be re-evaluated to ensure that they meet the requirements enunciated in *Defence 2000*. The development of future capabilities is a vexed issue, where threat assessments and the retention of embedded core capabilities have combined to forge the current structure and composition of the ADF.

The end of the Cold War with the prospect of greater stability in Central Europe has paradoxically seen the proliferation of greater instability in many other parts of the world. The proliferation of new conflicts and the continuation of many old ones provides urgency to the efforts being made by the UN to

resolve a number of conflicts and provide UN peacekeeping forces wherever possible. Within our own region, the recent events in East Timor, Bougainville, the Solomon Islands and Fiji are a timely reminder that Australia is part of a region that is undergoing radical change, where limited regional conflict may erupt with little or no warning. Political, racial and religious unrest continues to pose a threat to Australian interests and stability throughout the region. In addition, the occurrence of natural disasters will continue to place an onus of responsibility upon such countries as Australia and New Zealand to provide humanitarian aid within the region.

Australia's rapid and robust response to the situation in East Timor in September 1999, and the deployment of the INTERFET Force, highlights the prominence being given worldwide to “out of theatre” operations or expeditionary warfare and the need to have highly mobile forces available to respond adequately to a variety of contingencies. It is now opportune to consider whether the importance being given to “out of theatre” or Expeditionary operations by such countries as the US and UK is relevant to Australia in the 21st century. In re-evaluating the ADF's ability to implement the requirements of *Defence 2000*, it will be critical to Australia's security that all aspects of Defence are examined and their relevance to Australia's

overall security reviewed. The pre-eminence given to the adoption of a Maritime Strategy in recognition of Australia's geo-strategic position within the region would indicate that an ability to quickly deploy highly mobile forces by sea and/or by air throughout the region would be a key capability. These tasks might cover a variety of contingencies, including humanitarian and peacekeeping. Such a capability will however require a more holistic approach be adopted by the ADF for the development and acquisition of Defence equipment, in order that Defence capabilities meet the total force requirement and not just those of a particular Service. Indeed, the development and acquisition of new and emerging capabilities must be predicated upon an "effects" strategy, where a particular capability is derived from determining the optimum result to achieve the required "effect". This approach is consistent with the "futures" methodology now being adopted by a number of our allies who are looking to develop future capabilities predicated specifically upon the "effects" required.

An Historical Perspective

The need to maintain a large standing Army and strong Navy to primarily support overseas campaigns has been a major defence characteristic of the 20th century. Involvement in the Boer War, two World Wars as well as other regional conflicts since, have borne testament to the need to maintain such forces, which have in the main, been conventionally structured, and organised along traditional British military lines. Whilst the maintenance of such forces were appropriate to meet the requirements of the time, it is worth remembering that such organisations had their genesis in the 18th and 19th centuries, and reflected the requirements of that period, where the Fleet and large standing armies were maintained to protect national interests at home and abroad.

The realisation by a number of our allies that the requirement to use military force in the future has changed has brought about a fundamental change to their organisation and "*modus operandi*". In the US and UK, force structures and the *modus operandi*, have radically changed to reflect the need to have highly mobile forces available to react to a wide variety of "out of theatre" contingencies, including peacekeeping and humanitarian aid. Indeed the focus has moved away from the need to conduct warfare in a deliberate and set-piece manner, with large formations, to warfare conducted quickly by lightly equipped but highly mobile forces of all arms, able to react quickly and effectively to changing demands. This was effectively demonstrated recently by the UK in Sierra Leone with the insertion of Airborne and Amphibious Forces to help restore law and order in that country. Such forces, by their mobility are able to retain the element of surprise and are generally able to create the impression of having greater numbers deployed than is actually the case.

Whilst the ADF today has contracted from its former size, it nevertheless continues to reflect the structure and organisation of a much larger force. This is particularly so within Army where there still remains much hollowness, and whilst *Army 21* and *Restructuring the Army* (RTA) have gone a long way in redefining Army's future structure and role, they do not reflect the wider ADF *modus operandi* of the future. In similar vein, the RAN since the end of World War II has continued to develop and acquire capabilities consistent with perceived conventional naval requirements. The RAN has however now developed a modest amphibious capability with the bringing into service of the LPA's (amphibious transports) HMAS *Kanimbla* and *Manoora* to augment the Amphibious Heavy Lift Ship, HMAS *Tobruk* and the LCH's (landing craft heavy). The employment of the high speed Catamaran, HMAS *Jervis Bay*, also

proved to be an invaluable asset in providing rapid logistic support by sea.

In this evolutionary process, the RAAF has evolved from a fledgling force in World War II to becoming a technologically advanced and multi-skilled Air Force within the Air World. The current range of roles undertaken by the RAAF is extensive but as we look ahead it will be vital that the future acquisition of high value aircraft takes account of all ADF requirements. The wider air support requirements to meet all maritime and land tasks must be clearly identified and incorporated into the ADF *modus operandi* of the 21st century. The development therefore of all ADF capabilities for land, sea and air need to be so orchestrated that the capabilities are fully integrated to meet all anticipated ADF requirements.

Strategic Policy

This article suggests that the time has now come to reassess the way in which the ADF will go about its business in the future and examine what capabilities the force will require.

Australia is faced with the challenge of co-existing and being a responsible neighbour in a large, diverse and rapidly growing region, which is however becoming increasingly unstable. A significant difficulty for Australian Defence planners in recent years has been attempting to identify the threat(s) to Australia. This continues to be the case and whilst there continues to be no immediate direct threat to Australia or its interests, there remains a plethora of potential indirect or direct threats that could quickly emerge within or beyond the region. In a region that is growing rapidly, the potential sources of conflict are many and such threats could arise quickly and pose a significant challenge to our Defence resources. The ADF must therefore be prepared to undertake a wide range of roles, react quickly to emerging threats and be able to adapt to changing requirements.

The publication of *Australia's Strategic Policy (ASP97)* in December 1997 determined a more forward looking defence posture for Australia and provided a template for the development of the ADF into the 21st century. In introducing the new strategic policy the then Minister for Defence, Ian McLachlan stated:

Australia's Strategic Policy covers those aspects of the Government's security policy which relate to the use of armed force in international affairs. The judgements in it reflect the Government's conviction that to prosper in the very demanding environment now emerging in the Asia Pacific, Australia needs a strategic approach which takes full account of the new challenges we face. Moreover, Australia needs an approach which explicitly reflects the full breadth of our security interests. Australia's strategic interests do not begin and end at our shoreline. The interests of future generations of Australians will not be served by encouraging an isolationist mentality at a time when international inter-dependencies are increasing.

The security of Australia is, and should always remain, the paramount concern of our national strategic policy. Maintaining confidence in our ability to defeat an attack on Australia is, in a sense, the focus of all our defence activities. But obviously, developments in our region determine the possibility of Australia coming under military threat. It would be a serious miscalculation to think we could remain unconcerned behind some illusory "Fortress Australia" if the strategic environment in the Asia Pacific were to deteriorate. Our aim must be a secure country in a secure region.

What is the region? The region is defined in ASP 97, as “the countries of East Asia, Southeast Asia, the South Pacific, the United States, and, perhaps increasingly in the future, South Asia.” This littoral region is vast and comprises an enormous diversity of cultures and nationalities and is spread across several time zones and climates. It is the fastest growing region in the world and is the interface between burgeoning industrial and commercial development and old established cultures. Clearly, as the region continues to expand and economies grow, there will be increasing pressure on diminishing resources, which will increase the risk of friction between competitors, at either the national or local level. Other pressures within the region include the establishment of democracy and independence in a number of countries. According to ASP 97:

The dynamism of the Asia Pacific region makes our task more complex than it has been in the past. The pace of economic growth in our region presents a combination of opportunities and challenges. Our national approach to the region must therefore have a number of elements which allow us both to exploit the opportunities and manage the risks presented to us.

An indication of the rate of growth that has occurred in the region in recent years is reflected in the modernisation of a number of regional military forces into well-equipped and balanced conventional forces, able to “monitor and protect offshore resources and interests” (ibid). The purchase of an Aircraft Carrier (*Chakri Naruebet*) by Thailand and the current building of three Amphibious Ships (LPD) by Singapore also represent a significant increase to capability.

ASP 97 noted that this strong rate of growth in defence spending was expected to continue over the coming decades which would “increase the capability of regional

defence forces.” Whilst both ASP 97 and the previous ADO strategic policy acknowledged that there was no obvious or immediate threat to Australia or its dependencies, clearly there is considerable potential for a conflict to arise within the region and at relatively short notice. National sovereignty issues, racial and religious disharmony, increased wealth and the emergence of democracy are all catalysts for conflict. Indonesia, Malaysia and PNG are but three of a number of countries within the region where such catalysts exist. Further afield, Burma, Cambodia, Korea, Taiwan and the South China Sea are all areas of potential concern.

As General Krulak, previous Commandant USMC noted:

In the future, the United States is likely to face a number of very different threats to its security interests. Many of these will be associated with the littorals, those areas where land and sea meet. The great coastal cities, well-populated coasts, and the intersection of trade routes represent a relatively small portion of the world's surface, yet provide homes to over three-quarters of the world's population, locations for over 80 per cent of the world's political capitals, and nearly all of the primary marketplaces for international trade. Because of this, the littorals are also the place where most of the world's important conflicts are likely to occur. Geographic proximity with the littorals is one of the few things that future conflicts are likely to have in common. In all other respects - goals, organisations, armaments and tactics - the warfare of the next 20 years will be distinguished by its great variety. For that reason, it is imperative that the Corps resist the temptation to prepare for only one type of conflict.

(Operational Manoeuvre from the Sea: Building a Marine Corps for the 21st Century by General Charles C. Krulak).

This message is equally applicable to the ADF. In preparing to respond adequately to any one or more of the broad range of potential scenarios within the region, the ADF should now re-assess how it is configured and organised. The great imponderable in this critical self-assessment of defence capability are the judgements based on intelligence and other factors that identify the threat or threats to Australia and its interests. A great difficulty for the ADF, in the post-Vietnam War era, has been to identify such threats and develop capabilities to counter them. Consequently, the ADF has continued to generally develop capabilities that reflect single Service perceptions of what is important to the defence of Australia. The result has been the development of a broad range of disparate platform centric capabilities, not necessarily integrated to meet future ADF requirements and not reflecting a Total Force concept.

The Way Ahead

As we begin to implement the guidance contained in *Defence 2000*, it is opportune to consider a better way of doing business and adopt a more holistic approach to the development of defence capabilities. A key factor in this process is to acknowledge that whilst Australia does not currently face an obvious threat, *Defence 2000* demands that we are prepared to deal effectively with any one or more of a range of potential threats emerging within the region, or beyond. This requires a high order of flexibility throughout the ADF in both the organisation, the command chain and in the planning process in order that an appropriate force can be assembled quickly and prepared for deployment to meet any given situation. The second key factor concerns Australia's unique geo-strategic situation within the region and its vast hinterland, with limited infrastructure.

Equally vast is the regional littoral area into which the ADF may be required to operate. The tyranny of distance between and within these vast areas requires a high level of mobility at both the strategic and tactical level across the ADF.

A key factor in this development is that *Defence 2000* recognises Australia's geo-strategic situation as an island continent, set in a predominantly maritime environment, and that the development of future ADF capabilities will be very much centred upon a Maritime Strategy. This is a significant change from the Continental Defence posture that has dominated Australian defence development in the 20th century. The adoption of a Maritime Strategy does not place Navy in a pre-eminent position over the other two Services but does recognise the extensive maritime nature of our surroundings and the need to develop a Total Force capability. Stewart Fraser, in an article on Littoral Warfare and Joint Maritime Operations, noted that:

Maritime Strategy flows directly from a state's geo-strategic environment, and is formulated at national and grand strategic levels. At its broadest, it may be defined as the utilisation of national maritime-based power – military and civil – to meet political and economic objectives:

Maritime strategy is specifically concerned with the exercise of maritime power, as opposed to naval power. The difference is significant. Maritime power is inherently joint in nature. It emanates from forces drawn from all three Services, both land and sea-based, supported by national and commercial resources, exercising influence over sea, land and air environments.'

The reality of deploying and operating in this environment, in a flexible and mobile manner, needs to be fully examined and all

Defence capabilities need to be assessed for their utility in meeting these requirements. The adoption of a maritime strategy as a cornerstone of Australian Defence Policy and the development of integrated capabilities will ensure that the ADF is able to respond in an appropriate manner to a wide range of threats. This is not dissimilar to the function of civilian emergency services, which are equipped, trained and prepared for a wide variety of potential tasks. The nature of the task at the time will determine what resources will be deployed. The secret to success being the ability to quickly judge what resources are required to meet the task and the speed of response. It will be vital for Australia's standing within the region in the future that any military response is seen to be effective. This requires the establishment and preparation of a force that is well trained and prepared to be able to act quickly and robustly to any given situation and to have the inherent flexibility to adjust to a changing situation.

The establishment of a Maritime Strategy as a cornerstone of Defence policy considerably enhances the ADF's ability to deploy within the region and confers upon the ADF an ability to maximise the land, sea and air space for manoeuvres. When the principles of Mobility and Flexibility are applied, the ADF will acquire a significant capability to remain responsive to changing circumstances and requirements within the region, including mainland Australia and the offshore territories. To this end Army have now developed a concept for warfighting in the littoral entitled – Manoeuvre Operations in the Littoral Environment (MOLE),² which is likely to remain relevant until at least 2020.

Manoeuvre Operations in the Littoral Environment allow land forces as part of an ADF deployed joint force or regional coalition to achieve the strategic outcomes of deterrence, coercion or denial through the creation of operational shock.³ Operational shock literally means paralysing the enemy to the point of

collapse. Operational shock is achieved by combining advanced technologies, tactical proficiency and creative patterns of manoeuvre in order to generate a series of events against which an enemy is unable to respond.

The rational dislocation and emotional disorientation that results provide a numerically smaller force with the best opportunity to discourage a rational enemy from further offensive action.⁴

Retaining the initiative and freedom of action, especially when the enemy is militarily more powerful than Australia, will be essential both to achieve operational shock and to avoid piecemeal destruction. Tying down forces to hold ground may reduce the options for subsequent manoeuvre, thereby threatening the deployed task force's capacity to retain the initiative. In some circumstances, however, the deployed task force may need to seize and hold ground in conjunction with manoeuvre. In general the operational requirement may be best met by a number of actions of limited duration to achieve limited objectives.

Manoeuvre Operations in the Littoral seeks to concentrate overwhelming effects at particular places and times. This may be achieved by conducting simultaneous operations at a tempo the enemy cannot match including simultaneous forced entry from both the sea and air. The forces that conduct these entry operations may then conduct manoeuvre operations, or seize and hold points of entry for larger or more capable follow-on forces. Following successful manoeuvre operations there will usually be the requirement to transition to stability operations. Stability operations are likely to involve at the outset, manoeuvre forces prior to handover to forces more appropriately configured for the conduct of these operations.

To acquire such a capability the ADF would need to critically examine its force structure and levels of readiness. The development of such a force would require that its key *modus operandi* be established upon the concepts of

Manoeuvre Warfare, conducted by lightly equipped, highly mobile forces able to be supported over long distances. These forces would be both airborne and amphibious capable, and would have the necessary integral mobility, firepower and logistic support necessary to sustain them. Equally, the development of such a force would require that all future ADF capability development be predicated upon the warfighting requirements of this force, as part of a Total Force requirement.

The role of the RAAF as part of a “Total Force” would not only require a review of current airlift capability but also a considerable increase in the ability to support naval and Army units in the maritime environment. This might require the acquisition of additional or alternative combat aircraft capable of providing air defence to naval units throughout the region as well as close air support (CAIRS) to troops on the ground. This would be in addition to the two squadrons of Armed Reconnaissance Helicopters planned to enter service from 2004.

Whilst *Defence 2000* allows for the planned replacement of HMAS *Tobruk* in 2010 and HMAS *Manoora* and *Kanimbla* in 2015, as well as the replacement of the LCH'S and LCM's, there remains a need to review Navy capability requirements from a broader ADF perspective. This might translate into enhancing the current amphibious and support capability as well as providing enhanced afloat C3I and fire support for the Joint Force. This would be particularly applicable in the conduct of Operational Manoeuvre from the Sea (OMFTS) and MOLE operations, where the force might well be deployed for a protracted period in the region or beyond. The inherent ability of this force is that it has the mobility and flexibility to undertake a wide variety of tasks simultaneously. As Hewish, Janssen and Scott, in their article *Power Projection gets Amphibious Boost*, noted :

Amphibious forces have many advantages: they can be positioned over the horizon from a danger spot; they can be held concentrated, ready for rapid reaction; “(Poise)” and they can be dispersed, ready to reassemble rapidly when required. Amphibious forces also enjoy greater flexibility as, at sea, they are not constrained by the problems of sovereignty, which beset land and air forces.⁵

The concept of Manoeuvre Warfare is not new but has been firmly embraced in recent years by a number of Western nations as offering the best capability to respond to a wide range of potential tasks. Stewart Fraser (*Bairrigg Memorandum 32*) stated that “manoeuvre warfare is generally associated with images of land and combat,⁶ such as massed armour and *blitzkrieg* tactics. However, it is a Joint Warfare concept equally applicable – and perhaps more so in some respects – to maritime forces. In this context, manoeuvre warfare has two elements: manoeuvre at sea; and manoeuvre from the sea. Manoeuvre at sea centres on naval operations, and is chiefly concerned with establishing sea control over critical SLOCs, and precursor operations in the littoral area, to meet the requirements of the overall joint campaign on land, while manoeuvre from the sea applies the techniques of manoeuvre warfare to power projection. The USMC concept, as defined in *Operational Maneuver from the Sea*, outlines the idea of the littoral and adjacent SLOCs as a manoeuvre space:

What distinguishes (OMFTS) from all other species of operational maneuver is the extensive use of the sea as a means of gaining advantage, an avenue for friendly movement that is simultaneously a barrier to the enemy and a means of avoiding disadvantageous engagements. This aspect of (OMFTS) may make use of, but is not limited to, such techniques



*Australian armoured personnel carriers swim ashore from HMASTarakan during Exercise Tandem Thrust 01.
Photographer: Corporal J. Weeding*

*as sea-based logistics, sea-based fire support and the use of the sea as a medium for tactical and operational movement.*⁷

This capability confers upon commanders enormous flexibility whereby they are able to apply the necessary level and mix of force to any particular task/mission. In the emergency services analogy, the commander, in conjunction with principal advisers, is therefore able to make an appreciation of the situation, determine the requirements and assign the necessary resources to achieve the task. Once completed the force is available for new tasking, either by relocating within the AO or be withdrawn to its base afloat. The fact that the force is able to range over considerable distances whilst at sea further increases the mobility and flexibility of the force in being able to respond adequately to a wide range of tasks.

Force Structure

Whilst the ADF clearly does not have the same force levels and resources as the USMC, *Defence 2000* provides for the realignment and enhancement to its force structure and resources. This will allow for increased flexibility in the provision of combat forces through their organisation into three brigades and the Special Operations Group. The ability to form Task Forces from within these Groups will enable it to achieve a significant capability in the conduct of manoeuvre warfare within a maritime strategy.

For maritime purposes, both JRDF core units can be reinforced with armoured or armoured reconnaissance elements, probably in no more than squadron strength (around 12 Challenger tanks or Scimitar reconnaissance vehicles, respectively) on account of the sizeable support tail required by such units. In a medium- to large-scale conflict, deployment of the JRDF may only be a precursor to a divisional-sized build-up.⁸ As Dr Michael Evans noted in his paper:

*This is a concept of maritime strategy in which doctrinal refinements and new technology seem to give amphibious and airmobile operations greater strategic potential than ever before in the history of arms.*⁹

Decision Time

The ADF has arrived at a critical point in its development with some fundamental choices to be made as to how to do business in the 21st century. The reality of Australia's geo-strategic situation in a region that is both maritime and littoral by nature dictates the adoption of a strategy that reflects the demands of this environment. This requires the development of Joint Warfare Fighting Capabilities that cater for a broad range of contingencies that could arise in the sea-air-land gap.

Whilst the ADF remains small in size, compared to a number of larger allies, there is enormous potential to maximise the effects of a relatively small defence force by adopting the concepts of manoeuvre warfare, whereby forces are concentrated at key points to apply leverage. The effectiveness of manoeuvre warfare calls for high levels of mobility and flexibility, as well as high levels of training and readiness.

The ADF is fortunate that many of the component parts required to develop a highly mobile and responsive force already exist within the ADF force structure and the planned 3 Brigade and SOG organisation will provide the nucleus for the development of a highly mobile force. The LAV and Bushranger development programmes will confer increased mobility to the force.

Artillery, Engineer, Armour, Signals and Logistic support units are already well embedded into the Army orbit. In addition helicopter support, to be augmented in 2007 by an additional squadron of troop lift helicopters, is available through 5 Aviation Regiment, and the RAN and RAAF. A modest level of

strategic and tactical air and sea mobility is available with the upgraded C130(J) Fleet and the newly redesigned LPA's HMAS *Kanimbla* and HMAS *Manoora* in conjunction with HMAS *Tobruk* and the LCH's.

However, the effectiveness of these forces depends upon the adoption of a clear warfighting capability established on the integration of the capabilities to the common purpose of being able to provide a highly mobile and responsive force, able to operate in the maritime environment. This not only requires reorganisation to the current force structure but the replacement of some heavy equipment with lighter, more mobile and air-sea transportable equipment. The provision of air defence for those naval and Army units operating as a joint force in the maritime environment will be of paramount importance. The subsequent development of future capabilities across the ADF must continue to reflect the underlying requirement to develop a highly mobile and responsive force that is able to operate effectively throughout the region. It is possible that some significant savings in cost and manpower may be achieved through the rationalisation of the developmental process, thus offsetting some costs relating to restructuring changes.

Conclusion

The ADF is confronted with the need to make some significant decisions concerning its structure and *modus operandi* into the 21st century. The world has changed, and whilst a number of countries have dramatically realigned their defence forces to reflect these changes, the ADF has yet to change from its long established structures. The Coalition Government's stated increased involvement within a region, that is both predominantly maritime and growing in importance but also becoming increasingly unstable, demands that the ADF develop Joint Warfighting concepts based upon the MOLE warfighting concept.

To be effective, the ADF must not only adapt to operating within a maritime strategy but also change its structure and *modus operandi* to undertake manoeuvre warfare. Whilst the ADF has a broad range of existing capabilities, these need to be reviewed, so that hollowness within the structure is removed and the ADF acquires a lighter, compact and more mobile capability so that it can adapt and react quickly to changing situations, particularly within the region. Force elements must be capable of coming together as part of a joint force to meet any given task. The development of such a capability, demands that single Service developments reflect the requirements of the Total Force. In addition, emphasis should be placed on high levels of training and cross-training with other Force Elements to ensure that a high level of familiarity and interoperability is achieved across the ADF.

The ability of this force to be effective throughout the region into the 21st century demands that the ADF re-evaluate its *modus operandi* and adopt the concepts of manoeuvre warfare. The development of future single Service capabilities must reflect the needs of the Total Force requirement, so that the ADF can indeed become A Force For All Seasons.

NOTES

1. S. Fraser, (1995) "Littoral Warfare and Joint Maritime Operations, UK Approaches and Capabilities", *Bairrigg Memorandum 32*, CDISS Lancaster University, Lancaster.
2. Concept for Manoeuvre Operations in the Littoral Environment (4th Draft 04/06/01).
3. Operational shock is a term derived from deep operations theory drawn from the former Soviet Union's analysis of the determinants of successful manoeuvre and war termination.
4. Rational dislocation is an inability to apply rational decision-making processes in a timely and relevant manner to positively influence circumstances in the battlespace. Emotional disorientation is an inability to come to terms with an unexpected loss of initiative and battlespace control. The inability of the French high command to respond effectively to the German *blitzkrieg* in 1940, despite the French preponderance of man, materiel and advanced

technology, is an example of the effects of emotional disorientation combined with rational dislocation. Most French senior commanders were emotionally disoriented by the collapse of the key assumptions underpinning their pre-war planning and most of the rationally conceived orders prepared by their staff were dislocated in time from events on the ground.

5. M. Hewish, J. Janssen, R. Scott, (March 1997)

Janes' International Defense Review, Coulsdon, Surrey, UK.

6. op. cit.
7. S. Fraser, *Bailrigg Memorandum 32* quoting "Operational Maneuver from the Sea, Headquarters Marine Corps" (Washington D.C.).
8. S. Fraser, *Bailrigg Memorandum 32*.
9. Dr Michael Evans LWSC Working Paper No. 101, "The Role of the Army in a Maritime Concept of Strategy."





Coalition members of INTERFET

UNTAC and INTERFET – A Comparative Analysis

By Brigadier Steve Ayling and Ms Sarah Guise

There has been a trend towards an increase in the number of coalition operations undertaken since the end of the Cold War. Whatever the reasons for this, it is clear that multi-national coalitions will continue to be required to restore international peace and security on behalf of the international community in the future. It is likely that in many cases this requirement will be met by the creation of ad hoc coalitions that are formed on a temporary basis to undertake a specific operation, and at short notice. These ad hoc coalitions will invariably include military contingents from nations who only have membership of the United Nations (UN) in common, and do not have the benefit of permanent security relationships. The question is, what is the best model for forming these ad hoc coalitions and conducting successful coalition operations?

This article examines the UN model for conducting coalition operations by comparing and contrasting UNTAC (United Nations Transitional Authority in Cambodia) and INTERFET (International Force East Timor), concluding that this model appears to be the most appropriate for future low intensity peacekeeping and peace enforcement requirements in the Asia Pacific region. The examination takes a strategic level view of the ways and means that can guide future *ad hoc* coalitions, and is based on the fact that both UNTAC and INTERFET military coalitions were relatively successful and involved many participants from nations from both within, and external to, the Asia Pacific region. It is also important to recognise that experience in *ad hoc* coalitions is increasing and consequently expertise continues to evolve and improve over time. This article argues that action can be taken in a manner consistent with the unique strategic context of the Asia Pacific to enhance the readiness of regional nations to participate in coalitions together in the future.

The analysis is structured to evaluate the achievement of the desired outcome of an effective military *ad hoc* coalition, able to operate in an integrated military, diplomatic, political and economic environment with a

robust media presence. Firstly, an appreciation of the Asia Pacific strategic context that will influence *ad hoc* coalitions is given, secondly an assessment of the UNTAC and INTERFET coalitions from a strategic viewpoint and lastly to reflect these considerations in lessons that can apply to the components of a coalition campaign. These considerations support a SWOT type approach to strategic planning where strengths and weaknesses are reflected in the achievements and lessons learned from these operations, and the opportunities and threats are reflected in the evolving strategic context.

The comparative analysis reflects the personal experience of both authors (See biographical details on page 56).

The Strategic Context- Constants, Trends and Shifts

The similarities and differences in the strategic context that influenced both UNTAC and INTERFET can be expressed in terms of constants, trends and shifts. Constants are those features that endure over time, were common to both operations and are likely to remain characteristic of the Asia Pacific region for future operations. Trends are those aspects that change continuously over time and demonstrate evolution and improvement in national

expertise from UNTAC to INTERFET and into the future. Shifts are those influences that can vary according to the particular circumstances.

Constants

The major constant that influenced both UNTAC and INTERFET is the diversity of the Asia Pacific region. This region encompasses a large number of countries, all different to each other in terms of economic development, social structures, political systems, religion and culture. Despite the globalisation influences of the information revolution and increasingly liberalised international trade, the region will remain diverse. This diversity is characterised by a wide range of national goals and aspirations, and a determination for national independence. While countries of the region have a shared interest in regional security, our approaches to achieving it are as diverse as our nations. The Asia Pacific region stands in stark contrast to Western Europe, where historical, economic, social and political influences and directions have converged to be compatible enough to have allowed the formation of the European Union and the deployment of NATO-based coalitions within that region.

Another constant is the importance of the UN as a unifying influence in the region and the equal respect that is afforded to all nations through membership of the General Assembly. The extent of participation in both UNTAC and INTERFET by regional countries highlights their preference to act with the authority of the UN through the means of a UN Security Council Resolution. As members of the UN, each has agreed to abide by the UN Charter and accept the UN as a legitimate authority for use of military force in international affairs. Support of the UN allows each country to safeguard their own security but places desirable constraints on the use of force in the internal affairs of other states. As a result, the common interest of regional nations in security can co-exist with the diversity of other interests and political motivations.

A third constant is the difficulty of forming an effective *ad hoc* coalition that balances national characteristics and requirements with the demands of the campaign plan prepared by the nominated force commander. Coalition building is a demanding task and conducting coalition operations requires patience, negotiation, trust and confidence together with a guaranteed source of finance and specialised military resources. This constant provides both the strength of an *ad hoc* coalition in terms of the national diversity that underpins its creation, and a weakness in terms of vulnerability in the force structure and inherent capabilities. As will be discussed under lessons learnt, a lot can be done to facilitate this process, but it nevertheless remains complex and challenging.

Trends

There has been an important trend towards an increased willingness to participate in UN operations. Nations are becoming more willing to get involved in international efforts to restore peace and security, and given the evidence of UNTAC and INTERFET are prepared to participate either within or outside the region. There are several factors influencing this, including awareness that there is diplomatic and political kudos to be gained by participating in international coalitions, particularly to assist in situations with a humanitarian slant. The increasing prevalence of the media, making domestic audiences increasingly aware of the world problems and who is doing what to address them aid this. Participation will however necessarily include strict caveats on the type and tasks that can be undertaken by the respective national contingents.

Secondly, there is a trend towards an increased maturity in the conduct of UN operations. This includes the consideration of national reasons behind the decision to participate and subsequently the capacity to operate effectively within an *ad hoc* coalition. As more UN operations are conducted and nations continue to contribute to them, they are

gaining more experience at the strategic, operational and tactical levels of command. The countries of the Asia Pacific region have gained significant experience in coalition operations, and in particular in operating with each other.

Thirdly, another trend is an increased willingness on the part of the UN Security Council to authorise peace enforcement operations that include the use of force by military coalitions under Chapter VII of the UN Charter. This is largely due to adverse experiences in operations such as Rwanda, and the acceptance that the more restrictive peacekeeping operations under Chapter VI have limited opportunities to achieve mission goals. It is understandable that the credibility and viability of the coalition depends on the safety of contingent personnel and their ability to restore adequate security for the other components of the mission to succeed. The member states of the UN have recognised this and generally support and encourage the United Nation Security Council in their increased willingness to authorise the use of force. This aspect was evident in the willingness to participate in INTERFET under a Chapter VII based rules of engagement.

Shifts

The shifts in the strategic context present the greatest threats to the achievement of an effective *ad hoc* coalition. It must be accepted that circumstances in which operations occur will vary continuously and will tend to be unique for each situation. Examples include the reasons for conflict erupting, the intensity and scope of the conflict, the likelihood of a successful outcome within a reasonable timeframe and the longer-term consequences of participation.

The level of danger is a good example of the different circumstances surrounding UNTAC and INTERFET. In Cambodia, despite a Chapter VI based resolution, the risks to contingent personnel were high in an environment characterised by a fragile balance

of power between equally heavily armed factions, a history of violence, and a high prevalence of landmines. In East Timor, with a Chapter VII based resolution the danger levels were lower, characterised by poorly armed and trained militias who were happy to target helpless civilians but were easily countered by the professional military forces in the INTERFET coalition.

Another example of shifts in a strategic context is the difference in the speed at which the situations in Cambodia and East Timor deteriorated into violence; resulting in a difference in how rapidly military forces were required to respond. In Cambodia, the situation was more protracted and allowed the negotiation of a peace agreement over time. In East Timor, the safety of the local population was being seriously threatened requiring immediate action.

Although there is a trend towards an increased willingness to participate in coalition operations, the shifts in diplomatic and political opinion will influence decisions as to whether to participate in a coalition. Participation cannot be taken for granted and nations will assess their involvement in operations on a case-by-case basis. Australia for example has a set of criteria against which it will assess participation in peacekeeping operations in the new Defence *White Paper*. The conditions that influence the decision include:

- the nature and extent of Australia's interests, including strategic, political, humanitarian and alliance issues;
- whether the mission has a clear mandate, goals and end-point;
- whether the mission's goals are achievable in all the circumstances and with the resources available;
- the extent of international support for the mission;
- the cost of participation, including the effect on the ADF's capacity to perform other tasks;

- training and other benefits to the ADF;
- the risks to personnel involved; and
- consequences for Australia's wider interests and international relationships.

Lastly, an effective coalition will depend on the availability of financial support for the cost of the operation. *Ad hoc* coalitions do not have guaranteed UN funding, and will depend on the contribution of funding from other nations for the mission. However this is assisted by conducting the mission under UN auspices with the authority of a UN mandate and by the participation of a wide range of countries representing the international community. Nations are prepared in some cases to make a self-funded contribution (such as Australia did for UNAMIC and INTERFET), but will require funding from the UN in other circumstances (such as Australia did for UNTAC and is currently placed in UNTAET). A source of funding is required to meet the significant costs of deployment, logistic and medical support and compensation for death and injury. It is probable that reliance on self-funded contributions will not be enough to create a viable coalition that is diplomatically acceptable.

Analysis of UNTAC and INTERFET

The major success of both operations was that an effective coalition was created for both the UNTAC and INTERFET missions, albeit over different timelines. It is worth noting the difference in the time taken to build the coalition up to full effectiveness. INTERFET was highly successful in rapidly forming an effective coalition. The UN authorised an international force three days after the agreement by the Indonesian Government to allow an international force into East Timor, and INTERFET commenced deployment five days after the approval of UN Resolution 1264. However it was largely possible because a nation - Australia - was willing and able to organise and lead a coalition immediately and other nations, from both within the region and

outside, were willing and able to join in relatively quick time. Although considerable negotiation was still required to encourage nations to join INTERFET, confidence in the Australian leadership, commitment to early resolution of an unacceptable situation in East Timor and availability of both self-funded and Relief Trust Fund supported nations proved to be the keys to success.

UNTAC unfolded over a much longer period, and was preceded by extensive negotiation with the Cambodian factions and the deployment of the UNAMIC advance mission to confirm that the circumstances remained stable. This robust UN process for peacekeeping was successful, and clearly suited the coalition participants by allowing a long period to consider whether to deploy or not, and if so, what would the contribution be. While an effective coalition was achieved, there was a time lag in building the coalition up to full effectiveness. This reflects the relative inexperience in large-scale peacekeeping operations at the time of UNTAC.

A second success of both operations was the extensive regional and global participation in both coalitions. This demonstrates that the involvement of a wide range of nations in addressing international security issues is successful and desirable. Such broad global participation is particularly important in the Asia Pacific region, as regional nations may not have the full range of capabilities required to mount a successful coalition operation.

- Participants in the UNTAC military and civilian police components were: Algeria, Argentina, Australia, Austria, Bangladesh, Belgium, Brunei, Darussalam, Bulgaria, Cameroon, Canada, Chile, China, Colombia, Egypt, Fiji, France, Germany, Ghana, Hungary, India, Indonesia, Ireland, Italy, Japan, Jordan, Kenya, Malaysia, Morocco, Namibia, Nepal, Netherlands, New Zealand, Nigeria, Norway, Pakistan, Philippines, Poland, Russian Federation, Senegal, Sweden, Thailand, Tunisia,

United Kingdom, United States and Uruguay.

- Participants in the INTERFET military coalition were: Australia, Brazil, Canada, Denmark, Egypt, Fiji, France, Germany, Ireland, Italy, Jordan, Kenya, Malaysia, Mozambique, New Zealand, Norway, Philippines, Republic of Korea, Singapore, Sweden, Thailand, United Kingdom and the United States.

It is worthy to note the nations who participate in both coalitions, and those who used these operations to make their first ever contribution.

Both coalitions were successful in securing adequate funding. The source of funding is different - UNTAC was a UN funded mission and INTERFET was a mixture of self-funded nations and those supported by the UN Relief Trust Fund. The Relief Trust Fund, funded with extremely generous contributions from Japan, was a major factor in the decision of many nations to participate in the coalition. Funding availability was a major consideration in the strategic level negotiations completed with nations who were considering participation in INTERFET. The Australian Government undertook to meet in-country logistic costs for those nations who were to be funded by the Trust Fund and seek separate reimbursement after the fund was functioning in order to encourage early deployment. The Australian Government also agreed to underwrite the death and disability compensation provisions for these nations as the aspect had not been included in the terms of reference for the Trust Fund.

Both coalitions succeeded in providing a secure environment for the further restoration and development of Cambodia and East Timor. UNTAC included other components responsible for rehabilitation and reconstruction of the host nations in terms of infrastructure development, humanitarian assistance and the conduct of elections, formation of new

administrations and so forth. INTERFET was replaced by UNTAET that had these wider responsibilities. The “nation building” responsibilities that include the critical restoration of the rule of law of military coalitions is a significant point that can confound a purely military planning approach to operations, and leads to fear of “mission creep” and excessive risk minimisation tactics.

Both military coalitions were less successful in the rate of transition from military security to police security for law and order. It was evident in UNTAC that it was far more difficult to create an effective international police coalition than it was for a military coalition. This resulted in a major change in role for the military component from one of disarming and demobilising the armed Cambodian factions, to providing security for the conduct of the elections. INTERFET did not have a civilian police component, and had to undertake responsibilities to sustain law and order after the threat from the militia had been contained. The capacity to transition effectively from military to civilian control of the situation is a major aspect for the future. The United Kingdom concept of “pushing from the rear” to create the circumstances in which the military component of a UN mission can be replaced by civilian means (such as communications, logistics and medical support) is of critical importance in the strategic level management of *ad hoc* coalitions. Measures are required to manage the trend towards increasing involvement of the UN in international affairs extending well beyond military coalitions to include many other economic, political and humanitarian initiatives. With the increase in intra-state conflict leading to the collapse of effective government, the UN is increasingly involved in transitional governing arrangements.

A final success worth mentioning is the momentum created with the success of each mission. Success is cumulative and the experience flows into contributing to the

success of subsequent missions. Hence the success of UNTAC contributed to the success of INTERFET, which in turn is contributing to the success of UNTAET. The experience gained over time had made each successive operation better than those before it. Many Asia Pacific nations have participated in these operations, increasing their own national experience of operations in a multi-national context.

The analysis in this section demonstrates that while UNTAC was a UN-sponsored coalition, run and led by the UN, and INTERFET was a UN-sanctioned coalition, run and led by Australia under UN authority, both were very successful. This indicates that both forms of coalition possible under the UN model can be successful in the Asia Pacific region. As discussed in the first paragraph of this section, the main distinction between the two types of coalition was the speed at which they were able to build up to the force structure of a fully effective coalition. This distinction may influence which type of coalition is more appropriate in any given future situation.

Future Ad Hoc Coalitions

There have been a large number of lessons learned from UNTAC and INTERFET that can be better incorporated in planning. The desired outcome is a situation where a robust coalition force can be created that can reach full capacity in minimum timeframe, and with sufficient capability to achieve the mission objective. Unlike the NATO situation, the Asia Pacific region includes a number of individual military forces without a common doctrinal framework or mandated training and interoperability standards. The UNTAC and INTERFET operations demonstrated that this is not a major impediment to the conduct of relatively successful operations. The challenge is to create an acceptable means to address selected strategic level lessons in peacetime, and provide an awareness of the operational and tactical level lessons that can only be

effectively resolved in a specific coalition situation.

The approach used within the Australian Defence Force to consider the strategic level coalition building lessons learned from INTERFET may be suitable for this purpose. It can provide the means to sort the various lessons of the past and to identify those that can be addressed now, and those that are best left to those planning future *ad hoc* coalitions. The model was developed to address the requirements of future warfare by the Office of the RMA within the Defence Headquarters and introduces seven components of warfare concepts that integrate to define a campaign strategy. Using these categories it is possible to identify where major deficiencies exist that can be addressed either by individual regional nations or in a corporate way by those nations who have cooperated together in previous operations and may do so in the future.

The warfare concept categories are:

- command and control;
- intelligence, surveillance and reconnaissance;
- tailored effects;
- force projection;
- force protection;
- force sustainment; and
- force generation.

The approach provides a way in which the constants, trends and shifts of the unique strategic context in the Asia Pacific region can be merged with the components of future *ad hoc* coalition campaigns. It can identify the ways of achieving the objective of an effective coalition and the means through training, doctrine and policy to improve the ability to operate in coalition in these areas. The key is for regional nations that can anticipate operating in coalition together in the future to prepare them for this eventuality. The basic premise is that the more negotiating that is done in advance and the more understandings

reached beforehand; the easier it will be to conduct a coalition operation. Those things that take time, things that are common to all coalition operations or can be identified as necessary sufficiently far in advance can be addressed. This will leave those things that vary or that are not easily predicted to be dealt with on a case-by-case basis. The web of bilateral relationships that exists in the Asia Pacific region provides an effective means for achieving this goal.

Command and Control

Importance of an efficient command structure. Coalition participants will only join a coalition if they respect and have confidence in command structure. Command and control can be based on the widely accepted UN model that has proven successful, but it requires the appointment of a capable and credible coalition commander agreeable to all. Potential coalition participants need to be convinced that the most direct and efficient chain of command has been established and most importantly that it will be responsive to their national requirements.

Importance of the national commander / force commander relationship. The assignment of national force elements to the coalition commander under operational control is a key factor. This allows the coalition commander to use national contingents within limits agreed by each nation for the purpose of the mission, but allows each nation to retain ultimate command of their own forces. In a region such as the Asia Pacific where the diversity of interest and motivation is significant, the use of operational control as opposed to the NATO model of forces being under NATO command is much more appropriate. The use of operational control under the UN model allows the coalition commander to negotiate individually with national component commanders regarding the employment of their forces. This assists nations in achieving their varying political

objectives in joining the coalition and allows the coalition commander to address constraints such as varying willingness to accept casualties.

Managing national media requirements. A strategic plan for the management of coalition, national, host nation, UN and NGO agency aspects is a key requirement. International recognition and national prestige are primary considerations for nations planning to participate in a coalition. Appropriate media coverage of all activities, including access to the arrival/ training/ deployment/ operations is required. This can be provided by national media agencies, but must be supported by the coalition leader. National requirements can be met through a flexible approach to the procedures for the accreditation and support to media representatives.

Intelligence, Surveillance and Reconnaissance

Information sharing is required. Intelligence, surveillance and reconnaissance can be facilitated by the formulation of information sharing agreements between nations. This includes the use of general information to inform the decision to participate in the coalition and during the operation to inform changes in the mission and the circumstances for leaving the coalition. This is a sensitive issue, but will provide particular benefits at the strategic level of command.

Policies for the release of classified material. Interaction in a coalition setting is greatly facilitated between nations that have already negotiated the boundaries on what classified information they are prepared to release to each. In addition, the more countries share information on regional developments as they arise, the better prepared they will be to deal with them should military action become necessary.

Force Projection

Strategic lift for deployment and re-deployment. Few nations have the means to



INTERFET commander Major General Cosgrove inspecting Jordanian troops with UNTAET counterpart Lieutenant General Jaime de Los Santos

Photographer: Corporal A. Hall

self-deploy on operations and the availability of strategic lift is a major consideration in the timely deployment to join the coalition. Planning and arrangements for strategic lift can be made in advance, with nations considering the circumstances in which they would need assistance with strategic lift. Training and exercising together can assist in the development of common procedures for planning and conduct of deployments. There also needs to be a willingness to make national contingent transport assets available at the tactical level for coalition use.

Staged deployment assists in coalition management. The ability during INTERFET to stage contingent deployments through Australia prior to deployment to East Timor allowed forces to concentrate and deploy into the theatre of operations in accordance with the campaign plan. This was more efficient than the direct deployment into Cambodia at the start of the UNTAC operation, where the availability of support directly impacted on the perception of the efficiency of the operation.

Tailored Effects

Acceptance of the Chapter VII UN Charter Force Rules of Engagement (ROE). Establishing acceptance and understanding of the UN rules of engagement for Chapter VI and VII operations among nations and importantly understanding the difference between them can be done in advance. Nations can consider how their national ROE fit with the UN ROE and make sure they are consistent. In particular national policy towards the use of force to protect designated persons and mission essential equipment can be specified in advance.

Force Protection

The likelihood of casualties is a major determinant in participation. Nations are vitally concerned with the risks associated with a Chapter VII peace enforcement operation. It is a key planning factor and must be negotiated during coalition building planning. National prerogatives need to be respected and accommodated. Risk assessment will influence

many aspects of campaign planning including preferences for tactical areas of operation, the scope of national commitments and caveats on the use of forces.

Management of risks with tropical disease and availability of medical inoculations are key determinants. Nations are not necessarily familiar with the risks of disease in the particular area of deployment. This particularly applies to deployments into tropical areas where knowledge of preventative measures including the availability of immunisation stocks for large contingents is critical.

Force Sustainment

Coalition logistic support shortfalls must be satisfied. Most nations will not be able to deploy logistically self-contained and will expect that support will be provided. The coalition leader must accept the responsibility to meet any shortfalls in order to ensure that timely deployment and readiness for operations is possible. The demands on the coalition leader will be particularly high in locations where either the local infrastructure or commercial contractors are unable to be used.

Logistic, movements and personnel planning guidelines must be negotiated early. Logistic support can benefit significantly from the prior negotiation of implementing arrangements between nations. These can provide general direction on the level of support required by one nation that is agreed to be provided by another nations, should they operate in coalition together. Amendments will be required for the particular circumstances of an operation. The experience of UNTAC and INTERFET demonstrates that it is time consuming to negotiate these agreements, and can impact on deployment and the build up of the coalition.

Force Generation

Negotiation is required before nations will join a coalition. While some nations will join the coalition and deploy immediately,

negotiation is required with most nations. They need to be convinced that planning and execution are of standards acceptable to their national requirements. Detailed planning can be achieved with the early deployment of national planning teams who can address political, military and financial aspects of the proposed operation.

Trust and understanding is the key to coalition building. Trust and understanding is a critical dimension to the success of an *ad hoc* coalition. The conduct of common training and development of strategic level doctrine can facilitate this. The value of military personal relationships developed through previous training and operational activities is emphasised. The identification of mutual acquaintances and recognition of military reputation supported the development of trust and understanding. Liaison officers with language skills are important to assist in overcoming language and cultural barriers, particularly important in a region as diverse as the Asia Pacific.

A successful coalition has many participants providing both large and small contingents. An equal approach needs to be taken to coalition building regardless of a nation's reasons for participation or the size or characteristics of contingents. All nations come to answer the call of the UN Security Council and the coalition leader merely exercises "stewardship" of the coalition on behalf of the UN. It should be noted that the same staff planning effort is generally required regardless of the contingent size.

Force reparation pays dividends. Contingent training in rules of engagement, customs and culture aspects together with limited language skills are a very positive coalition building activity. During INTERFET this was managed under Australian arrangements in Australia, while in UNTAC it was left to the individual nations to consider the extent that it was required.

Conclusion

Given the constants, trends and shifts identified and the analysis of both the *ad hoc* coalitions created for UNTAC and INTERFET, it is clear that the UN model is successful in achieving the outcome - the formation of an effective military coalition - in the Asia Pacific region. The two types of coalition allow the UN to choose which type will be more appropriate for the situation. Acknowledgement of the lessons learned outlined in the seven warfare concept categories highlight areas where the UN model can be strengthened by both early action, and made more efficient and effective in the future.

It is important to recognise the role that the UN played in the efforts to resolve the crises in Cambodia and East Timor within the strategic context of the Asia Pacific region. There was wide acceptance of the UN Security Council Resolution as the basis for a commitment to the *ad hoc* military coalitions by many nations, and particularly the value of allowing regional countries to be involved to resolve regional issues of concern. The importance of allowing a wide variety of countries from outside the region to act where their interests or conscience direct is of key importance to the

diplomatic legitimacy and military strength of the coalition. It is particularly important to allow military capabilities not found within the region to be incorporated in the coalition.

The UN model also allows nations to remain flexible with regard to the participation in coalitions. Up to a certain point, nations are happy to provide assistance with minimal discussion. But there comes a point beyond which nations will refuse to act without the chance to negotiate the nature of their participation. The UN model allows nations to make decisions on a case-by-case basis and does not require them to commit to a guaranteed response under any particular circumstances.

The achievements of the UNTAC and INTERFET military coalitions were significant in regional terms. The capacity to respond to future crisis of similar magnitude within the region certainly exists. Consideration of the lessons learned not only leads to an enhanced ability to conduct future *ad hoc* coalition operations under the UN model, but also provides a sound basis from which to develop a more permanent regional security arrangement in the future.



Overcoming Learned Helplessness¹

By James Warn

*The Four Questions Asked by Effective Executives in Making People Decisions:*²

- *What has he or she done well?*
- *What therefore, is he or she likely to be able to do well?*
- *What does he or she have to learn or acquire to be able to get full benefits from his or her strength?*
- *If I had a son or daughter, would I be willing to have him or her work under this person?*

Dr Alan Hawke diagnosed a severe case of learned helplessness in the Department of Defence:

*There are certainly elements of what I would call a culture of learned helplessness among some Defence senior managers - both military and civilian. Their perspective is one of disempowerment.*³

The pattern of attributing failure to lack of ability, task difficulty, or bad luck, and believing that successes do not reflect effort or ability has been called learned helplessness. Seligman and Associates first defined the concept in a series of laboratory experiments with dogs in the mid 1960s. They placed dogs in a restraining harness and then exposed them to a series of painful though not physically harmful electric shocks. No matter what the dogs did, the shocks would occur. Next, the dogs were put in a shuttle box, a chamber designed so that a dog can jump over a barrier and escape the shock. Dogs that had not been previously exposed to the inescapable shock would run frantically around the box until they accidentally scrambled over the barrier and escaped the shock. The dogs quickly became very adept at recognising the signal warning of the shock and jumping the barrier before they were shocked. In contrast, the group of dogs, which had been subjected to the inescapable shocks, would at first run around frantically for about 30 seconds. But they then

stopped moving, and lay down inside the box and quietly whined.

Since these early experiments, which in hindsight seem very cruel, learned helplessness has crossed the species barrier. Learned helplessness has been detected in human work groups. Work groups afflicted with learned helplessness are unlikely to increase their efforts and apply new strategies in the face of difficult problems because they believe that the causes for their failure (and success) are beyond their control.

Learned helplessness is an outcome of a series of disabling and unpleasant experiences. The causal factor is easily identified in an experimental setting. However, the contributing factors are less apparent in organisation settings. The manager may not have experienced a single traumatic shock. Instead, the manager's behaviour is likely to be the result of an incremental series of experiences that degrade one's sense of being in control of events. The manager may not even have directly experienced some of these events. Managers observe the behaviour of others and evaluate the consequences of this behaviour. In general, people learn to adapt their behaviour based on vicarious experience, that is, what they see happening to others around them.

Underlying learned helplessness is a set of behaviours in the organisation that Chris Argyris has called organisational defensive routines.⁴ Argyris identified amongst a group

of senior executives, sets of actions, that over-protect individuals or groups. These actions are routines because they occur continually and are independent of an individual actor's personality. The routines are highly skilled - which means they are executed immediately and automatically, without conscious thought. These routines enable the individual to survive the organisational politics, if not engage in it, and to progress one's career. These routines might be better described as survival routines.

Indicators of these routines are blaming, low encouragement of enquiry, decreased confidence in each other, prevalence of biting humour, low internal commitment to decisions, horse trading, covert empire building, political coalition building, badmouthing, and secret manoeuvring amongst the senior executives.

Survival routines can occur in any organisation, not just Defence.

Survival routines stop one from learning new actions. These routines inhibit open discussion, stifle learning, and prevent change. Argyris says that these routines result in skilled incompetence, and in Defence, these routines result in a culture of learned helplessness.

Argyris believes that the motivation to engage in a survival routine stems from the implicit beliefs group members hold about how to achieve outcomes in their organisation. This set of beliefs is called the theory-in-use. The prevalent theory-in-use enables individuals and groups in the organisation to:

- achieve one's own intended purpose;
- maximise one's own wins and minimise losses;
- avoid embarrassment (saving face is the name of the game); and
- behave according to what you think is rational (not what others might think is sensible).

The most prevalent action strategies that arise are to advocate your position, evaluate the thoughts and actions of others (and your own), and attribute causes for whatever you

are trying to understand. These actions must be performed in such a way as to satisfy your governing values - achieve minimum acceptable level of being in control, winning, or bringing about any other result. The theory-in-use says to craft your positions in ways that inhibit inquiry into them and avoid tests of them with others' logic. The theory-in-use involves expending your energy to protect and advance your position. The consequences are defensiveness, misunderstanding, and self-fulfilling processes within the organisation.

How to Change

Successful change rarely results in a change of deep-seated values. Rather successful change recognises the predominant values of the organisation's workforce and redefines the work outcomes that should be associated with those outcomes. This insight is particularly pertinent to defence organisations that depend on values such as loyalty and courage. These are important values to keep intact. However, many of the existing work practices are a matter of habit rather than an enactment of core values.

Changing survival routines is difficult but can be achieved with strong direction from the top. Change is possible and there are plenty of examples where leaders have turned around an organisation.

Leadership

The leader provides a metaphor that defines the culture of the workgroup. The CEO of Continental Airlines sees the work team as analogous to a football team. Everyone has a different assignment, but that is the game. He has formed a top management team of approximately five people - president, chief operating officer, chief finance officer, head of legal and PR and head of operations. "We collectively agree on things."⁵ Each one of these people sees things in terms of their knothole, from their functional perspective. Each of these people brings individual smarts to the table, and collectively we reach a better

decision. This team culture at the top permeates its way throughout the lower levels of the organisation.

The CEO of Continental Airlines, a former Navy mechanic, first developed his managerial style when he was in charge of aircraft maintenance for a squadron aboard a carrier, and later, a submarine hunting squadron. His former commanding officer commented, "... was superb at motivating people". At Continental, the CEO replaced survival routines with a culture of team learning.

Three important factors are important to understanding team learning⁶:

- **Communication.** For a team to achieve high levels of performance, its members must actively ask questions, discuss errors, engage in experimentation, and reflection, and seek external feedback. Quality of communication within the team and among teams strongly influences work processes, the environment, team design, and team member characteristics. Highest performing self-managing work teams have communication described as "honest, frank, and regular".⁷ Because of intense information sharing, members achieve high levels of clarity about each other's motivations and intents. Communication enables the team to learn. In high learning teams, mistakes are analysed for how improvements might be made, and feedback, both positive and negative, is considered helpful rather than critical. These teams actively seek out information from outside the group when they have problems. "If we have a quality issue - we're not sure about something we've just done - we'll bring others in without telling them what the issue is to ask them if they see a problem with this part."⁸
- **Support.** The shared belief that the team will not embarrass, reject or punish someone for speaking up is essential for

learning to occur in teams. This shared sense of supportiveness, respect and trust among team members is called psychological safety. The climate of supportiveness allows team members to take more risks, make errors or ask for help, and consequently made learning possible. Members of high performing teams typically make comments like: "We take responsibility for helping each other."⁹

Whereas members of low performing teams will note:

"People are put down for being different...there is a lack of trust."¹⁰

- **Capacity.** Performance depends on team members confidence in the capacity of the team to perform, clear and compelling goals adequate resources, information and rewards, and supportive leadership. However, high learning teams were capable of overcoming situational obstacles and limitations, whereas low learning teams were unable to transform their situation without external intervention. Teams in which members have high levels of comfort in voicing opinions are more successful since divergent opinions can be voiced, ideas can be challenged, and communication strategies exist for evolving better ideas.

Leadership style is an important contributing factor to organisational outcomes since it maintains the supportive psychological climate needed for groups to learn from experience and innovate and change. Team leader coaching appears to facilitate the development of psychological safety within teams. For most high learning teams, the leaders were proactive and committed to the team. Leaders of low learning teams tended to be more distant, and acted in a supervisory rather than coaching capacity. Importantly a supportive team leadership style creates the group climate in which high performance outcomes can be achieved.

Team leadership depends on leaders behaving consistently on the basis of a set of clearly articulated values. The incremental effect of this leadership behaviour is to create mutual trust and respect. Value-based leadership should be clearly differentiated from ethics training, which typically includes such initiatives as a code of conduct, training in relevant areas of law, such as anti-discrimination legislation, and mechanisms for reporting and investigating misconduct. These initiatives tend to encourage compliance rather than a values-based approach to workplace behaviours. An integrity-oriented strategy is needed if self-governance is important to the organisation.

HR System – Friend or Foe

Survival routines continue to exist in an organisation because they continue to be rewarded. Any attempt to shift a workforce from survival routines to high levels of performance needs first of all to examine the impact of the HR system. Does the HR system provide the right performance indicators? Does it provide a metric? Is the metric aligned with the incentive structure? Are people paid to perform or for just staying on? Is the HR system friend or foe?

Unravelling a culture of learned helplessness requires the HR system to shift its emphasis away from golden handcuffs that simply attempt to lock people into staying rather than performing. Survival routines manifest in a culture of complaint and blaming, and a skilled incompetence in dealing with the root causes of the problem. Blame the quality of new recruits, blame the lack of money, blame the contractor, and blame everyone you can, but avoid the root causes. For example, turnover is addressed by raising the entry barrier or the exit barrier.

When authority is under threat, HR is regarded as a means to manipulate employee behaviour. Mission statements – people are our greatest asset – are used to curry favour

from amongst employees. The success of such statements is dubious. It is useful to consider Peter Drucker's critique of HR. He argues that HR can easily degenerate into a device to "sell" whatever management is doing. "It is no accident that there is so much talk in human relations about 'giving workers a sense of responsibility' and so little about their responsibility, so much emphasis on their 'feeling of importance', and so little on making their work important."¹¹

Companies with the best human asset management practices have an "enduring commitment to a set of drivers: basic beliefs, traits and operating stratagems".¹² Survival routines that act as barriers to achieving this commitment are:

- **Obsession with action.** Managers are rewarded for activity, implementing change and moving on, rather than analysis. "Most companies encourage action. Some even support risk taking. But only a few demand that people grasp the implications of a problem before they blast off in a quest for the holy grail of solutions. Instead, the unspoken but clearly accepted cultural mandate is 'Do something'."¹³
- **Process fixation.** Lots of attention to improving process at the local level without clarifying how the process contributes to the organisational-wide outcomes.

These survival routines are further abetted by the inability to analyse cause and effect relationships. Often managers lack the skills for measuring the connection between internal activity and organisational-wide outcomes (e.g. quality, productivity). Goals are not analysed in terms of the impact they have on the organisation. Instead, achieving goals is seen as the end in itself.

The metrics provide a way for employees to link their behaviours to important organisational outcomes. These relationships can be tightly defined by the use of tools,

such as a balanced scorecard.¹⁴ The role of the reward system is to keep people focused on the important behaviours.

Linking the incentive system to important work behaviours may sound deceptively simple. Rewarding team performance may require pay for skills, team performance pay, or profit sharing (or gain sharing). Typically, these approaches will put some proportion of employee earnings at risk. Research indicates that hidden pitfalls may be encountered in the implementation phase. Moving to an earnings at risk pay plan may enhance targeted behaviours (e.g. productivity) but can reduce other work attitudes and behaviours (i.e. lower organisational support, lower job performance and increased absenteeism).¹⁵ Progress in improving the HR system requires clear adherence to basic values as well as rigorous analysis. Clearly, improvements will not occur if change is guided by the prevailing logic of survival routines.

Leadership and a performance oriented HR system are vital ingredients for overcoming learned helplessness. Together they can create a collective sense of self-efficacy - a realistic belief that the group can achieve the required outcomes.¹⁶

NOTES

1. This article is based on a paper delivered by the author to the Defence-Industry Integrated Teams Conference, Canberra, 8 November 2000.

2. Peter Drucker, *The Effective Executive*, 1967, Heinemann, London.
3. Dr Allan Hawke, "What's the Matter - A Due Diligence Report", Address to the Defence Watch Seminar, National Press Club, Canberra, 17 February 2000, and reprinted in the *Australian Defence Force Journal*, March/April 2000.
4. Chris Argyris, *Knowledge for Action*, 1993, Jossey Bass, San Francisco.
5. The material on Continental was drawn from articles by Sheila Puffer, "Continental airlines' CEO Gordon Bethune on teams and new product development", *Academy of Management Executive*, 1999, 13, 28-35, and Brian O'Reilly, "The Mechanic Who Fixed Continental", *Fortune*, 20 December 1999.
6. A. Edmondson, "Psychological safety and learning behaviour in work teams", *Administrative Science Quarterly*, 1999, 44, 350-383.
7. D.E. Yeatts and C. Hyten, *High performing self-managed work teams*, 1998, Thousand Oaks, CA: Sage.
8. *ibid.*, Edmondson.
9. *ibid.*, Edmondson.
10. *ibid.*, Edmondson.
11. J. Beatty, *The World According to Drucker*, 1998, Orion, London, p. 117.
12. Jac Fitz-enz, *The Eight Practices of Exceptional Companies*, 1997, New York, AMACOM, p. 13.
13. *ibid.*, p. 45.
14. R.S. Kaplan and D.P. Norton, *The Balanced Scorecard*, 1996, Harvard, Boston.
15. *ibid.*, Yeatts and Hyten.
16. A. Albert Bandura, *Self-Efficacy*, 1997, Freeman, New York.



Reviews

Books

THERE TO THE BITTER END, Ted Serong in Vietnam by Anne Blair, Allen & Unwin, Sydney, 2001.

Reviewed by Major Jim Truscott



It is surprising that it has taken 25 years for a book to be written about an inspirational figure. This is possibly because it is a book about confronting military failure. Although Serong held influential positions

throughout the entire course of the Vietnam War, most of his recommendations were ignored or his initiatives discontinued. The author states that these setbacks did not constitute failure to Serong as he viewed Vietnam as just one of the dominos in the global fight against communism. From Serong's perspective he achieved his mission of fighting communism for ten years. In many ways he just considered himself to be part of the Great Game similar to that played out between competing world powers in the Himalayas a century before. However unlike that period, the book describes the refusal by the US to treat Vietnam as a one-war Theatre.

The reasons for political and military failure in Vietnam are now well understood, none the least the author's description of the cultural difficulty that the US had in discerning between impressive briefings to superiors and the facts. The protagonists at the time would have done better to heed Serong's advice. As early as 1964 he concluded that the war was lost, and he began planning for stay behind operations. By mid 1965 Serong had finished commanding the highly successful Australian Army Training

Team Vietnam and he was seconded to the CIA to establish the Police Field Force; one of the few effective pacification operations in the entire war. When he retired from the Army in 1968, he served his remaining time in Vietnam in multiple politico-military appointments employed by the RAND Corporation. Even as the war was almost over in February 1975, he dared the US to treat Indo-China as one fighting region, and to use Thai forces to help hold back the North Vietnamese Army. The book describes a defining moment for Serong when on 28 April only days before the end, such was his influence that 12 South Vietnamese Generals come to his office and asked him to become Commander-in-Chief. Sadly, it was all too late.

I have one major criticism. The author uses Serong as a one-dimensional vehicle to produce an interesting perspective of the Vietnam War and its ultimate failure, however it still does not answer many questions about Serong. The author intended that Serong be the window through which she examined the Vietnam War, but for this approach to be successful, we have to know more about Serong. For example, the account does not fully describe the prior personal experiences that really framed his role in Vietnam. The connection between Serong, ASIS and the CIA remains ill defined, and the Australian Prime Minister's desire for him to become Chief of the General Staff is without supporting explanation of his career. The story lacks the human element that is crucial to coming to terms with Serong and the role he played. None the less it is compelling reading for war-fighters who must understand the fundamental linkage between effective strategy and tactical actions on the ground. It describes how the lack of clear definition of what constitutes winning daunted commanders and field soldiers alike. Fundamentally, Serong's

methods were too revolutionary for the US, as their high technology Army persisted in trying to fight a low technology war.

SOUTHERN TRIDENT: STRATEGY, HISTORY AND THE RISE OF AUSTRALIAN NAVAL POWER. Edited by David Stevens and John Reeve. Crows Nest, New South Wales: Allen and Unwin, 2001.

Reviewed by Dr Hank Prunckun



Since Federation, the development of Australia's Navy has clearly been a significant factor in the nation's overall development. As an island continent Australia is strongly influenced by its maritime environment and as such, Australia's national interests stretch far beyond its coastline. Recent cases that spring to mind include the crises in Indonesia, the Fijian *coups d'état*, the rebellion on Bougainville, and the interception of foreign fishing vessels in the Southern Ocean to mention but a few.

In *Southern Trident*, Stevens and Reeve have brought together 19 contributors who are expert in the field of Naval power. Collectively, they have written a series of extremely informative and thought provoking essays that examine the influences leading to the rise of Australian naval power. They have set these issues in their historical context, showing that the creation of the Australian Navy was more than a display of nationalism – it was rather a culmination of numerous and complex developments in the areas of diplomacy, international and economic relations, politics, and technology.

The book leads with a Forward by Vice Admiral David Shackleton, RAN, followed by an Introduction from the two editors. The book in chief comprises 19 chapters arranged

into two Parts – the first addressing “Concepts and Approaches to Maritime Strategy” and the other “Perspectives on Imperial and Australian Naval Defence.”

Dr John Reeves, Senior Lecturer at the Australian Defence Force Academy, sets the scene with an essay on “The Rise of Modern Naval Strategy c. 1580–1880.” He summons up what is best described as “early modern background naval strategy,” a strategy which naval commanders inherited in the 20th century. He does so as a way of showing that this history can act as a source of experience (i.e. lessons learned) to be used in the current strategic debate. The discussion in Reeves' chapter is thematic rather than chronological and covers a wide sweep of history. Although selective in its content, this initial chapter sets the standard for the high quality of writing and analysis found throughout the book.

Other chapters particularly worthy of note include: “Strategic Culture and the Australian Way of Warfare: Perspectives” (Dr Michael Evans, Australian Army's Land Warfare Studies Centre, Duntroon); “‘A Vigorous Offensive’: Core Aspects of Australian Maritime Defence Concerns Before 1914” (Dr Peter Overlack, St Edmond's College); “Defend the North’: Commander Thring, Captain Huges-Onslow and the Beginnings of Australian Naval Strategic Thought” (Dr David Stevens, Director of the Naval Historical Studies, RAN); and “A Fleet not a Navy: Some Thoughts on the Themes” (Captain James Goldrick, Director General, Maritime Studies Program, RAN).

Southern Trident is nicely presented in a hardbound format with dust jacket suitable for any library collection. It is profuse with illustrations, maps and statistical lists. There are look-up tables for contents, abbreviations, and illustrations in addition to the book's comprehensive endnotes and subject index. This book will not only be of great interest to students of naval history but will be attractive to professionals concerned with international

and strategic issues. It is a book that will find an audience with the general reader as well as academics and policy makers interested in Australian defence issues. Recommended.

RUNNING THE GAUNTLET,

by Alister Satchell

Reviewed by Major J.E Cotton



I found this a fascinating book. Alister Satchell tells the story of his experiences as a Royal Australian Navy Cipher officer aboard the Cunard liner *Aquitania* during her service as a troop-ship during World War II. While Satchell's appointment to the ship appeared to have been lost by senior naval HQ, resulting in Satchell serving without any extended leave, his was not the most onerous service of World War II. The ship sailed between wartime Britain and the United States of America, so not only did Satchell spend considerable time enjoying the pleasures of wartime New York, he was accommodated in one of the *Aquitania's* plush staterooms while at sea. There is no doubt though, that while Satchell's service was at times enjoyable, it was also most dangerous and highly important.

The *Aquitania* sailed mostly between Scotland and New York, along with fellow Cunard liners *Queen Mary* and *Queen Elizabeth*. These ships were sent through the middle of the Battle of the Atlantic being waged between any number of German U Boats, the Allied warships and aircraft seeking them out and the merchant ships trying to avoid being sunk. That this was a brutal and costly battle is evidenced by the British merchant marine having much the highest loss rate of any other British service during World

War II, approximately 35,000 men died out of 150,000 who served, a chance of death of almost one in four. Into this the *Aquitania*, and our author, sailed repeatedly and invariably unescorted.

The service provided by these and other troop ships was vital to the war effort. Winston Churchill said their contribution "shortened the war in Europe by twelve months". The three Cunard ships are estimated to have carried 1,443, 538 troops to the war effort with the *Queens* carrying up to 16,000 on each trip and the smaller *Aquitania* carrying up to 8,000. The sinking of any of these ships would have been a major victory by the German U Boat Service, a huge blow to the Allies and one of the most significant military disasters in history.

The intelligence war waged against the U Boat threat continued throughout the conflict. Planners assessed the best chance for these troopships was not in slower moving convoys – despite the statistic that 70 *per cent* of all ships lost to U Boats were outside convoy protection – but travelling at high speed and being veered away from Uboat concentrations by intelligence experts in Britain. That these experts were using information gathered from highly secure sources, such as decoding the German Ultra devices, meant that messages to change course were invariably encoded. Satchell's job was to decode these messages to ensure the *Aquitania* avoided disaster. Satchell performed his duties from his appointment in March 1943 (at the height of Allied shipping loses to U Boats) to the end of the war, without missing a single sailing of his ship.

This book is very well written and supported by a significant photographic record. It accounts for the vital element of the war effort provided by the Cunard ships, it provides significant detail of the Battle of the Atlantic and a fascinating portrayal of the unusual but vital and dangerous war service of an Australian Mariner.

