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BOOK REVIEWS
Chairman’s Comments

Welcome to Australian Defence Force Journal No. 175 and my first as Chairman of the Journal Board of Management. I look forward to a productive association with the Journal and to engaging with our wide international and domestic readership.

Australian society is now entering a new period. With a new government comes new guidance, including for Defence, with a new White Paper set for release later this year. There is also a changing global dynamic with the countdown to a new administration in the US, a slow down in global economic growth and a changing political landscape, particularly in Europe and the Middle East. I hope during my tenure as Chairman, the Journal can contribute articles on each of these issues and more.

Consequently, it is my intention during my time as Chairman to enhance the Journal’s appeal to readers and its professional standing by further contributing to the broader defence debate, particularly as Defence considers many new challenges across the emerging strategic environment. Such debate is essential in a democratic society to ensure the best advice is provided to decision makers and new ideas are fully examined and discussed in a professional forum. I believe the Journal should be one such outlet.

I am keen to publish articles that stimulate consideration of contemporary and future defence and security issues and I also want to encourage lively discussion through the ‘Letters to the Editor’ pages. Readers will note Dr Alan Stephens’ article on command and control in the previous edition did just that, with a rebuttal printed in this edition. I challenge our broad readership to put pen to paper and submit their thoughts on the issues they feel strongly about.

I am also pleased to advise Squadron Leader Lyle Holt’s article on integrating space into Australian Defence Force operations, raised some of the very same issues recently discussed by the Chiefs of Service Committee. Squadron Leader Holt’s article was written while at the Australian Command and Staff College in 2007. Well done Lyle.

Meanwhile, I would like to draw the reader’s particular attention to two other articles in this edition; Major Martin White’s article on energy-proofing the Australian Defence Force and Lieutenant Michael Paes’ article on Operation Trident and applicable naval lessons from the 1971 Indo–Pakistan War. I am particularly pleased to see an upswing in articles written by serving officers and I sincerely hope that trend continues. These two articles are of contemporary interest and I am sure you will enjoy reading them.

However, theirs were not the only articles worthy of note and with such a broad range of topics presented in this edition, the Board found it difficult to select the Journal article prize winner. After due consideration, the Board has selected Major Martin White for the award. Congratulations Martin.
Other items discussed by the Board included the revamped *Journal* website which is now in testing with a ‘go-live’ set for late April, and the intention to produce a special ‘themed’ edition later in the year. With regards to the website, it is my intention to post all back issues of the *Journal* (from 1976) with a feature that will allow search by author, topic, title or key words. I believe this will become a very useful research tool as well as generating wider exposure through the open internet. On the matter of a themed edition, the Board has chosen future command and control in the Australian context as its topic and again, I encourage readers to contribute their thoughts with articles to the editor or via e-mail at <publications@defence.adc.edu.au>. As usual, these will be refereed and the best, I guarantee, will be published.

I hope you enjoy this edition, the first for 2008.

D.R. Thomas, AM, CSC, RAN
Rear Admiral
Commander Joint Education, Training and Warfare Command
Chairman of the Australian Defence Force Journal Board
Dear Editor,

The Clash of Cultures: Command and Control in Joint Warfare

I read with interest Dr Alan Stephens’ article on command and control in joint warfare published in No. 174 of the Australian Defence Force Journal. It is unfortunate, however, that much of the author’s argument appears to confuse means with ends. Since, looking deeper, Stephens often seems not to embrace the ‘warfighting benefits inherent in genuinely joint operations’. Instead, he seeks to establish the primacy of the air element in joint campaigns and therefore the need for a specialist airman (or airwoman) to remain in charge; this command extending not only to joint operational deployments, but also to joint concept development and force structuring. As such, an interesting comparison might be made with a working paper dealing with future warfare recently published by the Australian Army’s Land Warfare Studies Centre. Unsurprisingly, this monograph concludes that future Australian Defence Force (ADF) operations will be land-centric, and therefore that commanders of deployed forces should invariably come from the land force. One wonders at the future purpose of our various integrated joint headquarters, and how far up and down the chains of command their appointments must likewise be reserved!

As various pundits take pains to remind us, ‘joint does not mean equal’; but neither does it mean that some joint force elements have been ‘marginalised’ (to use Dr Stephens’ phraseology). Noting the current ADF focus on networking as a key enabler, the reader might reasonably ask how it is that the air and land elements can be more central to joint missions than say the electro-magnetic spectrum? Indeed, depending on the particular operational circumstance, one could just as logically argue the case for the centrality of surface warships. Has everyone forgotten that for the first three months of Operation Stabilise every litre of fuel used in East Timor was delivered by sea? And where were the Air Force and Army during the combined operation to clear the Khawr Abd Allah waterway in March 2003? In truth, it is pointless to argue that any one asset, environment or Service should be jostling for pre-eminence in the future joint battlespace: the lines of demarcation in operations are rarely likely to be neat; the Australian Defence Force may not always be the lead agency in dealing with security challenges; and, most importantly, in a balanced force none is designed to stand alone.

Turning again to Dr Stephens’ article, it must be said that his more general interpretation of history does not inspire confidence. Contrary to the author’s contention that joint command and control was not an issue prior to the emergence of air power, closely integrated operations have long been at the heart of human conflict. As early as the 15th century BCE, King Thutmose III skilfully used his navy to project the Egyptian Army ashore at targets across the Lebanon and into Syria. Although the ongoing fighting was land-based, manoeuvre, lodgement and sustainment remained dependant upon sea power throughout the 13 years of the Egyptian expeditionary campaigns. A thousand years later Herodotus recorded the lengthy discussions among the Persian commanders during their invasion of Greece. As recounted by ‘the father of
history’, the Persian King Xerxes was ultimately convinced by his fleet commander that success lay in the intimate cooperation of his force elements: ‘...the fleet as a whole will support and be supported by the land army if they advance together, whereas if you separate them, your army will be of no use to the navy and the navy will be of no use to you.’4 As more than one modern strategist has argued, though the character of war might change its human nature is effectively eternal, and this huge body of joint command and control knowledge cannot simply be ignored or dismissed.

Rather than land and sea power being ‘to all intents and purposes mutually exclusive’, history’s most successful nations have tended to be those that understood the advantages of joint operations and thereby encouraged close coordination between environmental commanders, not pre-eminence. Those states which did not understand the symbiotic relationship between maritime, military, political and economic power or who allowed inter-Service friction to fester, inevitably fell short in strategic terms. The long-term success of the British ‘way of warfare’ remains the most outstanding example of what was possible;5 with one of the most instructive case studies still being the defeat of France in the Seven Years War. At Quebec in 1759 British amphibious manoeuvre warfare triumphed by presenting the enemy with more threats than they could counter, an effect achieved through the flexibility of the joint force assets available and ‘the unity of purpose and harmony of spirit between admiral and general’.6

Dr Stephens’ blunt assertion that throughout history ‘armies existed to fight armies, and navies to fight navies’ flies directly in the face of this hard won warfighting experience. The Royal Navy, for instance, has long recognised that it was not victory at sea per se that ultimately mattered, but rather the ongoing influence that could be exerted on land in pursuit of national aims.7 Even Lord Nelson, for all his focus on seeking a decisive fleet engagement, was a frequent participant in joint operations, and it was ashore that he received his famous wounds to head and arm. Having achieved sea supremacy the Royal Navy became the continuing ‘Shield of Empire’, allowing for the blockade and joint power projection tasks which were Britain’s main strategic weapons during the period of Pax Britannica. We in Australia should recall with thanks this joint influence on our early defence. For, while some local commentators believed that Australia’s security lay in fixed fortifications, before 1914 Royal Australian Navy (RAN) authorities were working with the Army in pushing for an aviation wing and a mobile land force, and reminding the government that ‘the idea that, in the event of a serious war, there could be separated strategies for the sister services of the Commonwealth is a phantasm of suicidal tendency’.8

The coming of age of aircraft during the First World War may certainly have encouraged a clash of Service cultures, but it is too crude to suggest that this was largely because admirals and generals did not understand the unique roles or tasks of the air element, and simply wanted ownership of the assets. Too often these distinctive air tasks took on a life of their own, and working on the air force’s terms meant an adverse impact on the accomplishment of what should always have been recognised as joint campaigns. In this, the air marshals seem to have been only too ready to reject as redundant the synergistic roles played by the other two Services, and must surely shoulder more than a little of the cultural and institutional blame. The joint force vulnerabilities that might ensue are well illustrated by the challenges facing the RAN in working with the Royal Australian Air Force (RAAF) in maritime operations off Australia during World War II.
Having failed to gain control of the sea at the Battle of the Coral Sea, the Japanese were forced to abandon surface operations south of Papua. Thereafter the primary enemy threat came not from the air, but from increasing submarine attacks on our maritime communications; some of the most important links being in direct support of the ongoing New Guinea campaign. Off Queensland in mid 1943, naval requests for aircraft cooperation had to be made through a liaison officer at Fighter Sector Headquarters, Brisbane. Regrettably, because RAAF doctrine incorrectly regarded shipping protection as a ‘defensive’ mission, more ‘offensive’ tasks routinely received a higher priority. Thus although a number of Eastern Area fighters were kept at immediate readiness, the reconnaissance bombers were not. On one occasion it took almost two-and-a-half hours before an Anson reached the scene of a Japanese submarine attack just 40 miles off Cape Moreton. A later naval suggestion that an airman with the power to control local air operations be appointed to a joint operations room was rejected. The RAAF desired centralised control of air assets be maintained at the highest possible level, and refused to allow an air commander to work under or in direct support of a naval commander.9

Further problems arise with the article’s materialist approach to war whereby one can seemingly break conflict down into discrete actions which can then be combined into set processes. From there on it is just a small step to develop simple rules such as ‘helicopters aren’t effective in close air attack’, or in the maritime context, ‘aircraft are likely to detect and sink ships at sea’. As the Western world regularly rediscovers, the art of war is rarely so derivative or straightforward. There will always be exceptions. Stephens, for example, is correct in noting that HM Ships Prince of Wales and Repulse were sunk by land-based air attack off Malaya in December 1941—albeit the initial detection came from a Japanese submarine. But it was hardly the epiphany he describes. Just eight weeks later the German capital ships Scharnhorst, and Gneisenau and heavy cruiser Prinz Eugen steamed through the English Channel in daylight within range of more than 800 British torpedo, bomber and fighter aircraft. Notwithstanding advance warning and numerous attempted attacks, most aircraft failed to find the enemy ships and none caused damage to either the main German force or its escorts.10

This is not meant to underestimate the very real risks posed by an air attack at sea, and its undoubted success in many circumstances. But hardened and networked mobile targets have never been easy to destroy, and resolute commanders with intelligent tactics can make a difference. Thus, for every ship sunk by aerial weapons, far more have survived to achieve their (joint) operational aim. Despite the constant threat of enemy bombers and with little hope of friendly air cover, the RAN’s ‘Scrap Iron Flotilla’ maintained the Tobruk ferry service for three months and 139 trips in 1941, with the loss of just one obsolescent destroyer. Provided with adequate sensors and weapons, even minor war vessels working in concert have found it possible to mount a formidable air defence. One of the defining examples of the superiority of air over sea power is held to be the Battle of the Bismarck Sea in March 1943. Here a combined RAAF/USAAF (United States Army Air Force) air interdiction mission decimated a Japanese convoy, sinking most of the escorts and all eight troop transports. Yet five months later, four of the RAN’s 800-ton corvettes formed half the escort strength for a convoy of 40 large merchant ships heading from Oran to Gibraltar. The combined force broke up a determined attack by almost 50 German torpedo bombers, resulting in the loss of at least nine enemy aircraft and non-critical damage to only two ships in the convoy.
From the perspective of modern joint warfare, perhaps most disappointing is Dr Stephens' apparent failure to understand the continuing purpose of naval operations. The claim is made that there is a degree of complacency in the West ‘through the assumption that control of the air simply exists and does not have to be won’. This may be true, but the need to maintain control of the sea is at least equally clear. Australia’s military tradition of expeditionary warfare has only been possible because of the maritime supremacy established by the alliances and coalitions in which we have operated. To conclude that today’s navies have been marginalised is condescending in the extreme, and ignores the fundamentally maritime nature of Australia’s enduring strategic interests. For anyone living on an island continent our economy’s dependence upon seaborne trade and the ADF’s reliance upon sea lift should not be difficult to grasp. It is nevertheless usefully summarised in a Commonwealth Naval Board document, written in September 1945, which sought to identify the reasons for the Axis defeat:

The war was not won by the Navy, the Army or the Air Force, but by the ability to place, where and when required, the greatest concentration of striking force of whatever kind was best suited for the job in hand; and of maintaining and supplying that force for as long as was necessary. In order to place such striking force where and when required physical communication of all types, sea, land and air, had to be maintained on a world wide basis, not only for the transport of men and materials to actual operations, but for the carriage of raw materials, fuel, and food for the whole world-wide war economy.

The integrity of its physical communications was, therefore, vital to each of the antagonists. Communications Power was, in this war as in all wars, the eventual deciding factor. Because of the geographical structure of the Earth, and the world wide distribution of raw materials needed by each antagonist, the sea section of communications bore the major part of the communications burden, and the ability (Sea Power) to control those sea communications was of major importance.

In the near future the RAN will operate three sophisticated and highly capable air warfare destroyers (AWDs), able to maintain a multi-layered, multi-dimensional bubble out to ranges in excess of 200 miles. Rather than being ‘inflexible, [and] of dubious operational relevance’, as Dr Stephens has elsewhere described them, these naval assets will be an essential player in the ADF’s integrated air warfare system and, as a result, critical for the joint projection of power. At one end of the operational spectrum they may be tasked for policing, interdiction and maintaining a maritime presence, at the other they can provide open-ocean and littoral escort for seaborne assets, expeditionary force protection, joint force command and control, land strike and sustained long-range fire support. As required, all these roles may have to be conducted outside the range of friendly land-based aircraft. Even when tied to such an umbrella, the AWDs will be netted with the ADF’s broader aerospace capabilities and thus able to offer ongoing security to vital but otherwise vulnerable platforms such as the airborne early warning and control and maritime patrol aircraft. The placing of artificial limits on a commander’s warfare interests, or blinkered and outdated perspectives on who has ‘ownership’, will have little real relevance in such a mutually supportive, fast changing battlespace.

To paraphrase the ADF’s current joint vision, single-Service capabilities and structures need to be bound into a synergistic whole with actions synchronised to meet the commander’s intent. Professional cultures still matter, but in a seamless joint force there should be no
need to specify what colour uniform this impartial commander might wear. Confronted with broadening concepts of security and a diversity of challenges for all Services, it behoves us all to work towards a ‘unity of purpose and harmony of spirit between admiral and general [and air marshal]’, not to expend energy on facile attempts to prove that one need stand taller than another.

Dr David Stevens  
Director of Strategic and Historical Studies  
Sea Power Centre – Australia

NOTES


5. In successfully engaging larger states with powerful armies the British essentially sought to avoid large scale commitments ashore, instead using maritime power both for strategic manoeuvre and to gradually wear down the opponent.


10. Of particular note is the effort by RAF Bomber Command, which sent out 242 bombers on the afternoon of 12 February 1942. Only 39 aircraft are believed to have attacked while 15 were lost and the remainder were unable to find targets.


Dear Editor,

The Clash of Cultures: Command and Control in Joint Warfare

I enjoyed reading Dr David Stevens’ letter, although more by way as a spirited defence of navies than as a commentary on the central issue of my article.

For example, navy historians like citing the breakout by *Scharnhorst* and *Gneisenau* in World War II. There is no doubt that the Royal Air Force’s performance in this action was a shambles (as indeed were many of the Allies’ efforts during the early part of the war). But does Dr Stevens want us to infer that a similar correlation between air strike forces and surface warships applies today? I hope the Royal Australian Navy doesn’t think so.

The essence of my argument is that a serious disjunction exists in joint command and control arrangements. That disjunction is caused by the domination of armies, and it is most pronounced in the relationship between land and air forces. Thus, as my article noted, in recent American-led campaigns, numerous air operations have succeeded despite the input of the commanding army general, not because of it. There is a message here.

The fact that armies dominate the defence debate is to their credit: they engage their best people and they make the intellectual effort. There are, however, two problems. The first is air forces and navies, which do neither sufficiently well. The second is that if the status quo is to remain (and frankly I think it will), army commanders must become far more informed about, and comfortable with, modern air capabilities. If they don’t, the end result is likely to be a distortion of our force structure and national defence strategy.

Alan Stephens  
University of New South Wales  
Australian Defence Force Academy

Dear Editor,

In the Face of the Enemy – Book Review

I refer to the book review at page 119 in the *Australian Defence Force Journal* No. 174 – ‘In the Face of the Enemy’.

The reviewer would have been accurate in para three had he written, ‘While Charles Upham, the only Second War serviceman to win...’

A. Martin-Leake, serving in the South African Constabulary, was awarded a VC in the Boer War –1902 and the Bar at Zonnebeke–1915 when in the RAMC.

Captain N.G. Chavasse, MC, RAMC, was awarded the VC on 31 July 1916 at Steenbeck and the Bar posthumously on 4 August 1917 at Brandhock.

A. Argent  
Highett, Victoria
Dear Editor,

Clausewitz’s Puzzle – Book Review


Smith then succinctly reminds readers that one of Clausewitz’s greatest legacies was his rule that all military action must be undertaken to achieve a particular political objective and such action is only relevant for as long as it is a valid means to achieve this political outcome. If Clausewitz contributed nothing more to the body of strategic thought than this, he would still be relevant.

However Clausewitz’s greatest contribution was his understanding of the nature of war. He identified it as the ultimate human endeavour and its conduct governed by the clash of human wills. As a result, this clash unleashed the chaos, friction and uncertainty of war that can never be controlled but may be understood and perhaps provided for in some contingency planning. Although this ‘trinity’ is reasonably well known, it is often overlooked. Even worse, it is often contemptuously dismissed. Much of the writings of the Revolution in Military Affairs (RMA) dismissed the human factor of war and argued that the chaos, friction and uncertainty can be removed by advances in technology. The intellectual bankruptcy of this notion beggars belief; a greater understanding of Clausewitz would suggest that any advance in technology will soon be neutralised or countered because the enemy is a free-thinking human being who will not sit by and accept the adversary having an advantage.

Certainly some of *On War* seems antiquated because he was explaining concepts through the eyes of a Napoleonic-era officer. However the crux of his writings will remain timeless; indeed when the pendulum of military thinking periodically swings towards technological panaceas, Clausewitz remains starkly and crucially relevant.

Captain Dayton McCarthy
Australian Army
The Compelling Requirement to Energy-Proof the Australian Defence Force

Major Martin White, Australian Army

Global energy concerns

Fossil fuel depletion is a very real issue for contemporary leaders within the Australian Defence Force (ADF). It is arguably the most pressing problem facing military commanders today, with the potential to reduce the fighting capacity of the organisation within a generation. Whilst there is a strong environmental argument for reducing fossil fuel reliance, this approach is unlikely to achieve the necessary traction to promote action within the ADF; however, concerns raised in this article of reduced operational viability may carry more weight. Failure to take action to ‘energy-proof’ the ADF will have serious ramifications, but the benefits from implementing energy-proofing measures may be immense.

Global oil production is likely to reach its peak before 2020, with some estimates being as early as 2010–2012.¹ This peaking of oil production, currently at more than 1000 billion barrels in a year,² represents an unprecedented problem. Western military forces have identified depletion of global energy reserves as a significant predicament, however only in the context that military force may be required as a response to isolated instability caused by lack of energy resources, or to secure energy resources for use by that nation. The ADF sees the principal problem of climate change and energy depletion as one of a military response requirement.³ There is little mention of the problems associated with the continued reliance by military forces on a rapidly diminishing global supply of energy, in particular oil. There is also little consideration of the rapidly rising cost of energy, which will occur as demand for energy outgrows supply.

Climate change and greenhouse gas emissions have been the central and legitimate concern of the global media in the energy and environment debate, and in effect are the defining aspects of the ‘energy problem’. The Australian Government has framed water security as its primary concern within the environment debate. Whilst important considerations for the ADF, climate change and greenhouse gas emissions are not perceptibly pressing concerns that are physically tangible, and consequently not issues that have been transcribed into policy and capability development. Therefore, the ADF has not focused on energy with any sense of urgency, with the exception of taking some initial rudimentary steps to reduce in-barracks energy usage.⁴

Some studies have optimistically estimated that the world has approximately 25 years of proven oil reserves. One such study, conducted for the US Department of Defense, involved best case planning, which included being able to conduct Arctic and deep sea drilling, assumed that there would be no global shocks which may affect supply, assumed that the 2005 consumption rate is maintained, assumed that prices would be relatively constant, and concluded that further oil reserves would probably be located.⁵ The rapid industrial rise of China and India makes the assumption of 2005 consumption rates and already volatile oil pricing being maintained extremely tenuous. It is estimated that up to a third of the global
population is not connected to a central power grid, demonstrating that energy consumption has the potential for rapid growth.

Global energy supply is unlikely to taper off gradually as resources become scarce; rather, depletion is likely to create shock and panic, as nation-states realise the implications of their reliance on fossil fuels. Furthermore, an energy shock could occur unexpectedly, through either conflict or natural disaster. Hurricane Katrina in the US demonstrated that even a relatively small interruption in energy supply could have disproportionate effects on an economy and on a populace. Unfortunately, the current unprecedented reliance on oil will mean that countries are likely to place excessive faith in the discovery of new reserves, rather than seek a truly sustainable solution. All military forces require oil, with a possible exception being terrorist or insurgent groups. Military forces of the future will need to be viewed through a different prism—a prism where oil is less available, and where a large expeditionary military force may not be sustainable.

This article seeks to redress the scant attention that has been apportioned to ADF operations under conditions of depleted global energy resources, and argues that immediate actions to energy-proof the ADF must occur. It seeks to garner wider support to find alternative energy solutions for ADF capabilities. This article will broadly consider global energy concerns, identify the current energy weaknesses of the ADF, and offer options to remedy this tenuous situation.

**ADF energy use**

The ADF accounts for approximately half of all energy use by Australian Government departments. Whilst the total energy consumed by the ADF has slightly declined in recent years, usage remains high. The Royal Australian Air Force (RAAF) expends the most energy, accounting for approximately 50 per cent of ADF energy use. Aircraft fuel is specifically blended, and the RAAF aircraft fleet energy usage is likely to be the most difficult requirement to mitigate. The broad dispersion of military establishments across Australia also contributes to significant energy expenditure, for travel between bases and to exercise areas for training. ADF energy use increases during the conduct of offshore or expeditionary operations.

**Energy requirements limit ADF deployability**

The reliance on large quantities of petroleum-based energy significantly limits ADF deployability. The ADF currently has several options to supply energy to its forward-deployed force elements. These options include local purchase, reliance on coalition supply chains, and projection of energy from Australia or a third nation. These options will be examined to highlight the operational risk involved with each.

**Local purchase**

The ADF deploys into unstable regions, and this instability immediately jeopardises the purchase of any supply item from within that theatre of conflict. There may be no operating
energy distributor, and energy supplies may be looted or damaged. It is likely that future conflicts involving the ADF will be in poorly developed regions, potentially with limited access to a central power supply.

Energy supplies are not equitably distributed, and a country will be either a net importer or net exporter of energy. If the theatre of conflict is a net importer of energy, it is unlikely that any large supply of energy will remain intact; and if there is some remaining supply, this will be required by local users. Combined with this, there is likely to be a cessation of energy importation during the period of conflict, as companies cease operations, or demand increased payment for their exposure to increased or perceived risk. Therefore, in a majority of conflicts within energy importing countries, there will be limited ADF access to local energy supply.

If the theatre of conflict is a net exporter of energy, as is the case with most Middle Eastern nations, there may be options to procure energy from within theatre. However, instability within a country will reduce or cause cessation of energy production, as companies remove staff. Ongoing insurgency may continue to jeopardise the production of energy over extended periods of time. When the US-led coalition entered Iraq, it placed a premium on providing protection to Iraqi oil resources, and even with such priority, Iraq is unlikely to ever reach peak production levels attained prior to 2003; this personnel-intensive vital asset protection may be unachievable for the smaller ADF in Australia’s area of interest.

The US energy protection strategy in Iraq has also had a longer-term political problem. Many Iraqis, as well as many international observers, view the US emphasis on security of oil supply as the principal reason for the invasion. This has reinforced a negative perception of the US as a greedy nation that will exploit Middle Eastern countries to access their oil, and severely impacts on US acceptance within the theatre. Australia could face the same problem, whether operating independently or as a member of a coalition. Popular acceptance of the ADF within a theatre of conflict is important. Any future military operation in an energy-rich country could invoke the same perception problem that exists for the US in Iraq.

Local purchase of energy also jeopardises operational security. As a standard practice, logistics staff must forewarn local suppliers of ADF operations, and this can concede important information to a threat group, information such as ADF force composition and size, likely areas of operation, and tactics, techniques and procedures. Early logistic liaison is essential given current ADF energy procurement options, however it is inherently risky to the operational security of a deployed element.

**Reliance on coalition supply chains**

The ADF has been heavily reliant on US supply since commencing military operations in the Middle East, and arguably could not have operated to the extent it has without this support. The purchase of energy from US suppliers in the Middle East has reduced the requirement for the ADF to be logistically self-sustaining, and has mitigated the potential impact on national transport resources, both military and civilian. The ability to rely on coalition supply may not be assured in the future. As global energy supplies diminish and become more expensive, ADF access to coalition energy resources will also diminish. Coalition partners will become increasingly reluctant to provide such a valuable resource to another nation. There is also
a risk that coalition oil blends may not be suitable for ADF equipment and vehicles, as was discovered during the Special Operations Task Group deployment to Operation Slipper in Afghanistan in 2001.

**Logistical projection of energy from Australia**

If local purchase or reliance on coalition energy supplies are not practical options for a particular deployment, the ADF would be forced into conveying energy from Australia, or from a third-party nation, into a theatre of conflict. This very expensive option would involve the use of civilian contracted transport resources, or may require the ADF to develop additional military platforms, such as maritime oil tankers. The transport of fuel requires more fuel to be expended, again increasing the expense. This option also places additional Australian military personnel or contracted personnel at greater risk, as they transit into an area of operations.

ADF reputation suffers through a perception that it requires basic support on deployment. The ADF cannot be considered a formidable military force within its region if it is unable to resupply energy to its deployed troops from within its own resources. The limited ability for the ADF to force project supplies from Australia is an important reason behind ADF reliance on coalition and local supplies in current and past operations. With the current ADF reliance on oil, and the potential for this problem to remain given the oil-intensive ADF future capability plan, this is a considerable problem. Rather than pursue options that will allow the transportation of additional energy into a theatre of conflict, a move away from petroleum-based military capabilities would achieve the same end, in a sustainable manner.

**The path of ADF development**

Current ADF projects will only further increase its reliance on energy. If estimates of oil production peaking within the next decade are even close, ADF operational capability will be jeopardised. ADF major capability development appears to be contingent on the continued supply of affordable energy. Projects relying on affordable energy availability include AIR 6000 (Joint Strike Fighter, with introduction into service estimated for post-2014), AIR 8000 (C-17 Globemaster), AIR 87 (Armed Reconnaissance Helicopter), AIR 9000 (Multi Role Helicopter), SEA 4000 (Air Warfare Destroyer), LAND 907 (Main Battle Tank) and LAND 116 (Bushranger), to name only a few. Each development is planned to remain in service until at least the third decade of this century. The ADF peak requirement for oil will worryingly correspond to the global peak production of oil, and will then continue to rise whilst oil production falls.

Australia is a sparsely populated nation with a small military force, geographically located near the densely populated South-East Asian region. This fact has led Australia to seek technological military solutions to deter and respond to threat forces of greater size. However, this reliance on technology comes at a cost—that cost is a commensurate increased reliance on energy. Throughout history, many technological developments have incurred an increased energy bill, and the current ADF projects do not change this trend.

The extant ADF procurement cycle is not positioned to respond to rapid energy shocks. Given that there is little focus on reduction of energy use for deployable systems, it seems implausible
that the ADF will find solutions should a global energy shock occur. If supply of oil is put at risk, each of the projects mentioned above will be endangered. Ironically, the very assets that the ADF may expect to respond to an energy conflict may be unable to operate to their full extent due to the cost or the limited availability of energy. Any effort to rapidly procure alternative energy systems would be prohibitively expensive, and significantly increase the risk of the project.

The ADF cannot afford to follow US military energy policy. The US Department of Defense will continue to develop petroleum-based technologies that may not be sustainable. Additionally, US societal dependence on oil is so ingrained, that it may be very slow to change. Whilst the US holds technological advantages in many military areas, it does not have such an advantage in energy consumption. Europe and Japan have made many civilian advances in energy technology, and may be better placed to transfer these advantages to the military realm. By following the US in energy policy and technological development, as the ADF does for many technology developments, an unsustainable path will be forged. Australia will be a better ally to the US, and provide a far more tangible contribution to the ANZUS alliance, by developing an energy-proofed military and presenting the US with a sustainable example for their much larger problem.

The ADF may be expected to comply with future global or national environmental initiatives, such as greenhouse gas reduction or reduced energy consumption, perhaps in the form of a carbon tax, and future Australian governments will undoubtedly see the ADF as a substantial target given current levels of energy expenditure. The ADF will be in a far better position to meet these likely future impositions if it has proactively made efforts to reduce its energy reliance, on its own terms, rather than being forced into measures that may compromise military capability, at a time not of its own choosing.

**Energy-proofing the ADF is an operational imperative**

The argument to immediately implement energy-proofing measures across the ADF is compelling, however there is a high degree of short-term risk and 'pain' to undertake positive measures. There is likely to be a perception that implementation of these measures will cause short-term capability stagnation, or even capability depreciation. This capability stagnation may not occur, but if there is speculation of a reduced ADF capability, senior commanders will be placed in a difficult position when justifying their decisions to the Australian Government and public. Inevitably, energy usage will need to fundamentally change, but there is a risk that military commanders or elected representatives will not want to endure capability deficiencies on their watch. The military is generally averse to change, and comprehensive change management strategies would need to be implemented. In the long run, renewable energy is the *only* option that offers sustainability. Whether oil supply becomes critical in five years or in 20 years, fossil fuel supplies are not endless. Intermediate steps that increase fuel efficiency, or use alternative fossil fuel sources such as liquefied natural gas (LNG) and liquefied petroleum gas (LPG), will only offer a buffer. This buffer may usefully allow a slower transition to a fully sustainable energy solution, and may be more palatable to the Australian Government and public. However, options such as LNG and LPG should not replace a long-term sustainable energy vision.
Undertaking energy reform within the ADF, and deliberately planning the transition to an energy-proofed fighting force will assist Australia to maintain its regional military advantage. By continuing its 'business as usual' approach to military development, Australia will lose its capability advantage within its region. Larger regional states will develop larger and increasingly capable military forces, reducing the relative military superiority gap with Australia. However, as global oil production declines, if ADF energy-proofing has occurred, the strategic advantage can be maintained and furthered. The strategic environment is such that the prospect of state-on-state conflict in Australia’s area of interest is currently remote. Assuming that a transition to an energy-proofed military will cause a pause or decline in overall capability, this period of relative peace offers a strategic window of opportunity, where the ADF can implement measures to reduce reliance on fossil fuel. This factor, combined with the budget allocation the Defence Department is currently receiving, reinforces that now is the ideal time to begin implementation of energy-proofing measures. It may be the only opportunity to implement such measures, with initial steps requiring relatively little up-front investment.

An inquiry to develop options for the Australian Government to energy-proof the ADF should be undertaken immediately. This inquiry should determine where change is required, how energy-proofing measures can be managed and implemented, and determine an appropriate management structure for the implementation of energy policy across the ADF. The ADF must closely and continuously monitor global energy trends. The inquiry should identify opportunities for the ADF to influence government and commercial initiatives, such as improved rail networks. Using this rail example, influencing the network design at an early stage may allow the ADF to rely less on energy-intensive assets, by employing rail to service logistic requirements to major barracks locations. The inquiry should also consider inclusion of oil shock scenarios within Australian Illustrative Planning Scenarios (AIPS), which can then be cascaded into future development initiatives.

**Reducing energy reliance in the barracks environment**

There are many ways to reduce fossil fuel usage in the static barracks environment, and this article only considers some of the potential options. The ADF has implemented some campaigns to reduce fossil fuel usage. The ADF ‘Green Building Requirements’ partially addresses the barracks problem, through measures such as greater building efficiency for new structures, and monitoring and reporting on energy reduction targets. The campaign to turn off lights in buildings has also had demonstrable success. The US has implemented an ‘Energy Strategy and Campaign Plan’, again only focused on the barracks environment, and the US Department of Defense claims that this plan has produced some measurable reductions. However, the measures undertaken by the ADF arguably fail to meet the ADF environmental vision of being ‘a leader in sustainable environmental management to support the ADF’s capability to defend Australia and its national interests’. These ADF strategies must be reinvigorated and expanded in scope.

The use of renewable power generation for military buildings should be considered a first essential step, to reduce the reliance on a central power grid that may come increasingly under threat as fossil fuel depletion occurs, and as measures such as a carbon tax take effect, with the associated rise in energy costs. It should become mandatory for all existing and new ADF buildings to generate their own power, relying only on the central power grid as a back-up.
In some areas of Australia, wind power generation or other renewable sources may be more appropriate to the geography and geology. Selling unused power back to the central grid may also increase the financial incentive. Implementation of solar and wind power generation systems would also serve the necessary function of providing ADF indigenous expertise in renewable capabilities that may be transferable into a deployable environment.

Implementation of measures that reduce the travel requirements of ADF personnel should be considered. One such option is the installation of a video teleconferencing system across all military establishments. This simple and relatively inexpensive measure would reduce ADF reliance on commercial airline transit, and could be used more frequently for meetings, and potentially expanded in use to facilitate remote courses and training, without detracting from capability. Another option is to broaden the roll-out of software applications across the Defence Information Environment, such as ‘Net Meeting’. Military commanders have an important requirement for face-to-face communications, and video teleconferencing is one method of making this requirement more energy efficient. The ADF can capitalise on the interactive nature of communications that is well understood by younger generations of military personnel. Similarly, an increased focus on simulation training would create an energy saving, particularly important to reduce the use of RAAF and Army airframes.

ADF vehicle use ensures a heavy reliance on oil suppliers. Whilst the power density achieved by using liquid fossil fuel is currently necessary for frontline capabilities such as tanks, the ADF commercial vehicle fleet is not as reliant on performance, and therefore represents a likely initial step to consider other options that are less oil intensive. It is not within the scope of this article to discuss the relative benefits of different vehicle and fuel types; suffice to say that hybrid vehicles, ethanol, biofuel and hydrogen are all options that should be explored, for vehicles ranging from passenger sedans to light trucks. Hybrid vehicles and alternative fuels are now marketed extensively. Whilst ADF commercial vehicle demand may not influence the Australian market, a symbolic statement in reducing energy demands through the commercial vehicle fleet may influence other major companies, generating additional demand. Whilst there is debate as to the current performance of hybrid vehicles and alternative fuels, the ADF should not underestimate how demand will stimulate increased private research and investment, improving the next generation of the product.

Improving energy management in the barracks environment may also have some less tangible benefits. Energy-proofing is also a mindset, so by reinforcing this mindset within barracks, the ADF may develop the impetus and popular support to apply these changes into the deployable realm, which will be far more challenging.

Reducing energy reliance in the deployed realm

It is critical to mitigate and avoid the problems associated with the three available methods of resupplying energy to deployed ADF elements. The RAAF will face the greatest challenge. As the Service that relies on oil to the greatest extent, there are no readily identifiable alternative solutions to powering aircraft. Unmanned aircraft, such as those being developed under AIR 7000, offer greater energy efficiency, and should be pursued. However, extensive research and development into alternative sources of energy for aircraft must be conducted, and prioritisation and scrutiny of aircraft use may be necessary. A large operational reserve
of fuel for RAAF aircraft should be considered, only to be drawn upon for an operational requirement under conditions of low oil supply. Additionally, long-term energy contracts should be investigated, with the aim to hedge prices at a certain level for an extended period of time. This would serve to reduce the impact of oil price volatility.

Solar and wind energy generation could become the principal method of energy supply for fixed deployed sites. Technology exists today that would allow easily deployable solar generation for tentage and command posts, to power equipment such as radios, lighting and weapon systems. There is certainly no shortage of solar energy available for harvesting in the Middle East Area of Operations. In the near future, and possibly as a task for the Defence Science and Technology Organisation (DSTO), energy generation means could reside on personal equipment and clothing, where movement of soldiers and exposure to solar energy will constantly charge equipment. Solar regeneration has been trialled for certain equipment types in the past, with little success due to factors such as the time taken to recharge an equipment type, or the size of the solar panels required. Technology has improved this situation markedly. Use of rechargeable batteries should be investigated, with a view to expanding their use, and improving the technology. Developing effective rechargeable capability has the additional benefit of toxic waste reduction, and the subsequent improvement of operational security through not having to dispose of difficult waste products during military operations.

DSTO has a critical role to play in energy-proofing the ADF. DSTO tasking could be prioritised to seek development of renewable energy technologies for legacy equipment. This would have an immediate benefit for the ADF, and would kick-start DSTO energy research and development. Funding to DSTO should be increased to conduct this task; however some of this investment may be recovered by on-selling technology to countries and companies that lag behind the renewable development curve.

The ADF Capability Development Executive (CDE) and Service headquarters must conduct energy planning, and insert energy-proofing stipulations into all current and future projects, as a matter of urgency. Legacy projects should be re-evaluated, to determine where energy efficiency measures and energy-proofing can occur. This entails risk of delay to projects, and potentially increased cost of projects. The ability to justify this requirement to the Australian Government will take skill and courage on the part of ADF commanders. Most importantly, the Australian Government must be continually advised as to the implications of not energy-proofing the ADF.

As stated earlier, commercial vehicles are an appropriate initial target for redesigning the ADF vehicle fleet to reduce energy reliance. Once measures have been implemented for commercial vehicles, a natural progression is then to look at first line logistic support vehicles, and finally front end combat vehicles. Alternative vehicle types and fuel types that can be trialled in the barracks environment may eventually be transferred into the deployed realm. Vehicles are particularly important to any deployed land force, and the use of fuel efficient vehicles and alternative fuels could reduce the problems associated with the supply of energy to deployed ADF elements. As global oil production declines, it is possible that a trend towards fuelling vehicles with LNG and LPG will prevail as the easiest option. LNG usage may provide a temporary buffer for the ADF, as peak LNG production will occur after oil production peaks, with the added advantage of reduced greenhouse gas emissions.
Increased fuel efficiency must be sought for existing capabilities. Whilst this will only reduce the ADF reliance on fossil fuels and not eliminate it, it will buy time for more permanent solutions to be developed. Efficiency may also be found in the use of unmanned vehicles, as identified in AIR 7000, across the land, air and sea domains. Unmanned platforms offer the additional benefit of reducing the exposure of ADF personnel to particular threats.

**Social obligation and community leadership**

The wider community concerns about global warming, and the moral imperative to not deplete fossil fuels through overuse by a single generation, also represents significant justification to change ADF practice. Whilst these issues are clearly not solely a military concern, the ADF can play a leading role in developing technology and improving work practice. If the ADF can reduce its reliance on fossil fuels, stubborn positions that may be held by other government departments, and by the wider Australian community, become far less tenable. When compared with other Australian institutions, government departments and companies, the ADF is in an unenviable position with its current reliance on fossil fuels, but consequently is well-positioned to demonstrate leadership and resolve in reducing fossil fuel use. The ADF could also enhance its global standing by leading energy development, and by encouraging military partners to do the same. This could be achieved in many ways, for example through a signature exercise using only renewable or energy efficient systems. This approach should garner both Australian Government and opposition support, as each political party seeks to improve its environmental credentials.

**Conclusion**

The ADF is facing a confluence of events that necessitate the implementation of a sustainable energy policy to ensure the security of Australia when the inevitable oil shock occurs. The ADF is not approaching this problem with sufficient urgency or vision, as the end of cheap energy, particularly oil, is now upon us. As energy demand continues to increase, the cost of energy will rise, and availability will fall. The ADF is not positioning itself to deal with this change, and it is a matter of when, and not if, fossil fuel sources become depleted. The ADF is correct to consider energy conflicts a likely future scenario, but it must extrapolate this concept further and energy-proof its own operations.

The ADF must take immediate steps to seek alternative energy solutions, and the formation of an inquiry team to conduct ADF energy planning is a critical first step. Early mitigation of this problem is likely to be far less onerous than being forced to act as resources are expended. Reviewing legacy capabilities and future projects, becoming less reliant on central power grids, and seeking deployed energy self-sufficiency, are difficult measures that will involve short-term risk for ADF leadership and elected representatives. However, the risk associated with doing nothing to energy-proof ADF operations is far greater, and in the long run, the ADF will be judged on its foresight in responding to this challenge. Fairly or unfairly, the ADF is frequently criticised for lack of foresight, poor fiscal management and environmental impact, and this issue represents a real opportunity for the ADF to demonstrate leadership, whilst enjoying relatively generous budget allocations and a period of relative peace, to implement energy-proofing measures as a military operational imperative.
Major White has served in a number of staff and command appointments within the Australian Army since 1994. He has been involved in numerous military operations, both regionally and globally.

Major White has been chosen by the Board of Management to receive the $500 award for best article by a serving or civilian member of Defence for ADFJ No.175.

NOTES


8. Accusations of the US exploiting Iraqi oil are very common, see: <http://news.independent.co.uk/world/middle_east/article2132569.ece> and <http://www.politicalaffairs.net/article/articleview/4929/1/243/> for two such examples.


10. ADF Green Building Website, <http://intranet.defence.gov.au/im/policy/green_building/main.htm>. The policies outlined on this website are positive steps towards energy-proofing the ADF that should be built upon.


Confidentiality: Ethical Problems for Military Professionals with two ‘Masters’

Commander David S. Goble, RANR and Captain Joseph L. Lukaitis, RFD, RAN

Ethical standards affecting professional groups such as medical practitioners, psychologists, lawyers and others are enshrined in codes of practice that, in very general terms, are appreciated and acknowledged by the wider community. Confidentiality of information shared between professionals and their clients or patients is one such standard.

The Australian Psychological Society’s (APS) Code of Ethics states that psychologists ‘must make provisions for maintaining confidentiality in the storage, access and disposal of records, subject to the legal requirements of their employment conditions’. These standards are reiterated in the various state-based registration boards’ Codes of Behaviour. The Psychologists Registration Board of Victoria, for example, requires that psychologists ‘take reasonable precautions to respect the confidentiality of clients within the requirements of the law, institutional rules and professional relationships’. Further, the Board requires that psychologists not divulge information about a client unless he or she is authorised in writing by the client to do so, the release of the information is to protect the client or others from harm, or the release of information is required by law.

The Australian Medical Association’s (AMA) Code provides similar guidance, noting that exceptions to the maintenance of a patient’s confidentiality, ‘must be taken very seriously. [Exceptions] may include where there is a serious risk to the patient or another person, where required by law, where part of approved research, or where there are overwhelming societal interests’. The AMA’s Code also notes that practitioners must maintain their professional independence. The code states that, ‘in order to provide high quality healthcare [the practitioner] must safeguard clinical independence and professional integrity from increased demands from society, third parties, individual patients and governments’.

The legal profession is also governed by the tenet of professional privilege. Butterworth’s Australian Legal Dictionary defines privilege as the common-law principle that protects confidential communications between a legal practitioner and a client for the purpose of the client obtaining, or the legal practitioner giving, legal advice. In addition, privileged information need not be given in evidence nor disclosed by the client or by the legal practitioner in existing or contemplated litigation without the consent of the client. Thus legal professional privilege is a privilege recognised by the courts to protect the confidentiality of communication between solicitor and client. Legal professional privilege is also referred to as ‘client legal privilege’, as the privilege refers to that of the client and not the solicitor. The purpose of legal professional privilege is to allow the client and solicitor to communicate freely about issues that are or might be the subject of legal proceedings. It must be noted that such privilege is considered inviolable and is thus more than just an ethical principle espoused in professional codes of ethics such as those published by the AMA or the APS.
Ethical standards, including that of confidentiality, can be defined as principles by which a professional practitioner’s actions may be judged as good or bad, or right or wrong. Maintaining these standards involves more than simply acting in accordance with the law of the land; it requires the use of sound judgment, consideration of societal values and the maintenance of personal integrity within the parameters of the various codes.

With some rare exceptions, the maintenance of professional confidentiality within the civilian community is generally a clear-cut issue. The exceptions may relate to circumstances where there is a need to protect others from harm when to not report a seemingly confidential matter may cause injury to someone other than the client or patient. Indeed, there are circumstances in which a professional is compelled by law to report what might otherwise be considered confidential information. Holding the belief that a child has been abused, for example, obliges many professionals to report their belief to State- and Territory-based authorities. In this situation, these professionals are statutorily protected from follow up civil action that may be taken to deal with a perceived breach of confidentiality. To not report such beliefs, especially if they are later found to be warranted, may result in professional or legal sanctions taken against the professional. Codes of professional conduct usually include clauses to account for these mandatory requirements. The APS Code of Ethics, for example, notes that a psychologist ‘must not disclose information about criminal acts of a client unless there is an overriding legal obligation to do so or when failure to disclose may result in a clear risk to themselves or others’.6

On occasion, professional practitioners may find themselves in a situation where they face an ethical dilemma. An ethical dilemma refers to those circumstances where a practitioner is faced with two or more conflicting choices, each involving what might be considered ‘the right thing to do’. Solving such a dilemma requires more than simply referring to one’s Code of Ethics for guidance (although this would be a good start). An example involves the professional practitioner who is responsible to two ‘masters’; that is the professional who has an obligation to a client or patient on the one hand and an employer or organisation on the other. Such a case involved events leading up to the Southern Aurora train crash at Violet Town, Victoria on the night of 7 February 1969. The driver of the train had sought medical advice from a general practitioner who noted that the driver was suffering from heart disease. The practitioner counselled the driver to report his condition to the rail authority but, perhaps understandably, the driver chose not to, fearing, naturally, that his employment would be jeopardised. The doctor did not report his patient’s condition to the rail authority, believing that such professional communications were subject to the ethical standard of doctor/patient confidentiality. The driver continued to operate the train and subsequently suffered a fatal heart attack at the controls. As no ‘dead man’ switch or other vigilance system was fitted at the time, the train travelled on only to crash into an oncoming goods train. Carriages from the passenger train telescoped together and ended up lying on top of the locomotive. Explosions in the power van followed which caused fires in seven of the train’s carriages. Eight passengers were killed and more than 50 others were seriously injured. The coroner examining the case reported that the driver had been either dead at the controls or in a coma for at least 10 kilometres before the crash. He later admonished the medical practitioner for failing to report his concerns to the rail authority, and noted that the doctor had failed to avert harm to others.7 In this case, it may be argued that the harm caused to the community outweighed the potential harm that might have been caused to the patient had the doctor...
chosen to breach confidentiality. At the time of the medical consultation, however, one might also argue that the doctor was acting in accordance with what he considered to be the right thing to do. He had no hard evidence to suggest that the driver would die at the controls of the train and certainly could not identify individual victims of a train crash, which he had no reason to believe was likely to occur at any rate.

Professional practitioners serving in uniform may find themselves in the situation where they, too, are tied to two masters. On the one hand they are required to attend to the principles espoused in their respective codes of conduct when dealing with clients or patients while, on the other, they are expected to comply with their military obligations, including responding to lawful orders from superiors. Ethical issues may surface when the military practitioner’s obligations to military command come into conflict with the traditional obligations normally afforded to clients by a civilian practitioner. Howe has argued that the discrepancy between military and civilian practitioners is based on the military professionals’ overriding agreement to serve the military. Indeed, within the Australian Defence Force (ADF), all those who enter the Services, whether they are officers or other ranks, confirm in writing their obligation to ‘comply with directions and orders given by persons in the ADF who have the legal authority to issue such directions and orders’. To not comply with a lawful order issued by command may have repercussions under the Defence Force Discipline Act 1982 (DFDA); thus a uniformed practitioner who is requested by a superior authority to provide information about a subordinate may well be obliged to release personal data or risk legal sanction. US military research has found that over 80 per cent of military psychologists did not obtain written permission before releasing personal information about Service members when requested to do so by unit commanders. This suggests that, in reality, perceived or actual obligations to command often take precedence over principles of confidentiality for many uniformed practitioners.

Indeed, Leso has noted that in the US military, ‘commanders and other personnel with a “need to know” may have access to mental health information by regulation. If military regulations can be considered an extension of military law, then [American Psychological Association] standards permit psychologists to disclose information to qualified military personnel with an official need’. This may also be the case in the ADF, where commanders who hold the view that they have the need to know about the mental or physical wellbeing of those under their command request to be provided with information about what might otherwise be considered confidential communication. This raises the possibility that when a practitioner is requested to supply information to a unit commander, the practitioner may feel obliged to break the principle of confidentiality and thus breach relevant civilian ethical standards. Leso noted that the uniformed practitioner who believes that he or she can maintain confidentiality following a legitimate request for information is misinformed and is also at risk of ‘adverse action against his or her professional licensure and/or military career status’. This issue was highlighted in 2004 when Justice Crispin of the ACT Supreme Court handed down his findings in the case of Russell Vance v Air Marshal Errol John McCormack in his capacity as Chief of Air Force and The Commonwealth. The Court heard testimony concerning the claim by Vance of unfair dismissal from the RAAF. On receiving a request for access to documents held by the RAAF and Commonwealth, the RAAF denied access, stating that the documentation was protected by legal professional privilege. Justice Crispin found that the information was not protected by privilege because the uniformed lawyers acting for the RAAF did not hold
practising certificates. Although this finding was later overturned on appeal, what is of particular interest is Justice Crispin’s obiter dictum opinion about the relationship between uniformed lawyers and their clients and their military employer. The judge concluded that military lawyers are ‘clearly employed within an authoritarian structure in which obedience may be enforced by penal sanctions. Section 27(1) of the Defence Force Discipline Act 1982... provides that it is an offence punishable by a maximum penalty of two years’ imprisonment for a member of the Defence Force to disobey a lawful command by a superior officer’. He also noted that, ‘it seems clear that a DLO [Defence Legal Officer] could be ordered to act in a manner that would be quite contrary to prevailing standards of professional ethics and that, ‘it must be expected that once lawyers are subject to statutory obligations of obedience to the commands of others and amenable to criminal sanctions in the event of non-compliance, the degree of independence they may exercise will generally be limited to that permitted by senior officers entitled to command’. Of particular note, and this may relate to any military practitioner who believes that he or she is governed by a code of practice, is Justice Crispin’s opinion that ‘the scope of the orders that members of the ADF may be compelled to obey by relevant provisions of the Discipline Act is not constrained by any provision protecting an overriding entitlement for DLOs to act in accordance with accepted professional standards’. This suggests that the provisions of the DFDA requiring obedience to superior command may well prevail over civilian ethical statements promulgated by professional associations. Of particular note is the judge’s conclusion that the ‘ethical codes promulgated by [professional] bodies do not have statutory force and it is difficult to see how any ethical duty of compliance could be maintained in the face of a direct order made under the authority of a Commonwealth statute such as the DFDA. Notwithstanding the fact that Justice Crispin’s finding that DLOs without practising certificates could not claim legal professional privilege was overturned on appeal, it seems that his view that there is a distinction between ethical standards that may apply to various uniformed professional practitioners and the requirements to obey lawful orders made under statute is extant and highlights the potential for future conflict.

Given these issues, military practitioners must ensure that their clients or patients are aware that the assumption of confidentiality may be somewhat limited when overriding military regulations permit information to be shared. Clearly there are limitations to the extent to which confidentiality may be protected in a military setting. With this in mind, it would seem advisable that documentation relating to the provision of professional services within the ADF contain a clause about such limitations. The Medical History Questionnaire used by the ADF, for example, contains a statement indicating that the information provided by members may be supplied to recruiting officers and ADF personnel managers while also noting the principles of privacy referred to in the Privacy Act 1988. Rather than compromising their professional ethical standards, the military practitioner is urged to clarify the limitations to confidentiality that exist at the outset of any client–practitioner relationship. Such a clarification should, ideally, be acknowledged in writing and will assist the practitioner should any question about a breach of confidentiality be raised.

It is evident that the notion of confidentiality in professional practice is not an absolute, especially in the military setting. Within the civilian community, the various codes of ethics do provide for reporting of confidential information and in some cases, reporting is mandatory. Codes may allow professionals to disclose if there is imminent danger to others; however, circumstances may develop when the assessment of risk and its immediacy is unclear.
The Southern Aurora crash is a case in point. But what does ‘danger’ mean? To some practitioners it will apply only to physical or psychological danger, yet to others it may include the potential for harm caused by fiscal malfeasance. Does this represent ‘imminent danger’? This lack of predictive certainty places the practitioner in an unenviable position, especially so when he or she also wears a uniform.

A recent case concerning a breach of confidentiality by a uniformed medical practitioner highlights the difficulties faced by such members. Commander Douglas McKenzie, RANR, was found guilty of ‘infamous or improper conduct in a professional respect’ by the State Administrative Tribunal of the Medical Board of Western Australia for breaching the confidentiality of his patient, the then Executive Officer of HMAS Stirling. The Board noted that he ‘acted in a manner that was . . . inconsistent with the trust and confidence the patient was entitled to repose in him’. By discussing his patient’s condition with the base Commanding Officer, it is arguable that he believed he was doing what was right, given that as a uniformed practitioner, he was also responsible to his Commanding Officer and felt obliged to inform him about the health and welfare of a member of his command team and the potential effect this might have on that team. The Medical Board did not hold this view; quite the opposite.

The West Australian Medical Board’s finding that Commander McKenzie breached confidentiality was not tested on appeal to the Supreme Court of Western Australia to give more certainty to future matters of this nature. A comprehensive legal analysis before appeal judges might have assisted in defining the way ahead for uniformed professional practitioners facing the complexities raised by the juxtaposition of military obligations and conduct on one side and the civilian ethics of professional practice on the other. Conflicts between the multiplicity of laws that govern conduct are difficult matters, thus a final determination will only arise from superior judicial decision or legislative law encompassing the conflicting issues.

Unless these matters of conflict for the uniformed practitioner are clarified and settled, the ability of the ADF to carry out the work and duties with which it is charged may be degraded. The reason for this is that professional practitioners, be they medical, legal, psychological or members of other like professions, will be disinclined to contribute their services to the ADF. They will also be reluctant to discuss matters with those who need to know for fear of professional censure, even when good order, discipline and safety within the military environment is threatened.

Given Justice Crispin’s comments concerning the obligations of military personnel to comply with lawful orders and his view that the choice to not obey such an order is not statutorily protected by the argument that one was following ethical principles, it is recommended that all such military practitioners lay out the ground rules concerning confidentiality matters well before any conflict can arise. Although this may prompt some Service members to take their medical or psychological concerns elsewhere, the integrity of the practitioner, the Service and ultimately the member will be maintained. In addition, uniformed practitioners, through their respective professional bodies, must inform and educate military commanders that their professions’ ethical codes have been developed to limit personal harm, protect professionalism and maintain the integrity of all parties involved. Over time, and with a better appreciation by military commanders of the civilian ethical standards applicable to practitioners, the likelihood of uniformed professionals having to choose between two ‘masters’ will be lessened.
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NOTES


4. ibid., p. 7.


7. Personal communication, Dr A.J. Goble, Consultant Cardiologist who testified at the inquest, 10 August 2005.


9. Statement signed by ADF applicants on enlistment.


12. ibid., p. 261.


15. *Obiter dictum* is a legal term referring to a judge’s opinion expressed incidentally.


17. ibid., para 60.

18. ibid., para 58.

19. ibid., para 60.

20. ibid., para 63.


22. ibid., p. 18.
The Future of Command and Control: Questions, Observations and Reflections

Dr David Schmidtchen, Jacobs Australia, Dr Sharon Boswell, DSTO, Dr Mark Burnett, DSTO, Dr Alex Kalloniatis, DSTO and Dr Richard Taylor, DSTO

It can be said that Science today progresses only by peeling away, one after another, all the coverings of apparent stability in the world, disclosing beneath the immobility of the infinitely small, movement of extra rapidity, and beneath the immobility of the Immense, movement of extra slowness.

Teilhard de Chardin

In September 1999, the US Commission on National Security in the 21st Century characterised the coming of globalisation as 'the very facts of military reality are changing and that bears serious and concentrated reflection. The reflexive habits of mind and action that were the foundation for US Cold War strategy and force structures may not be appropriate for the coming era.' The attacks of September 11, 2001 and the campaigns in Iraq and Afghanistan plunged the Australian Defence Force (ADF) deep into this new strategic reality leaving little time for 'serious and concentrated reflection'.

The ADF’s most recent publication on joint operations describes a complex and diverse future military operating environment that includes a range of direct and indirect threats to Australia’s security including terrorism, pandemic disease, and resource depletion as well as fragile states in our region and emerging technologies. The ADF’s position is that:

Whatever form the dangers take, the uncertainty of the future operating environment requires us to constantly challenge the orthodoxy, to innovate to solve old and new challenges, and to espouse and debate a new vision for the role of the ADF in the 21st century.

Adapting to this new environment is challenging many of the ADF’s longstanding organisational philosophies, practices and procedures. In particular, established command and control philosophies and arrangements are subject to ongoing review.

The current definition of command and control (C2) for the ADF is: ‘Command and control is the system that empowers designated commanders to exercise lawful authority and direction over assigned forces for the accomplishment of missions and tasks’. In an effort to decouple and clarify these terms researchers Pigeau and McCann defined command and control as separate but mutually reinforcing constructs with command as ‘the creative expression of human will necessary to accomplish the mission’ and control as ‘those structures and processes devised by command to enable it and to manage risk’.

Over the period 2003–2005 several reviews of ADF C2 arrangements have taken place, with recommendations including the formation of a new collocated joint headquarters—
Headquarters Joint Operations Command (HQJOC). Under the new higher C2 arrangements, the CDF exercises full command of the ADF through the VCDF and Service Chiefs. This flattened structure attempts to resolve the overlaps in responsibilities between the strategic and operational levels and yield more efficient command and control arrangements.

Increasingly, the ADF’s leaders must reconcile traditional top-down hierarchies (which depend on vertical lines of authority) with social networks (built along horizontal lines of action). The hierarchical bureaucracy that has been the main organisational model used to deliver military capability throughout the 20th century is under pressure to refresh and reform. There is a sense that the seemingly rigid bureaucratic systems that underpin the ADF’s command and control limit the force’s innovative capacity. Moreover, these systems tend to promote an inward-looking organisational culture that is less responsive to the demands of the strategic environment in which today’s force operates.

The ADF is embracing a ‘learning-by-doing’ or as the Army has expressed it an ‘act-sense-respond’ approach to grappling with the ambiguity and uncertainty of the strategic environment. Increasingly, warfighting concepts and doctrine value the attributes of organisational adaptability, versatility and flexibility. Through concept development and experimentation, the Defence Science and Technology Organisation (DSTO) has a growing role in supporting the ADF’s ability to develop practical responses to these challenges.

The purpose of this article is to offer some insights into the future of command and control concepts and the supporting methodologies. The article explores some emerging command and control concepts in order to draw the reader’s attention to ‘what we know about command and control’ (or maybe, ‘what we think we know about command and control’), ‘what we would like to know more about’, and ‘how we are going to close the knowledge gap’. Principally, this article reflects on the attributes of an adaptable and agile command and control system.

**Language, concepts and fads**

Daily we seem to be confronted with new concepts and new language to describe command and control relationships within the ADF, and between the ADF and a growing number of coalition and agency partners. In the case of other agencies, not only can the interface between different command and control philosophies prove challenging but often there is also a broader clash of organisational cultures. Progressively, the ADF is seeking to accommodate this greater diversity of tasks and organisational relationships in its operational concepts. Consequently, adaptability, flexibility and versatility are the new catchwords for an emerging generation of theorists and planners.

We conducted a text-based analysis of command and control documents from the United States, United Kingdom and Australia to explore whether these culturally similar nations use the same language to understand and express command and control concepts. This analyses the concurrence of concepts, shows how different ideas interrelate and gives a ‘bird’s eye view’ of written texts.

A cursory analysis of the command and control concept documents from the three countries revealed the top-level themes shown in Table 1. While we need to be cautious in drawing too much from such a preliminary investigation it is interesting that neither command nor control appears in the top-level US themes, that the concepts of networks and time appear in the UK
documents, and operations and capability appear in our own. What do these differences tell us? Is it a matter of scale? Is the US focused on the importance of information management and the clarity of organisational relationships that are central to command and control? Is the UK grappling with the centrality and effects of networks, while the ADF is seeking to understand the environment through its recent operational experience and the demand to integrate new capabilities?

Of course, this is largely speculation but it shows the potential of this form of text-based meta-analysis as a means to take stock of the messages that are sent in these documents.

Increasingly, the language the ADF is using to identify the challenges it faces reflects the very human nature of command and control, with words and phrases like trust, informality, and social networks finding a way back into the command and control lexicon. It is these human aspects of command and control that theorists and practitioners are struggling to reflect, test and measure in their modelling of command and control.

Understanding command and control: a model

David Alberts and Richard Hayes in their recent publication Understanding Command and Control propose a model that tries to define the ‘essence’ of command and control and the ‘problem space’ in which it occurs. Their model is represented by the two cubes in Figure 1.

Alberts and Hayes define the ‘essence’ or ‘approach’ to command and control (Cube 1, Figure 1) in terms of three dimensions, the:

- allocation of decision rights,
- patterns of interaction among the actors, and
- distribution of information.
Implicitly, we are led to believe that the lower left corner of the cube (labelled ‘classic command and control’) is to be avoided while the upper right corner (labelled ‘edge organisation’) is the institutional aspiration. The language of the model creates a situation where one approach to command and control is implicitly situated as better than the other: ‘classic’ versus ‘edge’. Similarly, the second part of the model (Cube 2, Figure 1) describes the problem space in three dimensions, namely the:

- rate of change,
- degree of familiarity, and
- strength of information position.

Again, the value labels imply a path from worse to better: in this case, ‘Cold War’ versus ‘21st century mission’.

While Alberts and Hayes present a strong argument to support the labels they use, we, in Australia, need to be cautious that these terms do not skew our understanding and analysis. In concept development, language and presentation are important.

The ADF’s operational concepts contain phrases such as ‘self-synchronisation’, ‘multi-dimensional manoeuvre’ and ‘network-centric’. These words shape our subsequent thinking, analysis and actions. As professionals, scientists and practitioners, we need to be more deliberate and accurate in the way we describe these concepts and more critical of the often ‘faddish’ language that emerges from popular management theories.
Command and control ‘approach space’

Returning to the first of Alberts and Hayes cubes (Figure 1), we should consider the implications of this representation of command and control for military organisations. We might be led to ask the following questions:

- What are the costs of making choices between command and control approaches?
- What is the cost of the freedom that is implied in the ‘edge organisation’?
- Or maybe more specifically, what is the cost to the organisation of broad information dissemination?

One cost might be that the information that the ADF staff and planning system prepares and disseminates will need to have a richer context or greater depth than is currently the case. The ADF’s people will need not only access to the information but some understanding of the context from which it is drawn. A larger number will need the skill to work with and interpret a broader range of information types. This has not only significant training implications, but more profoundly, important consequences for how the Services educate their members.

If, as Alberts and Hayes suggest in their second dimension, we have less constrained patterns of interactions between people, how do I decide who to interact with? How do I prioritise the many people who want my attention? The polymath Herbert Simon once remarked that: ‘[W]hat information consumes is rather obvious: it consumes the attention of its recipients. Hence a wealth of information creates a poverty of attention’. So, attention, a finite human resource, might be squandered in a command and control environment that does not adequately control the amount of human interaction.

If we consider the third dimension of the model, the broader allocation of decision-making rights, the concern becomes how do ADF commanders build confidence and trust in the quality of decision making? How do they know people have the capacity and support to manage the considerable responsibility that comes with less fixed decision rights? This has been a central (but often hidden dilemma) in the application of Mission Command. Persistent survey findings of ‘micro-management’ in the ADF are often interpreted as a failure in the application of Mission Command by more senior leaders. An alternate explanation is that Mission Command is a poorly understood philosophy that is generally interpreted as a loose approach to command and control. However, a more complete and accurate reading of the philosophy must include an assessment of the context and the experience of the subordinates. For example, where the commander has experienced subordinates the freedom of action allowed will be greater than when his or her subordinates are inexperienced. Consequently, there is a sliding scale in the application of Mission Command that is driven by subordinate experience and context. Some junior personnel may perceive that they are being micro-managed when in fact they are being managed within the limitations of their experience.

Implicitly, the Army’s growing recognition of the ‘strategic private’s’ potential impact on the modern battlefield, in part, expresses some of these concerns around the consequences of broadly defined decision rights.
These are the important social and organisational issues that emerge from concentrated reflection on the implications of command and control in an ‘edge organisation’. What is the cost of loosening control? What is the cost of information freedom? Broadly, we know that Alberts and Hayes are providing an accurate description of an operating environment we all recognise, but equally it also shows how much we don’t know about the consequences of becoming an ‘edge organisation’.

Command and control ‘problem space’

The second cube in Alberts and Hayes model (Figure 1) focuses on the command and control problem space. Here the authors introduce the important element of dynamism. The sense is that in some way the ADF’s command and control system must be responsive to changes in the environment. Alberts and Hayes provide us with three dimensions for understanding, and potentially measuring, this type of change. But is it possible for an organisational system to be adaptable if it is populated by people who have been extensively drilled in the procedures, techniques and tools that ensure it will work efficiently?

If we consider how a command and control system might be responsive to changes in the environment, we could begin by postulating that our existing command and control system has a certain given and understandable configuration. It has a pre-defined shape that in a low-change or slow-change environment could be expected to follow a reasonably conventional evolutionary path. What happens when the environmental conditions change? What happens when we need to respond differently? This idea of responsiveness is embedded in concepts such as the US Marine Corps ‘three-block war’ and Thomas Hammes’ Fourth-Generation Warfare. Indeed, the ADF’s future joint warfighting concept highlights that the ‘ADF must be capable of both executing effective combat operations and providing military support to national responses in more complex environments’. Against this operational background, when does a predictably efficient command and control system become rigid organisational dogma? The ADF’s leaders should have a real interest in this question because it is apparent from their own forecasts of the future operating environment that persistent instability will lead to rapid and unpredictable change. Consequently, the ADF too must be organisationally adaptable.

Other approaches to command and control concepts

The challenge in thinking about a command and control system in this way is that it quickly becomes apparent that Alberts and Hayes’ descriptive dimensions of the problem space are not sufficient for us to understand the conditions under which change might occur, or to predict the likely direction of change. Not only do we need a more accurate understanding of the elements of the command and control system but we must understand the rate of change in each variable.

Identifying the key variables that most directly influence command and control outcomes is not a simple matter. For instance, the final report of the NATO research group responsible for exploring new approaches to command and control developed a reference model containing over 300 command and control variables. Military practitioners might see this approach to
solving command and control problems as laboriously mechanistic; however, in developing a deeper understanding of these variables, scientists are able to build a more complete portrait of the existing system. And, if we better understand the existing system, there is a greater likelihood that we can identify the environmental factors that might trigger the need for change, thereby allowing more accurate predictions of likely trajectory of adaptation or change. This information is of great value to the ADF.

A more complete understanding of the dimensions of command and control will give DSTO and the ADF a firmer footing from which to compare and contrast the many emerging command and control concepts. At present, we have a limited capability to truly test the differences between competing concepts. If the ADF aspires to be adaptable rather than reactive its leaders must improve their understanding of the dimensions of command and control: environmental; technological; organisational; and social.

Table 2 shows an approach to comparing and contrasting command and control concepts from the point of view of a characterisation moving from completely centralised to completely decentralised. There are two often overlooked aspects of this type of representation: first, there is an assumption of linear progression leading from one form to the next that unrealistically removes command and control from the context of its practice; and second, there is strong evidence from our own operational experience that many different approaches to command and control are needed within the same operation. If we are to advance in understanding

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Centralised Command</th>
<th>Centralised Control</th>
<th>De-centralised Command</th>
<th>De-Centralised Control</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Military Examples</strong></td>
<td>Territorial Wars of 18th Century</td>
<td>WWII, Wars of late 20th Century</td>
<td>Counter-Insurgency, Reconstruction</td>
<td></td>
</tr>
<tr>
<td><strong>Non-military Examples</strong></td>
<td>Thermostat</td>
<td>Traffic management</td>
<td>Birds flocking, Ants feeding, nesting</td>
<td></td>
</tr>
<tr>
<td><strong>Environment</strong></td>
<td>Cause-Effect Known</td>
<td>Cause-Effect Discoverable</td>
<td>Cause-Effect Discoverable in Retrospect</td>
<td></td>
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<td><strong>One-line characterisation</strong></td>
<td>Follow Orders</td>
<td>Mission Command</td>
<td>Ubiquitous Command and Control</td>
<td></td>
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<tr>
<td><strong>System Characteristics</strong></td>
<td>Closed System</td>
<td>Open System</td>
<td>Complex System</td>
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<td><strong>C2 Effects Use/ Mass</strong></td>
<td>Forces</td>
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<td>Intent</td>
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<td><strong>Management Paradigm</strong></td>
<td>Command</td>
<td>Command and Control</td>
<td>Sense and Respond</td>
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</table>

Table 2: Comparing the characteristics of command and control methodologies.
command and control then we must move beyond these simplistic and static representations to dynamic concepts that capture the sense of momentum and adaptability that is characteristic of the environment in which we operate.

Ubiquitous command and control

Dale Lambert and Jason Scholtz speak about the process of organisational adaptability in terms of location, function and structure. They argue that technology allows us all to have a physical and virtual presence; consequently, we are experiencing distance in different ways. There is a growing need for us to adapt our concepts of location. In turn, this has led to an adaptation of function. We have greater opportunity to engage the ideas and efforts of others, who are not necessarily physically co-located with us, to contribute to a particular task. This significantly expands the possibilities for cooperation and competition. The effect of an increase in competition and more fluid alliance relationships may be an erosion of the classical military hierarchical structure. Already, as part of the Network Centric Warfare concept, the ADF is giving serious consideration to networked structures. There is an adaptation of the ADF’s organisational structure. The adapted networked structures also increase the diversity of inputs to the ADF, and in turn, this will intensify the pace of change. In this environment, organisational change becomes less a centralised decision and more of an environmental effect of adaptations in location, function and structure.

Competitive advantage arises from the ADF’s ability to adapt organisational alliances and harness workforce intellectual capability. The concept of ‘ubiquitous command and control’, which captures the idea of adaptations in location, function and structure, sees Mission Command as only one type of ‘Mission Agreement’. On the foundation of fused information the ADF might begin to explore ideas like ‘fused intent’ and ‘fused command’ as the means to operate in an intimately networked environment or ‘edge organisation’.

Entropy and C2

Alternatively, we might consider the issue of command and control adaptability by reflecting on the principle of ‘entropy’. Entropy is a quantity developed in thermodynamics and statistical physics which measures the degree to which the state of a multi-component system can be discerned from amongst the system’s accessible states. Both internal dynamics and external environment—for example, the application of heat—drive such systems from one state to another. The large number of degrees of freedom of such systems implies that observers can only measure coarse-grained quantities. The rapidity of changes undergone by individual components means that information can be lost which is the origin of the increasing entropy in the thermodynamics of irreversible systems, including systems out of equilibrium. The vastness in number of degrees of freedom of a military C2-system and the complexity of the environment of the modern battlespace make these concepts entirely appropriate not just as useful metaphors but as the basis for a genuine dynamical theory of C2. At the very least, this way of thinking about C2 unifies a number of disparate insights: that both environmental triggers and internal processes lead to a change in the existing system, that such change for complex C2-systems can be irreversible, and finally that the command style may need to adapt to the internal system changes.
The challenge of human limitations

At the core of command and control is the imperative to reduce the inherent uncertainty of warfare. There are three types of uncertainty that are of central concern for commanders. The first type of uncertainty occurs when there are signals of a need for change but the solution is uncertain. The second type of uncertainty occurs when the need for change is clear but the solution is risky. The third type of uncertainty is where the solution is known but the application is uncertain. These three types of uncertainty create tension between the command hierarchy’s responsibility to administer existing structures and the demand for that same hierarchy to be ready to adapt to change.

ADF commanders are trained to make rational calculations about risks that are within acceptable tolerance limits. Sophisticated planning processes and organisational systems that harness the intellectual resources of the staff to reveal, analyse, evaluate and work with information about risk assist the commander to make a judgment around the chances of success in achieving a particular objective. A central premise of the planning cycle is that the range of alternatives and likely consequences of taking action is knowable.

In considering the command and control ‘problem space’, Alberts and Hayes identify two related dimensions of uncertainty: degree of familiarity and strength of information position. Degree of familiarity deals with the extent to which the dimensions of the problem are known or unknown. If the problem is well-known then the consequent patterns of interactions within the command and control system are clear. Strength of information position refers to the ‘extent to which the decision-making [sic] is informed or uninformed’. The question here is, to what extent these two dimensions assist our understanding of uncertainty in a command and control system? Fundamentally, uncertainty demands action but defies attempts to canvass the range of alternatives available or the likely consequences of making a choice.

The ADF acknowledges the importance of problem familiarity in defining professional mastery as:

The ability to perform given competencies, the awareness of why they are being performed, the flexibility to perform them in a range of circumstances, and the self-confidence to apply them in conditions of risk and ambiguity.

Similarly, the idea of strength of information position has been central to the many discussions of ‘information warfare’ and efforts to establish a ‘knowledge edge’.

The missing element in our discussions of uncertainty in command and control systems is the limitations of commanders. In his investigations of ‘bounded rationality’ Herbert Simon made two key observations of human information processing capacity. First, the human capacity to process information is quite limited, and second, to economise on cognitive effort people rely on short-cuts.

Simon uses a scissors metaphor to show that bounded rationality emerges from the dual effect of two interlocking components: the internal limitations of the human mind and the structure of the external environment in which the mind operates. The first blade of Simon’s scissors implies that humans ‘must use approximate methods to handle most tasks’. These methods
include recognition processes that largely preclude the need for further information search. For example, heuristics that guide the search for information and determine when the search should end, and simple decision rules that make use of the information found. Simon’s second blade can explain when and why simple decision mechanisms perform well. In particular, this occurs when the structure of the decision mechanism is adapted to the structure of the information in the environment.22 Heuristics that are matched to the environment allow people to make responsive decisions that are fast, accurate and economical. Military professionals might express this as command judgment or intuition. The familiarity with the problem and its context ensures that information is presented in a recognisable form and decision making follows a reasonably predictable course. Alberts and Hayes might describe this as a high degree of familiarity and a strong information position.

What about problems whose structure and context is not familiar? Alberts and Hayes portray these problems as the core of the military’s ‘21st century mission’.23 As the economist Frank Knight noted, ‘With uncertainty present, doing things, the actual execution of activity, becomes in a real sense a secondary part of life; the primary problem or function is deciding what to do and how to do it’.24 For another perspective, Herbert Simon observed that ‘it may be more important, in some circumstances, to have agreement on the facts than to be certain that what is agreed is really fact’.25 For people to act confidently in uncertain times they need a system for making sense of the world—a means of imposing order on chaos. Consequently, they engage in various efforts to restore mental order as quickly as possible. They reach for an underlying set of theories, assumptions or propositions about the world that have served them well in the past. Herbert Simon referred to these as ‘weak methods’.26 A weak method draws on general knowledge that people believe can be applied to many different tasks—the principles can be generalised. Weak methods often produce lesser results, but can be applied to many areas with little modification. Strong methods draw on extensive specialist knowledge to allow deep understanding of domain or task.

Simon identified ‘satisficing’ as a weak method that people commonly rely on in situations where there are a large number of variables or where the problem has so little known structure that all alternatives would have to be examined in order to determine which is optimal. In these situations, people construct an expectation of the minimum acceptable solution to the problem and then set about searching for alternatives to deliver that solution.27 That is, when faced with uncertainty, people do not aim (through a process of rational consideration of the possible solutions or the means by which they might be achieved) to get the ‘best’ solution. Rather they seek the minimum satisfactory solution because it allows them to progress. This is entirely consistent with the ‘act-sense-respond’ or ‘learning-by-doing’ approach emerging in ADF concepts and doctrine.

The basis for confident action is the ability to identify a model that is suitable for the situation. Without a model, there will be no decision and no action. When faced with uncertainty, people will search for a suitable model until they find one or until the uncertainty is resolved.28 How commanders work with the blades of Herbert Simon’s scissors is central to the ADF’s command and control system, and these observations go beyond the degree of problem familiarity and the strength of information position identified by Alberts and Hayes.

The way in which commanders and their staffs process information acts as a buffer against the inherent uncertainty of the environment. On a broader scale, James Thompson argued
that all organisations respond to a changing environment by seeking to 'buffer environmental influences'. So, if, as Alberts and Hayes assert, the '21st century mission' is characterised by a dynamic rate of change, low degree of problem familiarity and a weak information position, then the ADF’s capacity to collectively integrate, process and distribute knowledge will be central to the efficiency and effectiveness of the command and control system.

Buffering institutional uncertainty

In essence, command and control systems are an organisational means for controlling data, information and knowledge. While command and control systems are adept at seeking, classifying, analysing and disseminating information they are equally skilful at excluding information. In large part, the ADF’s command and control approach is shaped by the type of information ADF commanders value. Changes in the ADF’s information environment, prompted by changes in the operating environment, is the real driver behind the ADF’s desire for more adaptable organisational systems. The ADF is changing the value it places on the information inputs into the command and control system.

The Cynefin model (see Figure 2) is a useful construct for describing different aspects of the ADF’s operating environment. This model is based on the proposition that we must understand the nature of the different knowledge used in our organisation before determining the best way to manage its transfer. Different command and control approaches will suit different tasks because we need to manage data, information and knowledge in a different way. So an ideal future command and control system, in response to changing environmental conditions, will be able to show how the ADF can move seamlessly between these four knowledge conditions.

**Figure 2:** The Cynefin Model.
If we consider the ADF’s current command and control concepts against this model, how complete are they? The ADF has sophisticated organisational processes for dealing with the ‘known’ and ‘knowable’. Indeed, these are the traditional strengths of modern industrial age military organisations. Emerging concepts about ‘complexity’ and many of the conditions described in the top left quadrant reflect the key ADF concepts of today; for instance, the ADF’s *Joint Operations for the 21st Century*. There is less discussion about what happens when the ADF loses control and how the command and control system might need to adapt—to regain the sense of certainty needed to take effective action. This is an area that requires more thought from practitioners and scientists alike. However, this model also shows a more obvious deficiency in our approach.

In our attempts to categorise the command and control system, there is a tendency to consider each quadrant in the model as if they were mutually exclusive. Clearly, this is not an accurate representation of the ADF’s operating environment. There are two interesting questions that follow from adopting a more holistic view of this model. First, how will the ADF’s command and control structures adapt to operating conditions that may require movement from one quadrant to another, and what implications are there for the military workforce? Second, institutionally, how will the ADF command and control system behave when different parts of the organisation are operating in different quadrants at the same time and therefore have different information needs to establish a sense of certainty? A good future command and control concept will explain not only how we operate in each quadrant in this model but also the mechanism that enables transition between the quadrants.

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*Dr Sharon Boswell is a Senior Command and Control Analyst in DSAD. Formerly an academic mathematician, she joined DSTO in 1998, initially working for LOD in a collocated team Canberra. In that role she developed expertise in simulation and modelling and decision support methodologies and brought these to the study of command and control when she transferred to C2D in 2005.*

*Dr Mark Burnett is a senior research scientist in DSTO. He is currently involved in studies of command and control for ADF operations, and is engaged in research on complex systems for defence and security applications.*

*Dr Alex Kalloniatis is a defence analyst in Joint Command Analysis Branch, DSTO, since 2005 working in military headquarters modelling and command and control concepts. Prior to that he worked both in Australia and Germany on quantum theories of subnuclear matter and statistical mechanics.*

*Dr Richard Taylor heads the Command Concepts and Architectures Group within the Joint Command Analysis Branch of DSTO. His research interests include command and control, computational complexity, prediction theory, and networks.*
NOTES

4. ibid., p. 1.
5. ADDP 00.1 Command and Control in the Australian Defence Force, Chapter 1, p. 2.
8. ibid., p. 75 and p. 77.

21. ibid., p. 6.

22. ibid., p. 11.


30. For more information on the Cynefin model see: <www.cynefin.net>.
The Sorry State of Military Sociology in Australia

Nick Jans, Sigma Consultancy

Military sociology is a broad term to describe the academic field that studies the individual within the military institution, and the military profession within its wider society. Military sociology focuses on why people behave as they do within military organisations and on the underlying social issues associated with important practical matters, such as military professionalism, the military ethos, recruitment, retention, career development, combat motivation, leadership, family adjustment, military–civilian career transitions, and military–civil/political relationships.¹

The proverbial man from Mars, on landing in Australia and learning of its military’s oft-asserted dictum that ‘our most important asset is our people’ and that its Chief previously asserted that ‘recruitment and retention is the ADF’s number one strategic issue’,² would be astonished to learn about the sorry state of military sociology in Australia. The topic receives very little attention in Australian academic and military circles. It would be safe to say that very few Australian officers are aware that there is such a field as military sociology and that it can inform on practical ‘people issues’ in the military institution. There are no courses in military sociology in Australian tertiary institutions (such as sub majors within a broader humanities degree) and no full-time ‘military sociology’ academics in Australian universities or at the Defence Academy or the various staff colleges.³

To make matters worse, of the three Australians who are active members of the Inter-University Seminar for Armed Forces and Society (the quasi-professional association that is the major international forum for the interests and activities of military sociologists), two will retire soon and the third resigned to become a management consultant. There is thus a strong possibility that what is currently a small but steady stream of relevant publications on Australian military sociology (see select bibliography) will soon become a trickle.

Although military sociology is not a mainstream academic discipline (e.g. in the US, for example, only the Universities of Chicago and Maryland offer formal courses of study in military sociology, turning out a small but steady stream of PhD graduates) the US military makes up for the lack of wider academic interest in military sociology by providing full-time staff and resource support for research within the military establishment itself, particularly within staff colleges and the like. For example, sociology has been taught at West Point since the 1960s, and the United States Military Academy faculty currently contains three sociology PhDs. The US Naval Academy and the Air Force Academy each have two PhDs on their faculties. All three academies regard sociology as an important part of the leadership curriculum, and the US Army War College has recently offered a faculty position to a military sociologist.⁴

Military sociology has a strong nucleus of scholars with a common interest in the study of the military as a social system. The main forum for this interaction is the Inter University Seminar on Armed Forces (IUS), with Society’s membership criteria being sufficiently flexible for anyone with an interest in the field to join. The IUS attracts scholars from a range of disciplines—not
just sociology, but anthropology, psychology, history, political science and economics—as well as a large number of currently-serving and retired officers. The IUS’s main academic activity is its biennial conference, which invariably attracts an impressive array of scholarly papers on a wide range of relevant topics and provides a chance for informal discussion and exchange of ideas. Similar events occur regularly in Britain and Canada.

The vast majority of IUS members are based in North America, with only three coming from Australia (see Table 1).

![Table 1](image)

<table>
<thead>
<tr>
<th>Region</th>
<th>IUS Fellows</th>
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<tbody>
<tr>
<td>North America</td>
<td>485</td>
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<tr>
<td>Other Europe</td>
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<td>UK</td>
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<td>Africa</td>
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<td>Australia</td>
<td>3</td>
</tr>
<tr>
<td>TOTAL</td>
<td>641</td>
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Table 1: Number of IUS Fellows by region (as of 2007).

Academic interest in military sociology within Australia was given a formal basis three decades ago when a series of conference/seminar activities was launched under the leadership of Dr Hugh Smith. Each such activity produced at least one publication and was well attended by academics and serving and retired officers. Table 2 catalogues the themes and dates of the 17 such conferences.

The early conferences were sponsored and organised by an informal network of interested people, under the banner of the 'Australian Study Group on Armed Forces and Society'. From 1986, organisation and sponsorship was assumed by the Australian Defence Studies Centre at the Defence Academy (ADSC). While the ADSC continued to champion the field for another 10 years, its later conferences focused on politics and strategy, with little attention
to military sociology. And even this potential forum was removed when the University College
disestablished the centre in 2004 and replaced it with a ‘Defence Studies Forum’, the activities
of which are modest indeed.

This short history shows that the integrity and health of military sociology in Australia is under
serious threat. In this, as in other fields, Australia is missing out on the direct and indirect
benefits of wider academic and public discussion of Defence activities.

<table>
<thead>
<tr>
<th>Year</th>
<th>Topic</th>
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<tbody>
<tr>
<td>1977</td>
<td>Armed Forces and Australian Society</td>
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<tr>
<td>1978</td>
<td>The Individual and the Armed Services</td>
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<tr>
<td>1979</td>
<td>Soldiers, Citizens and Society: 1939–1979</td>
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<td>1980</td>
<td>Officer Education in a Tri-Service Environment</td>
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<td>1981</td>
<td>Defence and Society in Australia</td>
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<td>1982</td>
<td>The Service Family</td>
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<td>Law, Change and the Services</td>
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<td>Technological Change and the Military</td>
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<td>Perspectives on the Military Career</td>
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<td>1986</td>
<td>Perspectives on War and Peace in Australian Society</td>
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<td>Rewarding the Defence Force</td>
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<td>1988</td>
<td>The Military Profession in Australia</td>
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<td>1989</td>
<td>Australia and Peacekeeping</td>
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<td>1993</td>
<td>Who Will Join? ADF Recruitment Policy to the Year 2000</td>
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<td>1993</td>
<td>Educating the Guardians: Officer Education in the 1990s</td>
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<tr>
<td>1994</td>
<td>Families and the Defence Force</td>
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<td>1995</td>
<td>Environmentally Responsible Defence</td>
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Table 2: Australian military sociology conferences since 1977.
It scarcely needs to be said that all this reflects poorly on the Australian military profession and its intellectual capability. The ADF is likely to pay dearly if it continues to treat people issues as a ‘generalist’ field of study, unworthy of the attention of academic experts.

What, if anything, can be done to correct this unsatisfactory deficiency in the ADF’s intellectual capital? Military sociology needs its own regular forum and focus for study, and the facilities to develop a stream of scholars and research programs. It will not be enough to slip the occasional paper on military sociology into the regular round of academic conferences on Australian military history and politics/strategy. And the recent demise of the only Australian academic centre where the light of military sociology was able to flicker is an indication of the deficiencies of leaving such matters ‘to the market’.

As a minimum, the ADF should:

- establish a full-time academic position in military sociology at the Defence Academy, with a formal link into the studies programs at the Australian Defence College;
- sponsor a full-time military sociologist at one of the country’s academic centres for the study of strategy, such as the Strategic and Defence Studies Centre at the Australian National University, where its incumbent could benefit from tapping into the broader network of sociological and other studies within and beyond the university; and
- sponsor regular conferences on military sociology and related topics.

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NOTES

1. As an indication of the kind of professionally-relevant articles that regularly appear in *Armed Forces & Society*, the premier journal of military sociologists, recent articles include ‘The Word of Command: Communication and Cohesion and the Military’ (July 2006); ‘Undermining Combat Readiness in the Russian Military, 1992–2005’ (July 2006); ‘Does Ethnicity Affect the Coping of Military Spouses?’ (July 2006); ‘Propensity to Serve and Motivation to Enlist among American Combat Soldiers’; ‘“Too Sweet and Innocent for War”? Dutch Peacekeepers and the Use of Violence’ (April 2006); and ‘Why Do Youth Enlist? Identification of Underlying Themes’ (January 2006).

2. CDF opening address to the Senior Leadership Group recall day, 20 February 2006.

3. The Master’s degree in human resources management offered by the Defence Academy is focused on a somewhat different area of study and cannot be counted as ‘military sociology’ per se.

4. Professor David Segal, University of Maryland, personal communication.


6. ibid.

7. For a full listing, please contact nick@sigmaconsultancy.com.
SELECT BIBLIOGRAPHY

Relevant publications from Nick Jans:


The Real C-Cubed: *Culture, careers and climate and how they affect military capability* (with David Schmidtchen), Canberra papers on strategy and defence, No. 143, Strategic and Defence Studies Centre, Australian National University, 2002.


‘What the ADF must do to hold its own in the global war for talent: a five-point strategy’ (with Judy Frazer-Jans), *Australian Defence Force Journal*, No. 171, 2006.


Relevant publications from Hugh Smith:


Law, Change and the Services (ed.), University of New South Wales, Duntroon, 1984.


‘The Public Perceptions of the Army’ (with A. Bergin), in David Horner (ed.), Reshaping the Australian Army: Challenges for the 1990s, Canberra Papers on Strategy and Defence, No. 77, Strategic and Defence Studies Centre, ANU, Canberra, 1991.


Review of the Ready Reserve Scheme, Report to the Parliamentary Secretary to the Minister for Defence, Unisearch, UNSW, 30 June 1995 (with LTGEN. John Coates).


‘Minorities and the Australian Army: Overlooked and Underrepresented?’, in Peter Dennis and Jeffrey Grey (eds), *A Century of Service: 100 Years of the Australian Army*, Army History Unit, Department of Defence, Canberra, 2001.


Relevant publications from David Schmidtchen:


Integrating Space Effects into Australia’s Joint Operations

Squadron Leader Lyle Holt, RAAF

Introduction

Dr Brendan Nelson, the then Minister for Defence remarked in 2006 that the ‘great challenge in defence planning is to be prepared for the unknown, for it is that which must shape and influence our future’. Dr Nelson’s ‘unknown’ is influencing the comprehensive modernisation of Australia’s military capabilities to allow the Australian Defence Force (ADF) to better support Australia’s increasingly complex and crowded global security agenda.

To address this security agenda, the ADF’s Defence Capability Plan (DCP) is delivering capability with four directed themes—versatility, robustness, joint and integrated. It will do this in a seamless, integrated manner using a network as its foundation. While the network will be the heart of the ADF’s future warfighting vision, space effects will form the critical backbone of this vision. However, while space effects will be essential to the ADF’s operational flexibility, survivability and lethality, sluggish progress is being made to integrate space’s critical warfighting effects into ADF’s joint operations.

The ADF is discussing the integration of space effects into joint operations, although mostly as a future concept. However, this approach is too slow considering that the ADF is already operating within the space environment. So while the ADF recognises that something must be done, and it is considering a way ahead, international lessons are available right now to help the ADF integrate space effects into its joint operations.

To determine how best to integrate space effects into Australia’s joint operations, this article will first contextualise the problem. The article will then evaluate several international models to finally analyse how Australia might apply international lessons in order to effectively integrate space effects into their joint operations. The aim of this article is to propose a method of integrating space effects into Australia’s joint operations.

SPACE EFFECTS—A CONTEXT

Defining space effects

The space warfighting environment can deliver both enabling and direct space effects as depicted in Figure 1. A direct offensive space effect would disrupt, deny, degrade, deceive or destroy an enemy’s space capability. It could either target an enemy’s orbiting satellite or destroy a critical element of that satellite’s terrestrial infrastructure. While both of these examples of a direct offensive space effect might achieve the same net operational effect, they will employ very different means. Australia can undertake the latter example now.
The second direct space effect is defensive in nature, and might actively or passively protect friendly assets from an enemy’s space capability—an action defined as a direct defensive space effect. An example of a direct defensive space effect is calculating an enemy satellite’s trajectory and sensor footprint in order to determine periods of satellite detection vulnerability for friendly terrestrial forces. Australia might also like to employ this space effect now.

An enabling space effect would include space-based services such as intelligence, surveillance, reconnaissance, environmental awareness, position, navigation, timing, communications and spectrum management. These types of enabling space effects form the core of what is considered Australia’s routine military activities, and these effects also form the backbone of a networked military environment.

**Applying space effects to Australia’s joint operations**

The ADF aspires to operate in a seamless, integrated manner utilising a network as its foundation. This network, as described in the *Network Centric Warfare Roadmap 2007 (NCW07)*, will underpin the ADF’s ability to provide warfighters with actionable information and will enable the ADF to conduct effective manoeuvre warfare. Despite not being mentioned in the NCW07, space effects will form the backbone of this ADF future warfighting vision.
Figure 2 depicts the links from the ADF’s functional and enabling concepts, to its future concepts. Circled is how the ADF’s space concept links to the Future Joint Operating Concept (FJOC) and the Royal Australian Air Force’s (RAAF) Future Air and Space Operating Concept (FASOC).

However, it was earlier demonstrated that integrating space effects should not be considered a future concept. While Australia has no national approach to space and the ADF does not currently ‘fly’ its own satellites, the ADF is arguably conducting and/or using elements of both direct and enabling space effects now. Therefore steps must be taken to integrate space effects into the ADF’s joint operations, recognising that ‘understanding the nature of space power is the first step toward effectively integrating space into joint war fighting’.

While space power’s environment and operating culture are unique, the degree of commonality between space and air power characteristics (such as perspective, reach, tempo, and precision application) suggests that the piecemeal control and apportionment of space power would be inefficient and ineffective. The RAAF FASOC’s doctrinal definition of command and control (C2) supports this concept:

C2 in an air power context is the authority to direct and integrate systems, procedures, organisational structures, personnel, equipment, facilities, information and communications for the planning and timely execution of air campaigns as part of joint, national or coalition campaigns. This includes the battlespace management process of planning, directing, coordinating and controlling air and space capabilities, forces and operations. C2 is cross-functional, and is an essential element of all air operations because of its importance in binding air and space power functions together to joint ends, and in providing the foundation for networked operations.
Therefore, it follows that space power should be employed in the same manner as air power—centralised control and decentralised execution. However, while the RAAF recognises that something must be done, it is yet to determine a way ahead. The good news is that the ADF does not need to 'reinvent the wheel' with regards to integrating space effects into its joint operations.

**SPACE EFFECTS AND JOINT OPERATIONS—INTERNATIONAL PERSPECTIVES**

Integration of space effects by middle powers

To determine how middle powers integrate space effects into their joint operations, this article examined open source data from Canada, the United Kingdom and India, each of whom design and operate indigenous space assets.

**India.** Vice Admiral Raman Puri’s 2006 description of the integration of space effects into India’s joint operations reflects Australia’s current position. While space will form the core of an NCW-based Indian Future Joint Operating Concept, India had yet to derive a C2 model through which to integrate and effectively employ space effects.

**United Kingdom (UK).** Unlike India, the UK is doctrinally more advanced in the integration of space effects into their joint operations. However, the Royal Air Force (RAF) Strategy 2006 acknowledged that they were only just beginning to address the processes, structures and education ‘necessary to understand, maximise and develop the potential benefits of space capability.’

![Figure 3: UK role and missions of air power.](image)

Figure 3 indicates that the UK, like Australia, functionally positions space effects within their broader air power roles and missions. Therefore procedurally, UK joint planners (‘J’ staff) integrate space effects as an air component effect within the broader campaign plan. That plan is then interpreted by the UK Joint Force Air Component Commander (JFACC) and their supporting air (‘A’) staff who conduct air and space planning at the operational level.

However, space effects are typically provided and informed by globally distributed assets in and outside of military C2 architectures. It is a significant challenge for UK planners to ensure that space effects are integrated throughout the joint force commander’s (JFC’s) scheme of manoeuvre. To facilitate the joint planning and execution process, the Royal Air Force FASOC, like the RAAF’s equivalent document, asserts that a cadre of space expertise must be evolved.
The RAF concept specifies that the space expertise cadre should comprise a mix of space-literate operators and actors who can service the front line, headquarters and reachback elements acting as part of a centre of excellence, and within command structures. This qualifier implies that selected personnel will come from a broad variety of operational and operational-support backgrounds, albeit from within the RAF. Nevertheless, and despite the RAF’s apparent doctrinal focus on training and employing RAF personnel to deliver fundamentally British tri-Service outcomes, there appears no reason why ‘space-literati’ should not also be drawn from the British Army or Royal Navy. The benefits are that space effects would be integrated throughout all aspects of the UK’s joint operations, delivering global kinetic and non-kinetic effects.

Figure 4 depicts the UK JFACC’s headquarters structure, illustrating the Joint Air Operations Centre (JAOC) and the relationships between the intelligence (A2), combat operations and plans (A3), and strategy (A5) staff. To ensure that space effects are fully exploited, the space expertise cadre should be spread across the circled JAOC elements. This would also enable the embedded, non-air environment liaison officers (maritime (MCE(A)), land (BCD(A)), special forces (SFLE), etc) to input their emerging space effects demands through the air strategy and/or combat plans cells. Any revised space effects demands could be passed to the combat operations cell. For combined operations, this cadre of UK ‘space-literati’ could offer a greater UK contribution to coalition operations planning. However, if they currently exist, the educational overheads for the UK’s space cadre could not be located.

Figure 4: UK joint force air component headquarters generic structure and functions.
Canada. While there was no available doctrine outlining the approach to integrating space effects into Canadian joint operations, the Canadian Forces do conduct a Space Operations Course (SOC) that graduates civilian Department of National Defence and uniformed Canadian Force’s personnel with a strong space advisor-focus, including in the employment of space systems in support of military operations. SOC graduates are employed, among other locations, within the United States Air Force’s (USAF) 14th Air Force (14th AF) space AOC located at Vandenberg Air Force Base, California.

Integration of space effects by the United States (US)

The US integrates space effects into its joint operations via a Space Force of approximately 26,000 personnel to deliver an asymmetric advantage based on space superiority. To deliver that advantage, the USAF is ‘operationalising’ space; integrating and normalising space effects at the operational level via traditional air power C2 methodology.

US space C2 at the operational level. C2 of space operations is challenging due to the fragmented sources of space capabilities and the interdependence between global and theater space forces. USAF space C2 is achieved through the 14th AF space AOC and/or a specified theatre CAOC. Situation and force dependent, space effects planning and execution may be accomplished via distributed operations (theatre CAOC), reachback (14th AF space AOC), or a mix of the two. Reachback involves operational combat support from the rear while a distributed operation indicates physical involvement in the theatre planning and/or execution processes.

US space planning at the operational level. US doctrine specifically integrates space into each phase of a campaign plan, detailing how the joint intelligence (J2), operations (J3), logistics (J4) and command, control, communications, and computer systems (J6) planners analyse the role and contributions of space effects, with respect to their directorates. Planners identify space forces and capabilities that relate to friendly and adversary centres of gravity; tasks for US space forces; and an adversary’s ability to control and/or use space capabilities against US forces. Space planning also articulates the role of military, civil, and commercial satellite communications required for campaign C2. Finally, space forces and capabilities are wargamed along with land, sea, air, and special operations forces to inform the JFC campaign decisions.

US space operations at the operational level. Supporting the JFC’s campaign plan is the joint air and space operations plan (JAAP) which includes the tasking of all assigned or attached space forces, as well as requests for theatre support from global space forces. The tasks for assigned or attached space forces are integrated into tactical operations via the air tasking order (ATO), while non-assigned space forces are tasked via the 14th AF’s space tasking order (STO). The ATOs and STOs deconflict, synchronise, and integrate space operations within a theatre through parallel air and space tasking processes on the same battle rhythm, as depicted in Figure 5, and would require resident space experts within both the CAOC and SAOC.

US space education. The development of a space professional cadre is recognised as an enabling capability for employing integrated space capabilities that support the full spectrum
US space warfighting professionals are developed to deliver space effects across the spectrum of military operations, just as the RAAF develops aviators to deliver air power effects. The development of this space force includes exercising US space forces alongside air and information counterparts both overseas and in the US. Space education is also provided to non-space professionals so that they can better understand the application of space effects in military operations.

SPACE EFFECTS AND AUSTRALIAN JOINT OPERATIONS—AN ANALYSIS

The situation today—a comparison

To reiterate, Australia does not have a national approach to space as do the countries examined above. Yet, while the US space cadre is numerically superior to the RAAF and the RAF are developing their space cadre, it is not all bad news for Australia.

Procedurally, the ADF plans joint operations similarly to the UK, US and Canada, with Australian ‘J’ staff developing campaign plans for exercises and operations within the Joint Operations Command (JOC). Likewise, translating a joint campaign plan into a JAOP and then a tactical-level ATO is accomplished in the RAAF-run CAOC.

The CAOC plans and exercises C2 over assigned air assets by employing subject matter experts (SMEs) who represent each of the participating Force Element Groups (FEGs), including Army and Navy aviation assets, a selection of specialists (such as Legal, etc) as well as intelligence, surveillance and reconnaissance experts. These SMEs and specialists are drawn from their respective parent organisations on an as-required basis and are functionally distributed within the CAOC’s strategy, combat plans and combat operations cells—the same as the US and UK CAOC. Figure 6 depicts the transition of the RAAF’s force-in-being from its day-to-day posture to its operations-and-exercise posture, and back again.
Where the ADF differs from the UK, US and Canada is that it currently has an under-developed approach to the integration of space effects into its joint operations, as depicted in section ‘b’ of Figure 6.

Figure 6 highlights that the RAAF is a small, resource-constrained force. Nevertheless, the ADF must have the ability to effectively integrate space effects into its joint operations or risk both its NCW07 concept and FJOC. Recognising its limitations and learning from the international models detailed above, the ADF (and RAAF) must progress a way ahead from the following options:

- do nothing;
- sub-specialise operators and operational-support personnel;
- establish an indigenous Australian space specialisation; and/or
- establish an ADF centre of space expertise.

**Option one—do nothing**

The current situation facing the ADF is that space effects are integrated into its joint operations in an ad hoc manner across several specialisations. There exist a handful of ADF personnel who possess either tertiary post-graduate or professional military training. Doing nothing means continuing to minimally invest in tertiary post-graduate and professional military training.
for a narrow range of operators and operational–support personnel—a seductive option in a resource constrained environment.

While these trained personnel provide a degree of space advocacy, this approach does not integrate space effects fully or efficiently across the ADF’s battlespace. Without space expertise scattered throughout the joint and air planning environments, the ADF would continue to be no more than an informed customer of space effects, reliant on our coalition partners for input or support to employ or utilise just a fraction of the available space effects. Further, without a cadre of space expertise to employ space effects within the CAOC, the threat to the ADF’s joint operations is the inefficient employment of space effects in a networked environment and the subsequent failure of the NCW07 concept and FJOC. This option should be discounted.

Option two—sub-specialise operators and operational-support personnel

To avoid the long-term strategic pitfalls of the ‘do nothing’ option, the ADF could extend its current tertiary post-graduate and professional military training to a broader range of tri-Service operators and operational-support personnel. This wider targeting of specialists would allow the ADF to educate—via overseas universities, and domestic and internationally provided space warfare courses—and employ space-literate personnel from all Services for JOC and/or CAOC directorates.

With the breadth of expertise that this space cadre would offer, ADF joint planners could comprehensively identify space forces and capabilities that relate to friendly and adversary centres of gravity, tasks for available space forces, and an adversary’s ability to control and/or use space capabilities against Australian forces. With this level of indigenous space literacy, the ADF could then also offer a greater operational planning contribution for coalition activities.

Perhaps the greatest weakness of this approach is the posting and employment churn that space cadre personnel would be subject to. Given that their primary role is fighting in their parent FEG or specialisation, they may not be regularly releasable for JOC or CAOC space advocacy duties. Therefore, greater numbers of personnel would need to undertake space education and that would place an even greater burden on a resource-constrained ADF. That burden would be felt by the member’s parent unit and also by the organisation tasked with managing such a space sub-specialisation. Given this highlighted personnel churn, the capability return on training investment for this approach to space effects integration appears to be very poor. Therefore this option, by itself, should be discounted.

Option three—establish an indigenous Australian space specialisation

To avoid personnel churn when integrating space effects into ADF joint operations, the establishment of an indigenous space specialisation such as the US model would allow the ADF to train a unique, specially educated breed of warfighter for 21st century operations. The benefits of an indigenous tri-Service ADF space specialisation would be that space effects would be integrated into joint operations by a dedicated cadre who operate within and/or parallel to the JOC and CAOC processes.
As the UK examination identified, a balanced force benefits from a mix of space specialists and space-literate operators. However, the ADF is probably neither large enough nor would possess sufficient space forces to warrant an indigenous space specialisation, let alone one that stands alongside a cadre of space sub-specialist operators and operational-support personnel. Therefore, while an indigenous space specialisation would offer efficient management of a space cadre, and the greatest operational planning contribution for coalition activities, the balance between maintaining the ADF’s force-in-being and an additional cadre of space expertise may be unachievable. This option should also be discounted.

Option four—establish an ADF space centre of expertise

Perhaps the most appropriate and more sustainable solution for the ADF to integrate space effects into its joint operations is to sub-specialise ADF operators and operational-support personnel as described in option two and employ them in an environment that allows them to maintain a space focus and skill set while still supporting their core specialisation.

The Aerospace Operational Support Group (AOSG) is a RAAF FEG that operates across the ADF’s three Services in this manner. Taken from the AOSG website:

…AOSG is a tri-Service organisation with an integrated military–[Australian Public Service] APS workforce … AOSG’s focus is on ADF operations and its core business is ‘supporting today’s front-line mission and the next’. AOSG has responsibilities through the Air Commander for providing a range of operational and mission support capabilities to Navy, Army, Air Force, the Defence Intelligence Group and the Defence Materiel Organisation.21

AOSG’s Aircraft Research and Development Unit (ARDU) and Joint Electronic Warfare Operational Support Unit (JEWOSU) are examples where selected ADF personnel receive specialist training then apply that sub-specialisation from within AOSG in direct support of their parent FEG.22 A similar construct could be established for space specialists. As the ADF conducts exercises or operations, space experts from the AOSG space unit could be seconded to the JOC and CAOC to ensure the full integration of space effects across the joint campaign plan, just as the CAOC’s ISR component indicated in Figure 6 is drawn from AOSG’s 87 Squadron.

This type of AOSG unit may also offer a secondary career structure for military professionals who have sub-specialised in space, in the same way that ARDU does for flight test personnel and that JEWOSU does for electronic warfare specialists. However resource constraints would still be evident, as AOSG can also suffer from a shortage of available ADF operators and operational-support personnel to fill all of its positions. However, given the tri-Service and matrixed nature of AOSG’s operations, it has a demonstrated ability to apply cross-trained personnel across a variety of tasks. There may also be opportunities for the employment of space-educated APS members in some space specialisations using the AOSG construct.

It is the combination of options two and four, of developing AOSG as a centre of ADF space excellence through the sub-specialist space education of ADF operators and operational-support personnel that offers the best chance of long-term success and should be pursued.
Conclusion

The success of the ADF’s future warfighting vision is conditional upon the successful integration of space effects into the ADF’s joint operations. Whether it is as a user of enabling space effects or employing terrestrial-based direct offensive space effects, the ADF cannot afford to operate in general isolation from the space environment and its force-multiplying effects. It is not enough to recognise that an integration problem exists because the ADF is operating within, and is dependent on, the space environment right now. In identifying a workable solution for the ADF, a ‘do nothing’ option would put the ADF’s future warfighting vision at great risk and should not be pursued.

Middle powers and the US recognise that, as a functional sub-set of air power, space power benefits from centralised control and decentralised execution, placing its C2 firmly in the Air Force domain. Yet looking beyond the C2 of space effects and applying the international lessons, it was shown that fully utilising space effects is best achieved by developing a cadre of space expertise, drawn from a breadth of core tri-Service specialisations. However, the US example of a grand, indigenous Space Force was assessed as an unsustainable option for the ADF and one that should not be pursued.

It was the UK’s approach of developing a space cadre from a mix of extant tri-Service operators and operational-support specialists that held most appeal. This approach ensured that space expertise could service the front line, headquarters and reachback elements acting as part of a centre of excellence, and within command structures.

With space education being acquired from a mix of tertiary post-graduate (offered through international universities) and professional military space training, ADF operators and operational-support personnel could form a space sub-specialisation as part of a new AOSG unit. This arrangement would provide long-term viability of the capability by offering a secondary space career development stream and the opportunity to supplement some space specialist positions with appropriately trained APS personnel.

Squadron Leader Lyle Holt joined the Royal Australian Naval College, HMAS Creswell, as a Direct Entry Midshipman in 1990. Undertaking pilot then seaman officer training, he later graduated as an Observer in 1994 and qualified on Sea King helicopters. Squadron Leader Holt joined the RAAF and completed the F-111 Operational Conversion Course in 1997 before completing the RAF’s Aerosystems Course in 2000. He then undertook F-111 Flight Test Navigator duties at the RAAF’s Aircraft Research and Development Unit, before posting to the Joint Electronic Warfare Operational Support Unit, RAAF Edinburgh in late 2002 on promotion to Squadron Leader. He earned his Masters of Science in Technology (Aerospace) degree from London’s Kingston University in 2003. He returned to 6 Squadron in 2005 as B Flight Commander and served as the TG633.4 A3/A5 in 2006, planning and managing Australian C-130 operations for Operations Catalyst and Slipper. Squadron Leader Holt completed the Australian Command and Staff Course in 2007 and is now serving as the Staff Officer to the Vice Chief of the Defence Force.
NOTES


10. ibid., p. 2A–1.


12. ibid., p. 3–9.

13. The JAOC could also be called a Combined Air Operations Centre (CAOC) within a coalition environment. By 2015, the UK MoD plans to deliver a National Air and Space Operational Centre (NASOC) to contribute to the continued integrity of the UK airspace, managing UK air assets, and coordinating force development training. Importantly, it will also provide an operational focus for space effects.

14. The Canadian Forces’ website links to both the Canadian Joint Doctrine and Canadian Air Force ‘Strategic Vectors’ doctrine series were inaccessible during the preparation of this article.

15. The Department of National Defence is the Canadian equivalent of Australia’s Department of Defence.


17. Information on the US integration of space effects comes from US Doctrine, specifically the Department of Defense, 2002, Joint Publication 3-14: Joint Doctrine for Space Operations, Pentagon,


22. Including Army and Navy ‘force elements’.
BIBLIOGRAPHY


The Standardisation Problem: Managing the Obstacles to Multilateral Standardisation and Interoperability in Networks

Lieutenant Colonel Ralph E. Giffin†, National Defence Headquarters, Canada and Dr Darryn J. Reid, DSTO

Introduction

In this article we will investigate adverse characteristics of network utilisation, the symptoms of which are already well known to many representatives of participating nations in multinational alliances. While we will use NATO here as the archetypal example, the discussion is by no means limited to this particular alliance. These adverse characteristics arise in the context of the problem of achieving and maintaining network-related standardisation or interoperability in a coalition context, which we will here call the standardisation problem. There is sufficient anecdotal evidence to support the conclusion that standardisation is already a very substantial problem. For example, it is widely acknowledged that NATO STANAGs¹ are far more frequently signed than implemented. In addition, at the most recent meeting of the NATO NNEC² Feasibility Study Steering Committee (NNEC SC), at least two national representatives expressed impatience with the snail’s pace of technical standards development within the alliance. Such experiences are likely to be all too familiar to those involved with similar projects operating under the banner of other alliances. But we submit that the many multilateral networking initiatives currently in action or being contemplated, such as the NNEC, intensify the importance of the standardisation problem significantly beyond the level currently appreciated by many senior planners. Quite simply, we can’t have networks without standards, and so we can’t have effective and efficient network-enabled capability without effective and efficient standardisation policies and procedures. We thus have before us one of the central challenges confronting future coalition operations.

The standardisation problem is not unique to NATO, or even to military coalitions. In fact, it is a pervasive problem in commercial settings, and has been the subject of considerable research and debate in microeconomics. The resulting economic literature provides a rich source of insight into the standardisation problem and its potential solutions in a military context. As we will discuss with reference to this body of work, there are good reasons why the effective coordination of standardisation and interoperability decisions is so elusive and challenging in an alliance context; what’s more, technological hurdles do not figure prominently among them. The more significant sources of difficulty are in the domain of national policy, capital budgeting and risk management. This is so because of the unique consequences of an economic phenomenon called network effects, which imply more significant and complex forms of standardisation-related risk than may generally be appreciated in military and defence research circles. But happily, economics also provides the basis for three mitigating strategies, all of which are applicable in the multinational coalition domain and one of which—arguably the most promising—appears not yet to have received the attention it deserves from decision makers.
makers. As we will see, this third option for solving the standardisation problem begins with the clear articulation of property rights. This might seem to be a curious proposition at first blush. But do we really imagine that we may achieve the lofty goal of fundamental military transformation by doing business as usual?3

Network effects

Let us begin by clarifying what is meant by network in the present context. In line with the consensus definition in the economic literature, we mean by network any standards-dependent medium of information exchange.4 Thus the Internet is a network by virtue of its dependence on specific formal protocols. But likewise tape recorders, video machines and computer operating systems are forms of networks, as are dispersed computer applications. This is so because they too require common or at least formally compatible standards to exchange information.5 Without introducing an intermediary device that is itself standards-dependent and inevitably cumbersome, for example, we cannot run an eight-track tape on a cassette player, a VHS tape on a Beta player, or Macintosh software on a Linux operating system. Note how this definition of network situates the military importance of standardisation and interoperability. Standards are the defining characteristic of networks in the sense relevant here: we can have networks only to the extent that our standards are shared or at least interoperable. It is for this reason that we speak of network-enabling standardisation and interoperability, and consider this challenge to be among the most important confronting multilateral network-enabled initiatives hoping to achieve network-related coalition objectives.

So, what is the economic significance of networks? From an economic perspective networks exhibit a number of important characteristics, which find their origins in a phenomenon called network effects.6 A popular construct called Metcalfe’s Law, is as good a way as any to introduce this phenomenon.7

At root, Metcalfe’s Law is a simple mathematical equation by which we may calculate the number of potential distinct two-way interactions on a network with a given number of nodes: a function that is dominated by a factor of the square of the number of users of the network, or \( n^2 \). Its economic significance springs first from the fact that it provides a measure of the utility of a network as a basis for conducting two-way transactions. Accordingly, Metcalfe’s Law is typically rendered as follows: “The value [i.e. utility] of a network increases with the square of the number of users of the network.8 In a world of economically rational—meaning utility-maximising—consumers, it implies that when presented with a choice between roughly equivalent networks, and where the total number of potential two-way transactions is their overriding consideration, they will choose the network that already has the most users.9 A corollary of this implication might be more appropriate in the present context: since we seek the greatest utility from our network-related assets, we should all embrace common or interoperable standards.

From the perspective of a multilateral coalition, the implications of network effects may at first appear to be straightforward and exclusively beneficial. After all, military forces seek the highest possible level of utility from their networks: the ability to exchange information to the broadest extent practicable and thereby to benefit from improved opportunities for
interaction and collaboration. This is the economic basis for the four tenets of NCW\(^1\) and a leading assumption of the increasingly popular doctrine of Effects-Based Operations (EBO).\(^2\) Insofar as this objective is concerned, the logic of network effects appears to urge ubiquitous standardisation amongst our various network-related systems, and to promise returns that grow perpetually with respect to network size. In addition, it appears to imply that our choice of network-related systems should be an easy one: of the various competing systems at our disposal within NATO we should simply choose the most heavily subscribed option and abandon its alternatives, and for emerging and future systems we should begin by agreeing quickly to common standards. But alas, the implications of network effects are neither so straightforward nor so exclusively beneficial. Among other things, as we will see next, the selection and implementation of network-enabling standards is a difficult and risk-laden proposition.

The pathology of the standardisation problem

What are the sources of risk implied by network effects, and how do they manifest themselves in a military alliance context? Taking our lead once again from the economic literature, we will describe the main factors hereunder.

The externality problem

The first, and arguably the most important consequence of network effects is the fact that it appears to imply a phenomenon that economists call an externality: a circumstance that upsets the traditional behaviour of efficient markets and which may lead to adverse social outcomes.\(^3\) There are two kinds of externalities—positive externalities and negative externalities—that may be operative in network-related contexts. The main characteristics of these two phenomena are as follows:

- Positive externalities exist when autonomous agents receive benefits for which some other agents pay without compensation. That this situation can arise in a network is implicit in our discussion of Metcalfe’s Law. For early adopters of a given network, the utility of their network-related goods and services—their fax machines and operating systems for example—increases at no cost to themselves as later consumers incur the expenses of joining that network. Moreover, this increase in utility is potentially quite impressive, scaling as it does with \(n^2\). For reasons we will not discuss at length here, positive externalities lead to precisely the kind of outcome that the multilateral networking initiatives would avidly seek to avoid; namely, the size of the network may become stuck at an equilibrium that is smaller than that which would be socially optimal.

- Negative externalities exist when autonomous agents incur uncompensated costs as a result of the actions of others. Once again this situation can arise in a network-related context, in ways that will be familiar to most readers. Consider, for example, a congestible network such as the Internet. As membership and use of the network increases, it may become congested; transmission and processing rates degrade—possibly even catastrophically—and thereby the search function becomes much less efficient. The utility of the network to early adopters may potentially diminish without compensation under these circumstances.
There is one vitally important qualification that is needed here: network externalities are a likely outcome only where the network in question is not owned or where ownership is ambiguous. Under such circumstances, no entity exists to capture the surplus benefit or manage the uncompensated costs that increasing network membership generates. Yet where a network is unambiguously owned, the owner may take measures to capture this benefit or seek compensation for harm, and the externality is eliminated.

For readers without a background in economics, the foregoing may represent something of a challenging introduction to network effects. However, the significance of network externality will become clearer in the next section, when we discuss a novel mitigating strategy for the standardisation problem called ‘internalisation’. For present purposes it is sufficient to note that the logic of network effects may potentially lead to outcomes that contradict the goals of multilateral networking initiatives, such as the NNEC, if not properly mitigated; namely, smaller or larger networks than the overarching alliance would otherwise prefer and benefits and costs that are not fairly allocated. In addition, we have uncovered a matter that has surprising bearing on multinational network-related aspirations: insofar as networks are concerned, and as we will explain more fully in the next section, ‘unambiguous ownership really matters’. Without anticipating the next section, the reader is invited for the moment to ponder the following question: who owns interoperability within NATO and who pays for the damage to interoperability when it is harmed by adverse national decisions?

The start-up problem

As described in the foregoing section, the defining feature of network effects is the fact that the utility of a network to an individual depends upon the decisions of others, and to some extent it correlates positively with network size. One consequence of this phenomenon is that networks are innately difficult to initiate. To understand why this is so, consider the position of an early adopter, confronted with a choice between alternative networks. If this early adopter chooses an alternative that does not subsequently achieve the highest participation rate, he or she is trapped on a network of low utility: for example, he or she risks being the proud owner of an eight-track tape player in a world dominated by cassette tapes. As we will see below, when we discuss the lock-in problem, the cost of any such miscue is especially high in the case of network-related goods and services. Thus, this phenomenon implies a high degree of risk for our early network-related choices.

The start-up problem is well known in the economic and business literature. It was, for example, the primary cause of the extraordinary pattern of business behaviour witnessed in the high-tech industry of the 1990s: the practice of ‘giving away’ network-related goods and services until so-called critical mass—a user base large enough to overcome the start-up risk in the eyes of mainstream customers—was achieved. The phenomenon also caused amongst potential customers a pattern of behaviour known as aggressive waiting: loosely, the practice of providing enthusiastic moral support for the creation of a desired network, while withholding the decision to invest until others shouldered the start-up risk. Finally, it appears that this problem is well known to the US Department of Defense. Insofar as the recent initiative to create a new IPv6 standard is concerned, for example, we have anecdotal evidence that the US Department of Defense deliberately and consciously bore the start-up risk in order to provide the critical mass that was required to establish the standard.
How does the start-up problem apply to a multinational alliance? In our view the answer to this question originates from the fact that our ability to start networks is constrained under circumstances where the future behaviour of other actors is not fully known or is beyond our capacity to control. For example, this situation prevails within NATO because its members fundamentally retain a substantial degree of national autonomy and are therefore not compelled to implement NATO standardisation agreements. Thus NATO, as a whole, will and indeed already does experience a significant start-up problem: delays in standards adoption and aggressive waiting as individual members hope that others will bear the brunt of the start-up risk. Yet this situation is far less prevalent within individual military forces, including those of the NATO alliance. Within national boundaries, component agencies are generally subject to a much higher degree of central control and thus face much less uncertainty concerning future standards-related choices. Under these circumstances, the start-up problem is less problematic: for better or worse, subordinate organisations can simply be compelled to adopt a given standard. Thus we predict that without appropriate mitigation, network-enabling standards will tend to emerge in separate national contexts within a multinational alliance, and that as a result there will always be a diversity of standards and that the alliance will be forced to play an unending game of catch-up insofar as standardisation and interoperability are concerned. In other words, conditions favour the continuing emergence over time of diverse and incompatible national networks within an alliance that does not take action to offset the adverse consequences of network effects, more so than they favour the emergence of one common standardised international set of networks from within the alliance’s collective environment. This represents a perpetual integration nightmare and an unending challenge to coalition network-related aspirations. If we wish to be ‘network-enabled’ or ‘network-centric’, this is an outcome we should certainly avoid. We must find a way to overcome the uncertainty that generates the start-up problem if we truly wish to maximise the benefit of networks.

The monopoly problem

A further potentially adverse characteristic of network effects is that markets in network-related goods and services appear to have a strong tendency towards tipping quickly into monopoly status. Indeed, it is precisely this problematic characteristic of networks that has animated, for example, the high profile anti-trust actions against Microsoft® in both the United States and Europe in recent years. As monopoly behaviour is yet another instance of an externality that can cause adverse social outcomes, members of a multinational alliance must be sensitive to its implications.

In order to understand this adverse consequence of network effects, let us consider a scenario that may sound familiar to the reader. Assume that we are in the early days of the information age and that insofar as operating systems (OS) are concerned there are five incompatible options of roughly equal capability: OS A, B, C, D and E. Next let us assume that our ability to share information with other computer users is an issue of overriding significance to us. Finally, let us assume that many people do not yet own a computer but that of those who do, 24 per cent employ OS A, and the remainder of the market is split equally between the other options (i.e. 19 per cent each): a slender lead for OS A, but a lead nonetheless. Within the parameters of this illustration, and according to the logic of network effects, future consumers will tend to prefer OS A. This is so because it is the more highly subscribed standard, and thus has higher utility as a basis for satisfying an important criterion; namely, exchanging information. Moreover,
since Metcalfe’s Law scales with \( n^2 \), its utility advantage will increase over its competitors at a polynomial rate as each new consumer makes his or her rational, utility-maximising choice. The small difference in market share is quickly magnified. Notice what happens next. Before long the other operating systems are left in the competitive dust, eliminated from the market or reduced to niche status as the competitive advantage of OS A accelerates at roughly \( n^2 \). This is why markets in network-related goods and services tip quickly to monopoly status. Consumers and potential new competitors are now exposed to all of the adverse consequences that are part and parcel of this unfortunate economic outcome.

How might this characteristic of network effects manifest itself within a multinational alliance setting and what are its adverse implications? Without implying any condemnation, we must acknowledge that many alliances have a single dominant member. The dominant member of NATO, for instance, is one that already has a substantial lead in terms of network design and implementation. In short, within NATO, the race to critical mass for competing standards has arguably already been won, and the future winner in this sense is likewise essentially already decided. By the logic of Metcalfe’s Law, the dominant partner’s standards-related choices will drown out the preferences of other members and implicitly if not also explicitly place considerable pressure on them to align with its choices: IPv6 is but one case in point. The dominant partner in a multilateral alliance will become that alliance’s Microsoft®.

In light of this, there is an important distinction to be made between monopoly and monopolistic behaviour. From an economic and policy perspective, monopoly status is, in itself, not necessarily a detrimental thing. To our knowledge, for example, all of the governments of Western nations allow monopoly institutions to exist on the simple grounds that they are sometimes deemed to be the socially optimal choice. In a military sense, the NATO community likewise gains many benefits from the aggressive network-related behaviour of its dominant partner. It has, for example, assumed the start-up risk, and broken trail for the ongoing NNEC initiative. It has generally adopted a relatively open and inclusive approach to network-related research and development, and its ‘volume buying’ provides other members of many of the various alliances in which it participates with the opportunity to benefit substantially from economies of scale. Moreover, it has attached to its own networks a range of impressive military applications and has demonstrated willingness to use them in defence of shared interests. Insofar as networks are concerned, it is fair to say that all of NATO’s members, for example, gain important benefits from their association with the dominant partner: monopolist or not.

But whereas monopoly status is not necessarily a bad thing, monopoly behaviour definitely is. Once again without delving too deeply into the underlying economics, monopolies in business tend to behave differently from normal firms. In short, they tend to produce less and thereby to charge more for their goods and services than the socially desirable level. The resulting gap between the socially desirable level of production and the level provided by the monopolist is called rent or deadweight social loss. In a multinational context, we delicately suggest that this creates the potential for two adverse network-related phenomena, assuming once again that the ownership of the relevant standards of information exchange, or indeed of the networks themselves, is ambiguous:

- Recall that a negative externality exists when some actors incur uncompensated costs as the result of the actions of other actors. One manifestation of this problem within a
multinational alliance would thus be the practice, typically on the part of the dominant member, of making unilateral or arbitrary standards-related decisions. Under conditions where we seek to maintain standardisation and interoperability over time, any unilateral decision, especially on the part of the dominant member, to change standards damages interoperability and imposes traditionally uncompensated switching costs on the other members of the alliance. As we have mentioned already, and will discuss in more detail below, network-related switching costs are unusually high, and this problem is thus a matter of considerable practical significance.

- A second potential manifestation of network-related monopoly behaviour would arise if all members of an alliance did not uniformly benefit from network effects. Such would be the case, for example, if the full capability of our networks were only brought to bear in those circumstances that fully aligned with one partner’s interests (again, typically this would be the dominant partner). Simplistically speaking, the result would be that one partner gains the full benefit of the network in all circumstances of importance to it, whereas the other members gain only partial benefit or full benefit only some of the time.

We stress that there is no blame-laying implied in the foregoing. The problem at issue here is not one that is maliciously imposed on members of an alliance by any one of its members, or on other allies by external agencies to the particular alliance at issue. To the contrary, it is imposed on all of us, even the dominant partner, by the logic of network effects and the unique conditions of the alliance. It is in the interests of all alliance members—from the largest to the smallest—that it be understood and mitigated if we seek to gain the full collective benefit of network utilisation.

The lock-in problem

The next problem is one that we have alluded to twice in the preceding discussion. Without ascribing the error to those responsible, the typical characterisation of lock-in in the NCW literature is that of a highly beneficial consequence of network utilisation. Familiar phrases such as ‘locking in victory’ and ‘locking out the enemy’ reflect this assumption. But this is not a valid interpretation of this characteristic of networks. Lock-in is an adverse potential consequence of information and communication technology utilisation. A clarification is thus in order.

According to some economists and business theorists, standards-dependent goods have a special characteristic known as ‘high switching costs’. The source and nature of these costs will be all too familiar to those with a background in enterprise architecture or systems engineering. To illustrate the phenomenon, let us consider the example of a hypothetical decision support program. As most people will know, the cost of adopting such a program far exceeds the cost of the software itself, especially if it has not been specifically designed for the context in question. This is so, in part, because the program is but one layer in a complex architecture all of which must be well aligned. So-called ‘business architecture’, for example, matters: our organisational structure and processes must align with the logic of the program, and it thus matters whether the program in question was designed, say, for a headquarters having five staff branches or six. So, switching costs include all of the costs we encounter to change other layers of architecture as required when we adopt a new standard. Anyone
with experience in organisational change will immediately recognise that these costs can be exceedingly high.

The economic and military significance of switching costs are apparent when we consider any decision to move from one standards-dependent product to another. As we consider embracing a network-related product, our freedom to abandon it for another in the future will be a much more expensive proposition than is the case for other kinds of products. Thus, as we consider the merits of a network-related option, we must consider the risk of a subsequent need to switch networks. Our freedom to switch networks will be constrained by indirect costs that may be very high. This elaborates on why the start-up problem and the phenomenon of arbitrary unilateral standards-related choices are of particular importance in a multilateral standardisation context. Once again, we find adverse potential consequences of network utilisation that imply a need for mitigation in a network-enabled coalition.

The capital rationing problem

The final adverse characteristic of network utilisation that we will consider here does not relate directly to the phenomenon of network effects, but nonetheless represents an important challenge to achieving and maintaining network-enabling capability within a multilateral alliance such as NATO. The economic literature typically makes an important strong assumption that certainly does not apply in a military context—the extent to which it applies in commercial settings is debatable—with important consequences for an understanding of our network-related options. Specifically, the literature typically assumes the presence of an efficient market. In such an environment, actors have access to the capital markets. In other words, they may borrow the money they require for their capital investments at market rates. Moreover, there is, theoretically speaking, no limit to the amount of capital to which they have access. This has an important effect on an actor’s ability to pursue capital investment options. Provided that the investment promises a return that exceeds the cost of capital and other expenses, any number of investment options may be pursued. Because, in an efficient market, any option is assessed strictly on the basis of its potential to generate a positive return, that option can be considered in isolation from other options. Thus, insofar as network-related capital investments are concerned, life is very simple for commercial firms operating in an efficient market. They must answer only one question: Does the particular investment under consideration yield a net positive return?15 If the answer is yes, they are free to proceed.

But military organisations do not have access to the capital markets. Instead, they operate under a condition known as capital rationing: they have a finite pool of capital with which to satisfy all of their investment and operating needs, typically established by their defence budgets.16 Moreover, the implications of capital rationing apply to all members of a military alliance, including the most generously funded. The influence of capital rationing fundamentally alters the calculus of capital budgeting. In contrast to our commercial cousins, we are not free to pursue any and all investments that have sufficiently high potential to yield a positive return. Likewise, we are not free to consider individual investment options in isolation from other demands. Instead, we must consider all of our options together and in relation to one another, and of those we may pursue only the limited package of investment options that together yield the highest return within available capital.
The problem of capital rationing represents an important challenge to synchronising network-related standardisation and interoperability efforts within an alliance such as NATO. This is so because at any one point in time, the individual members of an alliance typically confront diverse and important demands on their constrained budgets; network-related goods and services are but one of these demands. Our forces must be paid, clothed, housed, trained and fed. Our weapons systems must be operated, re-capitalised and replaced. Our activities must be funded. The demands on the individual capital rations within NATO, for instance, are never synchronised. As a result, even when all members agree that a network-related investment yields a high positive return, the time may not necessarily be right for all members to make the investment in question. As a result, the networks in operation at any one point in time within an alliance will tend to be perpetually out of synchronisation. We have uncovered, yet again, an important challenge to multilateral network enabling and standardisation initiatives that requires mitigation if we are to reap anything like the maximum benefits that networks have to offer.

Summary

We have discussed how the process of standardisation, so essential to multilateral networking initiatives, is far from a straightforward and exclusively beneficial or benign proposition. By their very nature, network effects appear to imply an externality: by definition, network effects represent phenomenon with the innate potential to create adverse outcomes and thereby to impose friction on our standardisation process. Likewise, the fact that the value of our choices depends on the choices of others creates a start-up problem. Beyond this, the monopoly problem, lock-in due to high switching costs and the problem of capital rationing further complicate the objective of standardisation. Quite simply, such standardisation is central to any multilateral networking effort and thus to any kind of initiative that is dependent on such networking. Moreover, it seems clear that the obstacles and adverse consequences of network utilisation will increase in significance as networks come to play an increasingly important role within coalition operations. And yet we cannot surrender to these substantial challenges. The intuitive benefits of networking are too significant to forego without a fight: effective mitigation is thus an urgent requirement.

Mitigating strategies

What is the objective of multilateral networking initiatives, and what would be the characteristics of a successful strategy for achieving that objective? Insofar as the nature of such an objective is concerned, it is essential to make a distinction between standardisation and interoperability: one that is widely acknowledged but because of its significance in this discussion requires deliberate articulation. By standardisation, we mean the adoption of identical standards. By interoperability we mean the ability of systems to work together either because they are based on identical standards or because some intermediate translator—sometimes called a ‘black box’ or ‘gateway’—enables compatibility. Note the implications of this distinction for multilateral networking initiatives: within an alliance, and within the context of any multilateral networking program of an alliance, we seek to work together. In other words, our real objective is interoperability. Standardisation, on the other hand, is merely one of two means to this end: one that is, as we saw in the previous section, fraught with obstacles and adverse unintended
consequences. So here we have the first part of an answer to the standardisation problem: it is not standardisation per se that we seek. Instead, we seek interoperability, and standardisation is just a problematic means to this end.\textsuperscript{17}

Given that our objective is interoperability, and not necessarily standardisation, what are the characteristics of a successful strategy? We suggest that any viable option must satisfy at least the following basic demands:

- It must respect the principle of fundamental national autonomy to the greatest extent possible. By definition, alliances involve a degree of voluntary subordination of national autonomy, but any strategy that ignores this principle, or naively proposes that we supplant the national right to choose is not worth considering.
- It must be fair. It should represent an equitable distribution of costs and benefits and protect members from harm to interoperability due to arbitrary standards-related choices by others. For example, neither NATO as a whole, nor its individual members should be forced to pay for the standards-related choices of others, either in the form of lost interoperability or in the form of direct costs related to re-establishing interoperability.
- It must be effective and efficient in delivering and maintaining interoperability within the alliance.\textsuperscript{18} We need an option that achieves our objective at reasonable cost.
- It must be organic. In other words, we are interested in creating a regime that is agile and flexible: one in which standards can change over time as technology advances and national preferences evolve.
- Perhaps most importantly, for any standardisation strategy to succeed, it must address the underlying causes of the standardisation problem that we discussed in the preceding section.

So, we are considering here a difficult objective and an energetic set of expectations. In all likelihood, especially given the complex nature of the international environment of a multinational alliance—NATO being an excellent case in point—no strategy will likely deliver everything we seek. But how can we make the best of the circumstances that confront us? Once again adopting the perspective of economics, we will explore three potential mitigating strategies hereunder. Two of these strategies—which we call \textit{Voluntary Goodwill} and \textit{Regulation}—are already well known and widely used. As a result, our discussion of these options will be kept relatively brief. The third strategy, however, is likely to be unfamiliar to some readers and to involve economic concepts to which they may not have been previously exposed.\textsuperscript{19} We call this option \textit{Internalisation}, following the lead of the economic literature, and deem it to represent the most effective strategy open to many multilateral networking initiatives, albeit one that is not without its own set of challenges. Our discussion of this option will necessarily be more involved.

\textbf{Option 1: Voluntary Goodwill}

As we discussed in the preceding section, network effects do not necessarily lead to adverse externalities, and the existence of monopolies does not necessarily lead to socially adverse
outcomes. What matters more is the behaviour of those involved. This situation indicates the application of the first mitigating strategy; specifically, that the members of an alliance pursuing a cooperative networked capability, collectively commit to avoiding any network-related behaviour that imposes uncompensated harm on other members of the alliance. In short, our first option is to rely on the voluntary goodwill of all involved.

There is good evidence already available to support this option as a viable policy choice, at least in part. We submit that the US Department of Defense, for example, has demonstrated a high level of sensitivity to the needs of the international community and aggressively seeks international participation in the area of technology standards. In the instance of their independent decision to move to an IPv6 Internet standard, for example, they have voluntarily undertaken to ensure continuing compatibility with IPv4 and to allow partner nations to participate in their development efforts, wherein all partners will benefit from economies of scale. Thus all that it would take to implement this option is some formalisation of an already existing pattern of voluntary goodwill.

The primary disadvantage of this option, however, is that any such commitment on the part of those involved is, in the end, non-binding and unenforceable. Moreover, in the absence of formal agreements and mechanisms to manage decision making, national agendas and even innocent oversights may easily supplant goodwill. One of the authors of this article once had a professor who put problems such as this in an indelicate but straightforward way: ‘Friends are friends and family is family; but business is business.’ We gain nothing by ignoring the fact that even among the close and generally like-minded members of an alliance like NATO, important network-related differences may emerge at the margins. As we have discussed, such differences can rapidly magnify. For instance: while the US Government provided a generous advantage to all involved when it made GPS capability publicly available, it nonetheless retained for itself the exclusive ability to close the system down. It is likewise true that whereas the US Department of Defense is pursuing an inclusive approach to the adoption of IPv6, this and related decisions (e.g. the decision to move quickly to abandon the Link 16 standard), were made without consultation and are imposing uncompensated costs on friends and allies. The conclusion is unavoidable that for a junior member of a network, sole reliance on voluntary goodwill is simply a high-risk alternative.20

On balance, we strongly recommend against this option. It is certainly an easy option to execute, and there are indeed grounds to suggest that it sometimes represents a sufficient strategy, usually in retrospect. But its principle disadvantage is that it fails when we need it most; namely, when the normally close and cooperative members of an alliance such as NATO encounter a network-related disagreement, perhaps at the margin. It is under such circumstances that voluntary goodwill stands the greatest chance of perishing, with the potential for ongoing repercussions at least in terms of a loss of trust. Indeed, we will state our objection to this option in even stronger terms: the voluntary goodwill option will be preferred most by those who wish to ignore the standardisation problem and to have no real mitigation whatsoever.

**Option 2: Regulation**

The typical strategy employed by liberal democracies to guard against the adverse implications of externalities is through a regulatory regime. This regime operates either by blocking the
emergence of the externality (e.g. by preventing the development of a monopoly), or by regulating the behaviour of existing monopolies. Likewise, this strategy is the traditional approach within some alliances21 insofar as standardisation and interoperability have been concerned, as its members typically attempt to regulate standards development and network implementation through a bureaucratic consensus-forming process. This is a very weak form of regulation, but regulation nonetheless. Under this strategy member nations cede a degree of control over standards-related decisions to the central coordinating authority of the alliance itself. For example, member nations of NATO would bring proposals or requests related to standards to NATO for consideration and after due deliberation, NATO would—eventually—issue agreed direction or guidance concerning standards. A more radical version of this strategy would be for member nations to cede to the alliance full responsibility for standards development, along with all of the necessary resources, and individual national interests would be protected through the normal checks and balances of the alliance charter.

The advantage of a regulatory regime is that it lends structure and impetus to the management of adverse network effects. Moreover, alliances such as NATO have procedures in place to manage collective and individual interests. But there are two primary disadvantages to this approach:

- It is unlikely that any member nation would surrender its fundamental autonomy in this domain to any greater extent than is already the case under the existing terms of the alliance. This is so, both as a matter of principle and for pragmatic reasons. As one instance of the latter we offer the unsubstantiated rumour that NATO’s decision-making agility leaves something to be desired. Few nations would agree to have their independent authority in such an important area as information and communication technology subordinated to an outside agency, let alone one that is proceeding at a rate and potentially in a direction that those nations might deem to be inappropriate. In effect, this option simply creates a different kind of monopolist to which no member would agree to be fully and effectively subordinated.

- From the point of view of liberal economics, regulation and market intervention are always a ‘second best’ option. Liberal economics argues that the price mechanism is the most efficient means at our disposal for ensuring the greatest good and for autonomously determining the rational distribution of goods and services in an economy.22 From the point of view of economic theory, backed up by considerable practical experience, intervention and the subversion of the price mechanism by regulation only ensure an outcome acceptable to nobody.23

From the foregoing, sole reliance on some degree of extra-national regulation, even if achievable in principle, would appear to be an option of last resort. At any rate, if taken to some new and unlikely level of centralised authority, it ends up simply changing the identity of the monopolist. This option is already in place within the NATO alliance to the greatest extent pragmatically achievable; after all, it is the bureaucrat’s default preference. Its disadvantages are already there for all to see. We should prefer this option only if no better options exist. And we submit that a better option indeed does exist...
Option 3: Internalisation

The mitigating strategy to be presented here originates in the work of a 20th century economist named Ronald Coase. It derives from a proposition called Coase’s Theorem, which was one of two important and enduring contributions to liberal economic theory that eventually won him the Nobel Prize. Those who are unfamiliar with economics need not cringe in anticipation of a complex discussion: by the standards of the ‘dismal science’, Coase’s work is especially notable for its clarity.

In order to understand the mechanics of this economic concept, we will use a common illustration involving pollution. As the illustration typically goes, pollution is a form of externality wherever the polluter gains the advantage of polluting at no cost to himself, or conversely, wherever those who are harmed by a polluter receive no compensation for that harm. Under these circumstances, polluters are getting something for nothing, and thus are encouraged to continue polluting unless some countervailing force introduces limits. As a consequence, if left to its own logic, we would expect pollution to quickly get out of hand.

The typical governmental reaction to the problem of pollution is market intervention and regulation. As we have already seen, however, liberal economics provides a basis for discounting this approach: attempts to replace the normal operation of complex and intricate market forces through bureaucratic control often result in outcomes that satisfy nobody. Coase’s enduring contribution was to define a better and more effective role for government in the elimination of externalities. In short he showed that arguably the most important role for government was to create a clear articulation of property rights, which in turn created the basis for elimination or at least mitigation of the externalities through a market-driven process known as ‘internalisation’.

How does Coase’s insight work in practice? Returning to the foregoing example, consider the effect of a given property right. Let us assume, for example, that the farmers living downwind from a polluting factory have a government articulated right to compensation for the adverse effects of pollution. These farmers and their descendents are thus in a position to demand compensation from the polluter, either through direct negotiations with the polluter, or through recourse to the courts. The effect of this approach is to internalise the externality, by which is meant roughly, bringing the phenomenon at issue back under the influence of normal market forces and the price mechanism. In short, the externality disappears if the polluter is compelled to reimburse those affected by the pollution. Note how pollution, which previously had no cost for the polluter, now has a price. And note how those affected by the pollution, and who previously had to bear its complete costs without compensation, are entitled to relief that is policed by traditional market forces rather than overt regulation. Accordingly, pollution is back under the normal influence of the price mechanism and is subject to a countervailing force that will constrain the adverse practice to an equilibrium level balancing cost with benefit. Instead of runaway pollution, we will have ‘economically efficient’ levels of pollution. The externality is eliminated.

Now let us consider an alliance setting. Within NATO, for instance, interoperability has always been an important matter; indeed, given its definition of interoperability as an ability to work together, it is a fundamental characteristic of any other alliance as well. Moreover, as we have
discussed, it is a defining feature of networking programs such as the NATO NNEC initiative: by definition, we cannot have networks without standardisation. Finally, it is intuitively true that the capability of an alliance—its effectiveness and efficiency—depends in large measure on the breadth and depth of the ability of its members to interoperate. It therefore stands to reason that an alliance should seek to create and maintain interoperability and that any action by any member that adversely affects interoperability constitutes a form of harm to the alliance as a whole. Arbitrary changes to standards by any member, or the arbitrary failure to adopt agreed standards by any member are two forms of harm to the alliance wherever they reduce or impede coalition interoperability. Moreover, such actions impose costs on others: either indirect costs in the form of lost collective effectiveness or direct costs in the form of measures that others must take to re-establish interoperability. We have here, then, precisely the kind of situation that Coase’s Theorem was created to address.

How does Coase’s insight provide the basis for an interoperability strategy in a multinational alliance setting? The broad option has a large number of potential variations, but for the sake of brevity we will focus here on our preferred strategy, the components of which are as follow:

- This strategy begins with the clear articulation of property rights. In other words, we must consciously and formally provide an answer to the following question: insofar as standardisation and interoperability are concerned, who has a right to what? Recalling the distinction between standardisation and interoperability discussed earlier, we offer the following:

  – As we have seen in the foregoing section, standardisation is not exclusively beneficial or benign. Accordingly, we believe that it would be naive to require, and imprudent to submit to any surrender of standards-related authority on the part of individual nations. In other words, the right to select standards for information exchange within national domains is a national right. It is up to the national authorities to decide what standards they use within national boundaries, and whether they will participate in international standardisation efforts with others.

  – On the other hand, interoperability is a defining characteristic of alliances in general, and an absolute prerequisite for any multilateral networking program. The most logical and efficient approach is therefore this: the right to multinational interoperability belongs to the alliance. By this we mean that NATO, for instance, should own the standards for information exchange between its member nations, the associated doctrine for coalition operations, and the standards for constructing black boxes to connect between national systems using those international standards and doctrine.28

- Having clarified property rights, we have likewise defined harm and established the basis for the compensation for harm in an intuitively fair way. Member nations are free to make any standards-related choices they wish, without reference to any other parties. If they wish to adopt the standards of others they may do so. If they wish to chart their own course, they are likewise free to do so. They are even free to make choices that damage the interoperability of the alliance. But whatever choices they make they must compensate the alliance as a whole for any harm to collective interoperability.
This compensation, moreover, might be in the form of the ‘black boxes’, gateways and tools necessary to maintain interoperability with the other coalition systems within the alliance. The nation or nations in question would provide these enablers directly to the alliance at their own expense, or would fund their central development by the alliance through direct transfers.

- Finally, it should come as no surprise that the quest for network-enabling interoperability would not be without costs to any alliance: capability improvement is seldom, if ever, achieved without a price. If we are serious about networks, we must be serious about interoperability. It must be planned, organised, directed and controlled, and we should anticipate the requirement to modernise our traditional structures and procedures accordingly. As a minimum this strategy will likely require organisational changes, process innovation and the reallocation or increase of resources. The specifics of such reforms should be viewed as an important deliverable of the scoping phase of any networking initiative.²⁹

We submit that the internalisation strategy is the best of the options at our disposal for solving the standardisation problem. It addresses the underlying causes of the standardisation problem more effectively than its alternatives. Moreover, it seems to satisfy the other characteristics of a successful strategy that we enumerated at the outset of this section. It is intuitively fair and reasonable, striking a balance between the preservation of national autonomy and collective requirements of an alliance and its subordinate networking initiatives. Moreover, it places the burden of the costs of maintaining interoperability precisely where it reasonably belongs; namely, on those who harm interoperability. Finally, it leaves room for technological progress and the extension and growth of networks, for it does not tie the hands of innovation in the bindings of laboured international bureaucracy.

The internalisation strategy is not without disadvantages, however. In particular, we face a start-up problem at the outset: one that will require firm political will to overcome. Yet once the ‘start-state’ interoperability architecture is created, the start-up problem is mitigated by the internalisation approach. Next, it is true that in technological terms, interoperability through gateways is typically technically more difficult and thus less efficient than interoperability based on universal standards. But pragmatically speaking, and as we have discussed at length, universal standardisation seems neither achievable nor desirable. Finally, there is no guarantee that political will to provide compensation for harm to interoperability will always be present; yet this is a fundamental consequence of any international order based on autonomous national authority, and for which no acceptable solution really exists. It is thus a reality that will afflict all mitigating strategies.

So, we propose that the weight of argument supports an internalisation strategy as the best available basis for securing network-enabled capability within a multinational alliance.

**Conclusion**

When we define networks as standards-dependent media for information exchange, we are alerted to one of the most important potential obstacles to any set of multilateral network-
related aspirations. We will have networks only to the extent that we have common or compatible standards and so in an important way the effectiveness and efficiency of our networks will be dictated by the effectiveness and efficiency of our standardisation policies and procedures: a state which, given the historical performance of NATO and other alliances in this regard, we have yet to attain. When we look at the implications of standardisation beyond a superficial level, we find no lack of reasons to rein in uncritical and unqualified zeal. There are important obstacles in the way and significant potential adverse outcomes that must be acknowledged and actively mitigated. While the reader may object to our analysis and recommendations, in one important respect we cannot imagine ingenuous disagreement: there is a standardisation problem, and we must find a way to mitigate it as a precondition to the success of any multilateral networked-capability initiative.

† Publication is posthumous for this author. Any enquiries should be directed instead to the second author.

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NOTES

1. STANAG is Standardisation Agreement.

2. NNEC is NATO Network Enabled Capability.

3. It should be noted here that the present article coincidentally undermines the more exuberant claims concerning the status of such networks as the driver of a fundamental transformation of military affairs. Indeed, the present authors have investigated this subject specifically elsewhere. See for example:


4. It has been argued that this definition is too broad and incorporates so vast a range of diverse interactions as to defy status as a useful generalisation. We thus attach an additional qualification to the definition. Networks are distinguishable from one another in part on the basis of their formality; namely, the extent to which they disallow ambiguity, inconsistency and error. The networks of interest to us are highly intolerant in these respects, and this is one of the features that cause them to exhibit common characteristics known as network effects.

5. Note that our definition includes digital communication networks, but it is by no means restricted to digital networks. The discussion that follows is intended to encompass any standards-based means of communicating information, including human social interactions, for example. Human languages are, after all, powerful and incredibly complex standards for information exchange.

6. In many contexts in economics it is important to make a distinction between direct and indirect network effects. In the interest of brevity we will set this distinction aside. Our focus in the present context is on direct network effects, which pertains to the kinds of networks generally at issue here.

7. See for example:


8. Metcalfe’s Law is simply the number of links between pairs of nodes in a fully connected graph.
A fully connected graph containing $n$ nodes has $\frac{1}{2} (n^2 - n)$ such links. For most purposes, we are interested in the overall shape of the curve, or more precisely, its asymptotic behaviour. As $n$ increases, the function is dominated by the $n^2$ term. Technically, the number of links in the fully connected graph is a function that is a member of the set of functions $\text{O}(n^2)$, meaning that it is asymptotically tightly bounded by $n^2$. For more information, see any introductory text on algorithm analysis, for example Chapter 2 of T.H. Cormen, C.E. Leiserson and R.L. Rivest, *Introduction to Algorithms*, McGraw-Hill, 1986.

9. In the NCW literature there is a clear mischaracterisation of Metcalfe’s Law. Metcalfe’s Law does not describe the gain or benefit that accrues from networking. Instead, it describes the value or utility of the goods and services necessary to participate on a network.

10. In the NCW literature, and amongst pop–business theorists of the late 1990s, Metcalfe’s Law is characterised as the bearer of exclusively happy tidings. This same enthusiasm is not shared in the more sophisticated economic literature, and the simple mathematical relationship of Metcalfe’s Law is not accepted as an exclusive and self–contained basis for studying the phenomenon of network effects. For present purposes and to constrain the discussion we will simply state the more limited description of network effects that prevails in that literature; the phrase denotes the fact that insofar as network–related goods and services are concerned, utility for any one member of a given network is determined at least in part by the actions of others and within certain important constraints tends to correlate positively with network size. For example, the utility of a fax machine to one person depends in part on how many other people decide to own and operate fax machines and will increase, up to a point, as others choose to purchase and operate fax machines. The treatment of Metcalfe’s Law in the NCW literature is problematic in crucial ways, and should not be accepted non–critically.

11. op. cit. See also:


12. See for example:


13. Within the economic literature there is considerable controversy concerning whether network effects necessarily imply externality, or even whether there has ever been an actual instance of network–related externality and its purported consequences. The body of work we most admire in this area is that of Stanley J. Liebowitz and Stephen E. Margolis who, perhaps ironically given our position in this article, argue that the circumstances under which network externality can arise are theoretically slender and historically tenuous. However, their analysis assumes completely efficient markets containing only economically rational actors, and they allow that we may observe the consequences of externality under circumstances where these conditions are not met. We believe that the community of participants in an international alliance distinctly falls into the latter set.
Briefly, this is so in part because of the absence of ongoing market safeguards on decision making, the existence of a dominant actor, economically non–rational behaviour such as a preference for nationally developed systems, and perhaps most importantly because of the influence of a misleading theory—the NCW thesis—which among other things causes its proponents to greatly miscalculate the costs and benefits of networks. Professor Liebowitz generously provides much of this work online at: <http://www.utdallas.edu/~liebowit/>. Published works of relevance to the subject at hand here include:


14. Anecdotal evidence would suggest that historically the most common outcome has been smaller networks than would have been preferred. A potential consequence of NCW and similar ideas that share the same kind of mischaracterisation about the benefits of networking could be the realisation of much larger networks than needed, representing enormous unnecessary cost.

15. In practice firms voluntarily limit their investment options, in part through such means as hurdle rates, which dictate how high the return on an investment must be before it is entertained. But this and other such practices are voluntary choices and do not undermine our point here.

16. The usual problems of budget overruns are left aside for the purposes of our discussion. Such occurrences are not a source of capital for investment akin to that provided by capital markets.

17. It is widely recognised that gateway development is non-trivial; the reasons for this and the technical means of addressing this problem is not the subject of this discussion. Our focus is on the fact that standardisation is not, as it turns out, anything like the simple trouble–free alternative path to interoperability that it is commonly imagined to be.

18. It may be useful to acknowledge at this point that the standardisation problem is, for most individual members, bigger than just the alliance in question. This is so because the recent pattern of cooperative international military action has involved coalitions that are significantly broader than membership in any one alliance. Moreover, since such broad involvement is in the clear political interest of those involved, this pattern of behaviour is likely to continue. This begs a question: how do we solve the standardisation problem beyond the scope of just one alliance? We do not address this broader interoperability challenge hereunder, for it involves unique considerations that would require a separate article to address. But briefly, we believe that the third option presented hereunder—Internalisation—can serve as a model for broader contexts of military cooperation.

19. Elements of this strategy are not without precedent. For example, and as will be seen, a hint of this strategy is manifest in the MIP C2IEDM initiative.

20. This option ultimately fails to address the underlying economic causes of the standardisation problem. For example, if the international standardisation environment is based on universal good will, leadership in standardisation will be informal and ownership of interoperability will be ambiguous. No body will exist to capture the surplus benefit or distribute the surplus costs, and the externality will continue.

21. The NATO alliance being perhaps the strongest case in point.
22. It is important to separate the theory of the pricing mechanism of markets from the way in which it is sometimes used as rhetorical cover for doing precisely the opposite: namely the subversion of the pricing mechanism to create an externality, in terms of unfair private advantage or socialised cost.

23. Note that regulation in this context refers not to policing of the rules of the market to ensure that its actors play fairly, but to some level of centralised control over the individual actions of the market, which usurps the normal market forces and pricing mechanism.

24. Published works of relevance here include:


25. This is one context in which the principles of liberal economics are sometimes distorted: it should now be clear that our argument against regulation is not an argument in favour of allowing polluters to freely pollute, for instance. To the contrary, liberal economics implies that, in an efficient market, the polluter would be forced to bear the full cost of the harm the pollution causes, under the influence of normal market forces and the pricing mechanism.

26. In the following discussion of Coase’s Theorem, for the sake of brevity, we will not describe an important phenomenon known as transaction costs or, essentially, the costs of the price mechanism itself. As Coase himself showed, transaction costs can limit the effectiveness and influence the nature of internalisation strategies. But we have not ignored the phenomenon of transaction costs in the strategy we propose. Briefly, a consideration of this phenomenon was one of the factors that led us to assign the right to interoperability to the alliance.

27. There are those who might argue that zero pollution should be our goal, and that there is no such thing as an acceptable level of cost and benefit. But civilisation is impossible without altering our environment. The objection is thus baseless.

28. The construction of such black boxes is anything but trivial. While we believe that this is an important problem that is currently poorly addressed, it lies beyond the scope of the present discussion. Briefly, the issue lies squarely in the field of formal ontology, which concerns the specification of the abstract information structures, in this case underpinning the national system and the international standard. Formal ontology integration is about understanding the relationships between separate information structures, thereby enabling translation between them that guarantees desired properties.

29. For instance, in the NATO case, this would include the NNEC Feasibility Study. All multilateral networking initiatives will need to go through some analogous scoping process.
Operation *Trident*:
Points of Interest and Strategic Lessons

Lieutenant Michael Paes, RAN

On the night of 4 December 1971 a small group of Indian Naval vessels entered Pakistan’s territorial waters and attacked the Pakistani fleet in Karachi harbour. This operation was part of the wider 1971 Indo–Pakistan War that resulted in the creation of the state of Bangladesh. This article will discuss the politics, theory and discourse surrounding the attack on Karachi known as Operation *Trident*. This author will then propose the battle and the underlying strategy can be viewed through the lenses of classical theorists such as Corbett and Mahan, thereby giving legitimacy to the application of their theories to a more contemporary maritime environment. This article will then discuss how this operation was the embryonic step that gave India cause to move away from a purely continental military strategy and develop its sea power to be able to project its influence onto other coastal states.

The politics

*War is a mere continuation of policy by other means.*

C. von Clausewitz

The nature of the 1947 creation of India and Pakistan left a certain degree of animosity between each state. Much of this animosity was centred on the region of Kashmir. However, in 1970 a new front emerged in the east where East Pakistan existed as somewhat of an oblast to the western territory. East Pakistan, despite having a greater population than West Pakistan, was culturally subservient to the western capital. Speaking a different language and possessing a different alphabet, East Pakistani cultural identity became a rallying point for a nationalist movement leading up to the 1970s.

In an effort to quell separatist movements in the east, the Pakistani military engaged in vast crackdowns on the civilian population. This resulted in a large volume of refugees crossing the border into India. This issue became a destabilising matter for the surrounding Indian states. As a result, India was brought into the dispute between Islamabad and separatist movements in East Pakistan.

Authorities in Islamabad attempted to deter any Indian intervention by warning of total war. These warnings received little response with India continuing to assist the *Mukti Bahini*. On 3 December 1971 Pakistan was forced into a decision to make good on its threat. Several air strikes were carried out on western Indian Air Force bases. This was done with the view of opening up a western front to divert Indian attention away from the east. Anticipating this move India mitigated any loss from the air strikes and responded with air, land and sea operations in the east and west.
Geopolitically, Pakistan’s two territories were divided so that they could only carry out sea communications by traversing three thousand kilometres of Indian coastline, which came down like a pike between the divided Pakistan. In an effort to keep India away from East Pakistan, West Pakistan chose to create military fronts on land in Kashmir and the Punjab rather than strengthening the sea lines of communications (SLOCs) between its two territories. These land fronts were to act as deterrents to India in order to concentrate their forces in the west, thereby allowing the east to remain relatively free of military tension. This policy demonstrated sea blindness on Pakistan’s behalf, as the army-led government failed to recognise the maritime nature of the relationship between its two territories. If Pakistan had fostered the SLOCs between its territories and strengthened its navy from the time of partition, its political influence over the east could have been increased to India’s detriment. Instead a largely substandard Pakistani Navy based solely in Karachi gave India the opportunity to catch up to Pakistan’s sea power capability via military expansions that had commenced in 1965.6

As a state contiguous to India run by an army general, it is understandable why Pakistan neglected their navy. The topographical realities would have made it extremely difficult for Pakistan to be able to command the sea between its eastern and western territories whilst concurrently retaining the military capability to deal with hostile land borders. As an alternative, perhaps Pakistan could have kept command of the sea in dispute so that it at least possessed the capability to utilise the SLOCs to the east. Any analysis of the situation would have discovered that in 1971 India did not have the ability to command the sea in any event. Thus with appropriate naval capability it is arguable that the sea lanes could have remained traversable by both parties and furthermore, that an East Pakistani fleet could also have denied India the ability to use amphibious operations in its invasion of the east.

The international situation

Of course, in a war an ally is to be desired, all other things being equal.

Baron De Jomini The Art of War Art. IV

From an alliance perspective, ever since the partition of India and Pakistan, India had maintained an affinity with the United Kingdom (UK). Right up until 1965 India relied on the UK for much of its naval defence. It wasn’t until the experience of the 1965 war with Pakistan that political leaders realised the need for an independent military capability. Requests were made to purchase ships from the UK and the United States (US); however, these powers were reluctant to increase the level of cooperation in the China–Pakistan alliance inadvertently. Scared that supplying India could lead to an arms race on the sub-continent the UK and US declined India’s requests.7

The inevitable result was that India was courted by the Soviets.8 In doing this, the Soviets saw an opportunity to extend their influence into the Indian Ocean, as well as counter China’s influence on the Asian landmass, which had become a foreign policy concern for the Soviets after the Sino–Soviet split. Thus while China fuelled the needs of Pakistan, the Soviets supplied military hardware to India. This had an escalatory effect on the region bringing the US to a decision on choosing a side. Consequently Pakistan became a customer of the US in their
effort to counter the new Soviet influence on the sub-continent and to appease China with a view to gaining Chinese political assistance in relation to Vietnam.9

India and Pakistan were emboldened by these political alliances.10 This new-found confidence led to misjudgment on the Pakistani side which held the belief that its allies would come to Pakistan’s aid in the eventuality of war. As a result Pakistan commenced hostilities with an unrealistic expectation that it had international backing.11

India’s maritime strategy

In general, in battle one engages with the orthodox and gains victory through the unorthodox.

Sun Tzu

In preparation for the conflict India divided its maritime forces into three fronts. In the east, strategy involved offensive operations against the Pakistani military utilising air power via India’s only carrier the Vikrant. In the south, the strategy was limited to the protection of Indian shipping and acting as a barrier to any potential Pakistani ships that made it through the western fleet, whilst in the west, the FOCINWEST12 was tasked with the following objectives,

1. Destroy the Pakistani Fleet,
2. Protect merchant shipping,
3. Deny the enemy use of the sea, and
4. Render ineffective the SLOC between West and East Pakistan.13

What is interesting about the means that were adopted to achieve these objectives was how classical naval strategy was applied to a modern fighting force. Even though missile technology was utilised and submarine warfare remained a dominant part of Pakistani strategy, traditional principles such as fleet destruction and close blockade find expression in the Indian execution of the war.14 There is a bringing together of tactics reminiscent of famous destruction of fleets in harbour battles, such as by Nelson at the Nile,15 with the use of surface-to-surface long range missiles and attack without the enemy making visual contact.

Another modern factor was the influence of air power. The Indian task force was concerned with the probability of the Pakistan Air Force (PAF) responding to any attacks on Karachi. Lacking sufficient naval anti-aircraft capability, the planners of the operation deemed it necessary to have fast and mobile vessels that could move in and out of Karachi before the PAF could mobilise.

The Petya Class frigates and recently acquired Osa missile boats, an acquisition that was the result of the new Soviet alliance, were deemed to have the ideal speed for such an action. A squadron named K-25 under the command of Admiral Kohli was formed out of two Petyas16 and three Osas17 to execute Operation Trident. The operation was to be carried out under the cover of darkness and without the support of the Indian Air Force. This required creative
thinking on the part of Admiral Nanda who was in overall command of naval operations. The alliance with the Soviets plays a crucial role here as it is the acquisition of the Osas that makes his operation to achieve the aforementioned strategic objectives unique.

The Osas were designed for coastal sea denial roles. They did not have the ability to navigate over long distances and their relatively small size increased their vulnerability against more orthodox battleships. The idea of using them as long-range offensive power projection weapons demonstrates a use of such material not seen before. It was decided that to be able to project these boats into Karachi they would be towed to within 100 miles of the port thereby conserving their fuel and circumventing any need for replenishment. The boats would then travel at full speed into the harbour, destroy the Pakistani fleet and oil installations on the port and return before the PAF could retaliate.

What we see in Operation Trident is a Mahanian-style directive of the Indian Navy in seeking out the Pakistani fleet in Karachi to destroy it. Whilst this had an indirect effect on the eastern battlefield it was in conformity with Corbett’s caveat on fleet destruction being necessary only if it serves a higher purpose. In this case the ulterior motive was to ensure Indian command of the Arabian Sea in order to prevent harassment of merchant shipping to Bombay. In this operation we see the positive transfer of India’s military thinking in its learning from history and adjusting its maritime policy to avoid past mistakes.

As it turned out, Pakistan’s sea blindness and inability to learn from its past mistakes was its greatest folly. Given the army’s control of the war, naval action took third place behind land and air activities. Thus the defensive posture with the negative aspect of Pakistan’s Arabian Sea strategy meant that actually Operation Trident was largely a muscle flexing activity rather than a necessity.

In real terms Operation Trident did not achieve its objective. There is debate about whether K-25 did reach the port and attack the oil installations. Kohli suggests that the taskforce did attack the actual port, while commentators such as Donohue and Rao propose that K-25 did not destroy the support facilities in Karachi. Instead the latter suggest that K-25 sank two military and one merchant vessel before retreating out of fear that the Pakistani Air Force had been alerted to their presence. It is therefore a moot point as to how effective the operation was. It is also debatable whether or not it was Operation Trident and the consequent blockade of West Pakistan or Pakistani policy itself that confined the Pakistani Navy to within a 70 mile radius of Karachi. The Pakistani fleet did not have any vessels that could undertake the long voyage to East Pakistan. The Pakistanis had chosen to concentrate their offensive action on land. The navy thus had a passive role with no clear agenda for taking the offensive. This defensive posture of Pakistan totally defies the Clausewitzian principle of defence being a posture in which the military is setting up for the opportunity to strike the enemy should the enemy make a move. Rather the Karachi defence was an impotent attempt to keep Indian forces away from the port. Given that India had no territorial ambitions to take Karachi the confinement of the navy to the port was sufficient enough to ensure freedom of the seas for merchant shipping to and from Bombay as well as allowing India the chance to divert any merchants navigating to and from Karachi.

Pakistan’s failure to take any offensive action in the Arabian Sea was partly due to the refusal by the air force to provide cover for any such operations. This lack of inter-Service planning
and cooperation further added to Pakistan’s demise.\textsuperscript{30} As it happened Yayha Khan did not keep open communications with his naval forces resulting in the Pakistani Navy being unaware of the commencement of hostilities\textsuperscript{31} and being denied any up-to-date intelligence during the various battles.\textsuperscript{32} Conversely India had strong inter-Service planning with a Joint Chiefs of Staff committee dictating the grand strategy of the war.\textsuperscript{33}

The operational manoeuvres of \textit{Trident} relied heavily on deception and unorthodox tactics in order to achieve the objective of command of the Arabian Sea. This action demonstrates how despite possessing a defensive strategy in the west, there is a utility that unexpected offensive manoeuvres can play in any such military campaign.\textsuperscript{34} As previously mentioned, \textit{Trident} saw what would normally be the role of a battle fleet taken up by a handful of tactical missile boats. A strict Mahanian approach would have India using its most powerful ships to confront the Pakistani Navy in Karachi and destroy it. Instead India chose to send K-25 on a hit and run expedition, quite contrary to these vessels’ traditional role of coastal defence.\textsuperscript{35} Thus it was an action that Pakistan did not anticipate. Even when the missiles sank the Pakistani frigate \textit{Khaibur}, Pakistani officials thought that an Indian air raid had been launched and started firing anti-aircraft guns from the port. As a result the Petyas and Osas themselves were never attacked.

An understandable judgment by one of the commanding officers of K-25 believed the anti-aircraft fire to be an incoming Pakistani air strike. Consequently the \textit{Trident} taskforce quickly retreated without achieving their operational objective. Nevertheless commentators have suggested that the object of confining the Pakistani vessels to the port of Karachi was achieved in part due to the offensive action of Operation \textit{Trident}.

\textbf{The consequences of Pakistan’s sea blindness}

The only Indian vessel sunk during the entire conflict was the \textit{Khuri}.\textsuperscript{36} A few merchants en route to India required diversion but on the whole Indian shipping remained unscathed. This was in contrast with Pakistan whose maritime commerce had come to a complete halt.\textsuperscript{37}

West Pakistan had failed to recognise the maritime aspect to the war in East Pakistan. Islamabad had placed an unrealistic level of trust in their alliances with the US and China, and furthermore the navy was almost ostracised from any role in strategic planning for the war.\textsuperscript{38} This demonstrated the state of denial that West Pakistan was in regarding its ability to hold on to the east. On the international front the reality was that the US had already accepted the fact that East Pakistan was lost;\textsuperscript{39} the deployment of Task Group 74 was primarily to ensure the territorial integrity of West Pakistan and evacuate any US citizens from the east. They were not willing to act as intermediaries to aid in sustaining the SLOC from Karachi to Chittagong.

To West Pakistan’s detriment, their malevolent attitude towards East Pakistan meant that the secession of Bangladesh was inevitable. Despite the navy’s attempts to set up a naval base in Chittagong, at the commencement of hostilities in 1970, Pakistan had no naval defence capability in the Bay of Bengal.\textsuperscript{40} Additionally, without retaining the goodwill of the population, any attempt to retain affiliation with the state would have required excessive and disproportionate military force to counter the land and sea barrier that was the Indian landmass.
Consequently sea blindness and a focus on the western front of Kashmir ensured Bangladeshi independence. As a result India gained an inflated sense of self confidence from its naval efforts. The sense of pride demonstrated in the texts by Kohli, Roy and Palit provides evidence that the 1971 war was a major stepping stone in the flourishing of the Indian Navy.

**Strategic lessons**

The initial ethos of the planners for Operation *Trident* follows the Mahanian principle that through the destruction of the enemy’s fleet, one achieves all other objectives.\(^4\) However, *Trident*’s result was more in line with Corbett in that the ulterior motive of protecting Indian shipping, and preventing Pakistan from being able to use sea lanes was achieved without actually having to destroy the entire fleet. The operation also shows how sea power exerted political pressure on Pakistan even when the land operations were being carried out on the other side of the Deccan. The successful use of missiles in offensive action showed the Indian public the utility of a navy that can project its power against other states in an offensive manner. Consequently Indian naval power has steadily grown over the years, moving away from being merely a coastal defence force towards a capability allowing for littoral power projection as well as sea denial and command. Pakistan continues to have an army-dominated leadership, which has meant that Pakistani naval capability has largely remained that of a sea denial and coastal defence navy.

Operation *Trident* was an example of classical theory still demonstrating its legitimacy during the latter half of the 20th century. There is a synergy that reconciles developments in materiel to traditional naval strategy that arises from this operation. In the contemporaneous nuclear deterrent climate of the Cold War, *Trident* showed how minor powers engaged in limited war needed to be able to utilise sea power to meet their political objectives. In this sense Corbett retains his utility in modern times via his advocacy of maritime strategy by inferior forces in limited conflicts. In addition to this it highlights how sea power can play a role in a conflict between contiguous states that also share a coast.

Palit views the 1971 conflict as the Indian Navy’s debut.\(^4\) In this context *Trident* is akin to a naval coming of age for India and a turning point in the balance of power in the post-colonial Indian Ocean. It is the starting point for India’s development into a regional power and sees a weakened Pakistan clutching onto Kashmir as its main bargaining chip in its relations with India, as opposed to being a nation that could once threaten India in the Bay of Bengal and Arabian Sea at the same time.

The 1971 war is in some way India’s taking the lead in the political realities of the region. Its consequent naval build-up increased its standing in the Indian Ocean. The almost entire encirclement of Bangladesh by India has seen better relations with the government of these two states when compared with the relations of India and Pakistan.\(^4\) Furthermore the 2004 Indian Ocean tsunami saw India being the only affected state having the capability to offer humanitarian assistance to other nations affected by the disaster.\(^4\) The various uses of the navy since *Trident* have given India a power projection capability that is solidifying its role as a regional power.
NOTES


2. India had its own separatist issues to deal with in the states surrounding Bangladesh. Fearing that the East Pakistani separatists could potentially form alliances with Naxalite movements in India, Indira Ghandi saw an opportunity to weaken Pakistan and solidify the Indian borders in the east thereby enabling India to have a friendly state to combat any guerilla movements on the Indian side of the border. ibid.


4. This was the armed guerrilla wing of the Awami League.

5. Indian intelligence had warned of the attack and fortunately Pakistan’s army general chose to make one set of air strikes at dusk thereby allowing Indian engineers the opportunity to repair the minimal damage of the strikes overnight. See D. Palit, *The Lightning Campaign: The Indo–Pakistan War 1971*, Compton Press, Salisbury, 1972, p. 141.

6. After the 1965 war with Pakistan, India realised it could no longer rely on its former colonial master Britain to protect Indian waters. Thus a policy of military expansion was adopted as discussed in G. Hiranandani, *Transition to Triumph: Indian Navy 1965–1971*, Lancer Publishers, New Delhi, 2000, pp. 30–35.

7. The US was wary of giving India naval capability as at that time the United States Navy was making inroads into the region with the acquisition of Diego Garcia from the British. Consequently the idea of India possessing the ability to monitor US movements via submarines or other naval vessels did not appeal to the US. See discussion in K. Singh, *Navies of South Asia*, Rupa and Co. Publishers, New Delhi, 2002, p. 73.


10. Marwah also discusses the minor role countries such as Britain, France, Iran, Libya, Malaysia, Indonesia and Japan had in the political arena of this conflict. See Marwah, ‘India’s Military Intervention in East Pakistan, 1971–1972’, p. 556.

11. Yayha Khan believed that China and the US could act like a pincer on India with China coming down from the north and the US assisting from the south via the sea. The fact that the frozen Himalayas
prevented China from engaging in any such exercise and that the US were already involved in difficulties with Vietnam was not taken into consideration by the Pakistani Administration. See M. Roy, *War in the Indian Ocean*, Lancer Publishers, New Delhi, 1995, p. 212.


13. ibid.


16. *Kiltan* and *Katchall*.

17. *Nipat, Nirghat* and *Veer*.

18. Singh discusses how such a use defied Soviet and British doctrine and brought admiration and respect upon the Indian Navy from the likes of Admiral Gorshkov. See Singh, *Navies in South Asia*, p. 332.

19. The boats were towed from a forward point in Okha in the Gujurat. It is argued that either Admiral Nanda came up with the idea of towing the boats or that a group of junior officers who were involved with towing the boats from Calcutta to Bombay were the progenitors of the tactic. Singh, *Navies in South Asia*, p. 331.

20. During the 1965 war India fell victim to Pakistani commerce prevention in the Bay of Bengal and Arabian Sea. See discussion in E. Lauterpacht, ‘The Legal Irrelevance of the “State of War”’ (1968) *American Society of International Law Proceedings* 58, p. 60. Trident was also to ensure the ability of India to enforce a close blockade around Karachi. This demonstrated strategic planning not present on the Pakistani side. Although the war was relatively short, the enforcement of a close blockade on West Pakistan indicated that India was making preparations that should the war become protracted, and indeed unlimited as Pakistan had suggested, then the effects of the blockade could act as a lever against Pakistan to force it into political concessions.


24. The *Khaibur* and *Muhafiz*.

25. The Liberian flagged vessel with Chinese crew MV *Venus Challenger*. This vessel was attacked under the misapprehension that it was a naval unit. The belief was based on the directive from Pakistan that no merchants were to approach or leave Karachi between dawn and dusk, thus K-25’s night time raid was conducted on the basis that any contacts would undoubtedly be military vessels.

26. In any event the Indian Air Force had been carrying out strikes on Karachi and a follow-up raid on 8 December ensured the facilities in Karachi could not be used.

27. The only vessel capable of travelling the distance from Karachi to the Bay of Bengal was the Pakistani submarine, *Ghazi*. This submarine sank on 4 December 1970 whilst it was undertaking
mine-laying operations in the east. Thus the only naval threat to India’s operations in the Bay of Bengal was eliminated early in the conflict. It is unknown whether it was the victim of its own mine, an onboard explosion or depth charges that were dropped by the Indian vessel Rajput. See: K. Krishnan, No Way but Surrender: An Account of the Indo–Pakistan War in the Bay of Bengal 1971, Vikas, New Delhi, 1980, p. 42.

28. As a basic summary of the war strategy Jackson states that West Pakistan took an offensive posture on land and a defensive posture at sea whilst in the East they had a defensive posture on land and attempted an offensive posture at sea with the Ghazi. See: R. Jackson, South Asian Crisis: India–Pakistan–Bangladesh, Chatto and Windus for the International Institute for Strategic Studies, London, 1975, p. 114.


30. This stalemated situation is somewhat akin to the German blockade of the Baltic Sea in both World Wars in that it achieved little if anything in having an adverse impact on the enemy. Just like the real objective should have been to ensure a North Sea passage for German trade, the objective for Pakistan should have been to keep command in dispute to ensure Pakistani shipping and open sea lines to transfer forces to the Bay of Bengal to try and counter the destruction the Vikrant was wreaking on Pakistani forces in the east.


32. In relation to operations in the east see M. Roy, War in the Indian Ocean p. 218.

33. The joint planning by the three Service chiefs, General Manekshaw, Air Chief Marshal Lal and Admiral Nanda, is proof of India’s understanding of the nexus between land, sea and air power. See: Palit, The Lightning Campaign, p. 139. This can be contrasted with Pakistan’s approach of allowing each Service independence in their operational planning. See: A. Faraqui, ‘Failures in Command: Lessons from Pakistan’s Indian Wars, 1947–1999’, Defense Analysis, April 2001, Vol.17, No.1, p. 37.


36. This was sunk during a second strike on Karachi. The Khuri was acting as a support and communications vessel on the outskirts of the battle space and was sunk by a Pakistani submarine.


40. K. Singh, Navies in South Asia, p. 300.

41. In this case this proposition was only partly proven, mainly because the Pakistani fleet was not destroyed but rather maimed to the point that it was ineffective against the Indian fleet.

42. Palit, The Lightning Campaign, p. 144.

43. However, military coups in Bangladesh along with strong domestic Islamic militant movements have strained the relations between the two states.

44. Countries that received assistance from the Indian Navy include Sri Lanka, the Maldives and Indonesia. See:<www.indianembassy.org/Tsunami/Relief>, accessed 26 September 2006.
BIBLIOGRAPHY


Soldier to Diplomat: 
The John Ryan Story

Michael Fogarty

John Edmund Ryan, OBE was a former soldier, career diplomat and acting director of the Australian Secret Intelligence Service (ASIS). He entered Australian folklore on 30 November, 1983 when an ASIS team raided Melbourne’s Sheraton Hotel during a ‘training exercise’. The subsequent political controversy engulfed the Federal Labor Government and it claimed Ryan’s career, with his early retirement the following year. This article attempts a biography 20 years after his death.

Ryan was born at Bondi, New South Wales, on 13 March 1923, the second of six children to Martin John Ryan, born in England, who was a senior Commonwealth customs officer, and his wife Dorothy Jane, nee Carrack, who came from New South Wales. The family moved to Adelaide when he was quite young. His father later transferred to Canberra during the Depression years.

A brilliant student, gathering academic prizes in his wake, by 1936, he had won the Canberra District Scholarship to St. Patrick's College in Goulburn, in the order of the Christian Brothers. Although Ryan was not a practicing Catholic, he was an avowed Catholic. In the inter-school football competition, he was an inspiring rugby union player who played a rugged and versatile game, invariably at breakaway or as a five-eighth. In his last year, he was appointed vice-captain of the school team.

In 1940, Ryan completed his leaving certificate with honours in English and History. His other academic awards included prizes for Oratory, Religious Knowledge and Latin. He also left as Dux of the College. In the school’s 1940 yearbook, Calamus Scribae, Ryan alluded to his restless yearnings. ‘Intends travelling round the world by jumping “rattlers”, just to broaden his mind’. Ryan did not live that dream, although years later his adventurous quest to see the wider world after the war would be lived first class. Despite those unrealised existential needs, after college, he soon cleaved to a more prosaic path. In 1941, he enrolled at the University of Sydney, where he studied first year arts. Again, he played football for their First XV in the local club competition. Having completed History, English, Psychology and Economics, he then left St. John’s College to join the Army.

On 9 January 1942, Ryan enlisted in the 2nd AIF. After initial infantry training, he was posted to the 2/7th Australian Independent Company on 17 July 1942, initially to number one section of A Platoon. It was a big platoon, with four officers and 65 other ranks. His commando unit later exercised at Wilson’s Promontory, with hard training in signals, engineering, explosives, weapons, unarmed combat, and a range of other skills. Despite some minor disciplinary charges, he was promoted to corporal in A Troop on 27 August that year. He later assumed command of a sub-section. Extra responsibilities began to tame his headstrong nature.
On 4 October, the unit strength of 290 men was flown from Townsville to Port Moresby, to serve in the New Guinea campaign. During that period, Ryan briefly served under Major T.F.B. McAdie, DSO. A fellow soldier observed of Ryan: ‘He appeared to consider himself superior to most of the rank and file troops, even to the extent of appearing aloof and (he) had a somewhat condescending attitude towards those he considered to be lesser mortals. He was able, competent, controlled and led his sub-section well. He had left his unit prior to its first action, which was the attack on Mubo village.’

Corporal Ryan had earlier come to notice as a future leader, being selected to attend an officers’ selection board at Port Moresby in late November 1942. McAdie wrote him up well: ‘In this unit, of which he is a sub-section commander, he has often been called upon to maintain his sub-unit for lengthy patrol periods away from HQ, and from the guidance of an officer. During these periods, his capability has been clearly demonstrated in trying circumstances, in spite of his youth’. The board President agreed, in assessing Ryan as: ‘A very good type. Keen, intelligent and of good appearance. Good sporting record. Has seen active service with Kanga Force’. After four months service in New Guinea and recovering from dysentery, Ryan returned to Australia on 5 February 1943, to be discharged in Sydney on 26 March, to prepare for a year-long officers’ training course in Canberra.

At 5’8”(170cm) tall, fair-haired, with blue eyes, and having a dark complexion, Ryan marched into the Royal Military College, Duntroon as a special entry staff cadet to undertake a shortened wartime course (3C). It was a strenuous year and the cadets achieved a reasonable standard from their training in both military and civil subjects. He actively participated in sporting activities, notably as a boxer of some merit. However, his conduct sheet recorded disciplinary charges—such was his aggressive spirit.

On 14 March 1944, towards the end of his course, whilst participating in the final military exercise, Ryan was involved in a fatal motor vehicle accident. A class-mate was killed, as was the transport driver. Several other staff cadets were also badly injured. Ryan sustained broken bones and would carry a limp throughout his life, however, it would not prevent him from playing rugby again. Ryan graduated on 19 June 1944 and was promoted to lieutenant the next day. He was placed second-last in his class of 18.

Lieutenant Ryan volunteered for a second bout of AIF service, being posted to the Australian Infantry Reinforcements on the day he was commissioned. He had been restored to A-1 medical category, having overcome his injuries. Training continued, with more courses at the Jungle Training Centre, Canungra, Queensland. During a tactical exercise, as a member of a ‘ghost party’, he sustained second degree burns, when his trousers caught alight. A training grenade had exploded in his pocket. A posting to the weapons wing later followed in January 1945.

On 23 May 1945, Ryan embarked from Brisbane on the troop ship Louis Pasteur; he disembarked at the staging base on Morotai on 5 June. Whilst on further tactical exercises, he and seven others were injured in another training grenade accident that month. Exactly one year after graduating from the RMC, he was transferred to the 2nd/12 Australian Infantry Battalion. At rear echelon, he waited to be posted as a replacement officer for any of the platoon commanders who became casualties during the planned assault on Balikpapan, in Borneo, due the next month. In the fortunes of war, once again, he avoided the heavily contested amphibious landing, as he joined his new battalion a week after the initial invasion.
The 18th Brigade formed one spearhead of the invasion force to take the town area. One recorded: ‘The US barges drove too fast for their gunners to site the shore positions. Bullets hit the steel barges like hailstones.’ Another veteran of the landing later reflected on the invasion day: ‘I had to step over our own dead soldiers as I advanced through the beach to secure the objective.’ The war was yet to be won, and more sporadic fighting continued, with isolated casualties, until the Japanese surrendered. Ryan arrived late, but he was a respectable presence in that victory.

With the injury of an officer, Ryan was placed in command of 11 Platoon, B Company, 2nd /12 Battalion. Ryan assumed command on 8 July. The previous day, two soldiers had been wounded in action, the last casualty figures for the battalion. Once again, Ryan had been lucky in two separate campaigns.

The battalion lost 299 men during its long march from Tobruk through Papua and Markham-Ramu to war’s end at Balikpapan. The battalion fought through many fierce storms and they had now found the end of the rainbow. After the surrender ceremony for Japanese forces in Dutch North Borneo, on 8 September, this composite Queensland and Tasmanian battalion held its last ceremonial parade, on 18 October, being formally disbanded on 2 January 1946.

At the end of hostilities, Ryan was again hospitalised, for an old fracture in his left foot. On 17 September, Ryan was evacuated from the 2/4 Australian Field Ambulance to the 2/12 Australian General Hospital ship. On 29 September, he embarked at Morotai on the hospital ship Wanganella, being disembarked at Sydney on 13 October to be transferred to military hospitals in Victoria for further treatment.

In late 1945 he applied for a position with the Department of External Affairs for an appointment as a diplomatic staff cadet in the fourth intake being recruited in 1946. Before his discharge he had attended a public examination held at the Commonwealth Public Service Inspector’s office in the Herald Building in Sydney. His place in the order of merit is not held, but it is clear, from the short list of applicants, that he had made the cut from a highly competitive field to join the Foreign Service on 9 July that year.

With his academic studies interrupted by war service, Ryan still had to complete his Bachelor of Arts degree. This he did during his early years with the department under the auspices of the University of Melbourne. After his initial placement in the department’s UN section, on the successful completion of his diplomatic cadetship and tertiary studies, four years after his entry, Ryan was now professionally equipped to serve overseas in Her Majesty’s Australian Diplomatic Service. Before doing so, he married Patricia Mary Wall, a former nurse, on 28 January 1950. In their life-long marriage, they would have three children.

Ryan’s first posting came in 1950, to Athens and Geneva, with the Australian delegation to the United Nations Special Committee on the Balkans. It began a long and distinguished diplomatic career of almost 40 years, half of which was spent in Australian missions abroad.

After his first posting to Greece (1950–51), Ryan went on to increasingly senior and responsible positions, including: Rio de Janeiro (1952–54); New York (1957–60) and Singapore (1960–62). They were eventful years.
Between postings, he would also serve in the departmental head office in Canberra. His first substantive head of mission appointment came in the mid sixties when he was assigned as Australia’s High Commissioner to Ghana (1965–67). He returned to Canberra in 1967 for a brief period, he was then nominated as the ambassador to Laos (1968–1969).

His attached staff radio communicator, remembered him fondly: ‘He was a tough old bird, but one could not help but admire him. He had the Department’s interests at heart’. After a year in Laos he was chosen as the deputy head of mission at the Australian Embassy in Washington (1969–71) and also acted as Charge d’Affaires on occasions.

Returning to Canberra, in 1971, Ryan was promoted to First Assistant Secretary, responsible for the Management Services Division, a key administrative assignment for senior officers under consideration for later selection as Deputy Secretary. By then, for his exemplary diplomatic career, John Ryan was awarded the OBE, in the Queen’s Birthday Honours List of June 1971. It was also in recognition of his sound administrative skills in managing the Department’s diverse interests, both at home and abroad.

There followed more nominations as head of mission including Rome (1974–77) and Ottawa (1977–80). Canada would be his final overseas posting. On return to Australia, Ryan was promoted to Deputy Secretary in the Foreign Affairs department. This would groom him for his last senior appointment which would forever define his public service and diplomatic career. His initial reservations were most prescient.

In October 1981 he was appointed as the acting Director-General of the Australian Secret Intelligence Service (ASIS). While he originally believed it to be a temporary placement, for some six months until a new director was found, he remained in the position for two-and-a-half years, while continuing to hope for at least one more ambassadorial posting.

Fate intervened on 30 November 1983. During an ill-conceived training exercise, a team of ASIS officers ‘raided’ the Sheraton Hotel in Melbourne. In their attempts to ‘rescue’ a hostage, weapons were brandished and guests and staff were menaced alike. Some of the operatives were soon arrested by the Victorian Police. The subsequent fall-out from this simulated ‘anti-terrorist’ operation was a major political scandal for the new Federal Labor Government. The Westminster principle of ministerial responsibility assumed a vicarious nuance. The media frenzy stoked the ongoing controversy. For Ryan, his career survival was unsure and he left it to hope. A senior judge was appointed to head the inquiry into the incident. In Justice Robert Hope, CMG, John Ryan would find none. Hope was a former wartime bombardier and he was not easily deceived. Ryan became the Sheraton’s first victim, ‘resigning’ on Sunday 18 December. The formality was not promulgated until May 1984. Until then, Ryan endured much. Like some of his predecessors, he had drunk from a poisoned chalice.

There are conflicting reports on the nature of Ryan’s separation from the service. Was he pressured to resign or did he do so in some act of conscious volition? The latter notion is more compelling. Responsible press reporting in the aftermath of the raid was most emphatic. Ryan had not informed his minister, Bill Hayden, of the impending training exercise. At the outset, it was alleged that Ryan urged Hayden to hush up the affair, attempting to implicate the Canberra-based Crisis Policy Centre. Here Ryan encountered a defeat in administration.
In public policy terms, Ryan escaped an understanding of the ‘principle of methodological congruence’. The implication of that theory is that problems, if not ‘adequately structured’, cannot be solved, since the ‘wrong’ problem is addressed. The Attorney-General could not accept responsibility for any enactments administered outside of his portfolio. Ryan’s peers were similarly unsupportive. They dubbed that raid as ‘Von Ryan’s Excess’.

The raid had created more problems than solutions and it severely tested the Federal Government’s political relationship with Victoria, despite their shared party consanguinity. In short, Cabinet had decided that Ryan’s departure was a foregone conclusion. He acknowledged that he no longer enjoyed the full confidence of the government. Soon after the raid, with his ‘resignation’, Ryan was placed on ‘special duties’, back with his old department. The term itself is often used as a management euphemism to describe the status of officials who have been removed from any position of authority or responsibility. Ryan would have acknowledged the implications of such a lateral transfer to an ‘off-line’ position, in the senior executive ranks, where he had no influence in determining his future, which would be resolved at a political level. After all, Ryan could only acquiesce with any formal ministerial decision taken on his future as a senior agency head in the Commonwealth Public Service. The Executive Council paperwork was already being processed to facilitate his way to egress.

At an instance, any chance of a last posting to Athens had been removed. More personal ordeals followed. Senator Primmer from Victoria raised sensational allegations in the Federal Parliament about John Ryan. Freed from the consequence of any libel action, they were as injurious as unjust, considering Ryan had little opportunity to publicly defend himself. He had no legal redress. He was old breed. Because of his position, and the oath he took, he was fighting a rear guard action. Now, his enemy was behind him.

John Ryan often paced outside the old Administrative Building courtyard, eking out what he knew to be his numbered days. He was also weathering remorseless political heat and intrusive media scrutiny. His gimlet eyes squinted from the sun as he grimly surveyed the approaching traffic as he waited for his transport from Parkes Place. Uncomfortably he shifted, deep in thought, distracted by his insuperable burdens. Few could engage him. He was in a holding pattern waiting clearance. Lost in the passing throng, he was a dead man walking.

But fight back he did, as much as he was able, to both seek and direct support. It came on 25 February 1984, when John returned to his alma mater. Accompanied by his wife Patty, once more, he made a stirring speech, imploring for justice as he had done over 40 years ago. His old school presented him with the Age Quod Agis award. Translated, it means: ‘Whatever You Do You Do It Well’. He called on his Minister for Foreign Affairs, Bill Hayden, to clear him from allegations made by Senator Primmer in Parliament. On the Sheraton incident, Ryan offered: ‘Of the exercise itself, I shall only say that it was misconceived and did not reflect well on the service’. Furthermore, Ryan accepted responsibility for it, but he said that subsequent attacks made on his career as a diplomat by Senator Primmer had been unjustified.

To his credit, the next month, Bill Hayden defended his former service chief from accusations made against him by his party colleague. The minister countered: ‘In my experience Mr Ryan as acting director-general of ASIS had always sought to apply himself attentively to his tasks, and I saw nothing in his character or behaviour which gave me cause to believe that any of
the deficiencies of character and behaviour attributed to him in the allegations was evident.' There would be no more search parties during this battle. It was not enough to save the no longer private Ryan.

On the last day of the summer of 1984, Justice Hope had sealed Ryan’s fate. In the default season of three months, from the heady enthusiasm of the raid to the tabling of a sober parliamentary report, Ryan’s career was over; he was as quartered as the seasons. The exegesis of Ryan agonistes was played out in full public glare. Implicit in Hope’s criticism was the role of its acting head, John Ryan: ‘Mr Ryan’s involvement in the exercise was a factor in the cause of the incident’. On 9 May 1984, John Ryan formally resigned from the public service after 38 years. In his short retirement, Ryan remained embittered about the affair, which would forever define his public life, for it also denied him any hope to serve again as ambassador.


How will history regard John Ryan, a man who attracted admirers and detractors in a steady measure? Ryan grew up in a hard-edged world and he was your consummate ‘cold war warrior’. His faith was deep and abiding and he would need every ounce of it as he stared down Japanese militarism and Soviet expansionism. They were hardly a challenge for an industrial strength Catholic who was never embarrassed by any local display of public piety. His faith was aggressive glue to which he always adhered. He set out to war as a soldier and as an officer, girded by his religion, his wits, a rifle and a few sets of greens. As a fellow commando noted—if he experienced fear, he never showed it.

The profession of diplomacy calls for maturity, sophistication, cultural awareness and emotional intelligence, attributes which Ryan possessed in abundance. Yet in any hardship post, far removed from accepted comforts, toughness often came as a necessity, to deal with equally hard-headed foreign officials who strongly asserted their own national interests.

John Updike once stated: ‘Easy on the guilt trip. We didn’t deal the deck down here, we just play the cards’ (The Witches of Eastwick). John Ryan dealt a suite from that same pack and it proved to be a bad hand. Had his wartime experiences clouded his judgment? Did his exuberance for covert action outstrip his commonsense? The raid was an obvious aberration, being uncoordinated and unauthorised at any federal or state level. Sufficient liaison and an enhanced regard for the obvious political sensitivities would have produced a different outcome, in another scenario, in a more distant and less public locality. Hindsight can be a fickle companion.

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Never Take Life Very Seriously

Percy F. Titchener

Department of Veterans’ Affairs 2007 Veteran Community Story Writing and Art Competition – Australian Defence Force Journal Prize winner

It was a hot and sticky February afternoon when the replacement section commander arrived. The previous one had been killed two days earlier, after 3 Platoon had a deadly ‘Jumping Jack’ mine explode amongst them.

These mines had a primary charge which would send the mine up to waist height, followed by the deadly secondary charge which sprayed shrapnel in all directions, designed to kill and maim as many as possible.

Ironically, the mines had originally been laid by the Australians to try and restrict the movement of ‘Mr Charles’, who as usual adapted very quickly by digging them up and placing them elsewhere, thereby creating an endless supply for their own use.

Two soldiers were packing the dead corporal’s personal gear onto a Land Rover, as the new section commander placed his pack at the entrance of the tent.

‘G’Day, you blokes with 3 Platoon?’ he asked, lighting a cigarette.

‘Yup’, said the shorter of the two. ‘And you’d be the new section commander, right?’

‘Yeah, I’ve got 3 section’ he said, trying not to show the newness of his appointment.

‘Well, I’m your 2IC’, said the tall thin lance corporal with mousy coloured hair, ‘The name’s David but they call me Fang’, he paused, ‘Like, I don’t eat much and this is Shorty, he’s our machine gunner’.

‘Right’, he said, as he shook hands with both of them, ‘So where are the rest of the blokes?’

‘Well, they’re down at the canteen having a few drinks, most of them are pretty new in country, so they’re pretty f....d up after the mine incident’.

Fang paused, looking at the dead corporal’s gear, ‘Fact is we only have two originals left out of a platoon of 32, with a total of 38 casualties in the last nine months’.

At this point Shorty interjected with a shake of the head, ‘Yeah, and the bloke you’re replacing lasted ten weeks’, he said, as if to underline the reputation of 3 Platoon as the battalion’s bad luck mascot.
The fact that their radio call sign, one-three, was the same as 13 just added to the bleak ambience of low morale that came with the extraordinarily high casualties suffered by 3 Platoon.

‘How about you blokes, how long you been here?’ asked the section commander.

‘We both arrived five months ago’, replied Shorty. ‘Which makes us pretty senior’, he said with a wry smile.

‘OK, Fang, once you’ve finished here, tell the rest of them to be here at 1500hrs. for a briefing, I’ve got an orders group with the platoon commander in a couple of hours for our next operation’.

‘Umm, aahh well,’ he said hesitating, looking at the dead corporal’s photos and letters on the bed, then continued ‘Are you ok to use this bed or ummm?’

‘Yeah, better than the floor isn’t it?’, replied the section commander trying to relieve the awkward choice of a dead man’s bed.

Later that afternoon in February of 1970, orders were given for a search and destroy operation along the Sui Giao River where intelligence information suggested there may be up to a hundred enemy in a bunker system.

Vietnam was like that, maybe, maybe not. The only certainty was a definite maybe and for them, after more than ten months in country, military intelligence was like friendly fire, both were an oxymoron and didn’t exist.

It was late in the afternoon as his section led the platoon in single file along a ridge line when they came onto a clearing. They were halfway across when there was a burst of automatic fire from a Kalashnikov.

Now they had certainty.

The adrenalin was pumping as everyone moved into the contact drill. Was it just a sniper or was it a sentry for an enemy bunker system? Everyone had their senses stretched to the limit as they searched for ‘Mr Charles’.

Suddenly the section commander realised 20 metres in front, his forward scout, Dave Wilson, was lying on the ground, not moving.

‘Oh no!’

The rest of the section was moving forward too slowly.

‘C’mon move! Get up here!’ He needed an extended line, to put in as much fire as possible towards the enemy and he needed it quickly.
Dave still hadn’t moved.

‘Oh bloody hell, hurry up!'

Eventually, on his right, he saw Shorty Jeffries and two others with the machine gun, then the rest of the section on his left.

‘Jesus Christ’ he thought, ‘Now it’s the moment of truth and I’m scared’. This drill entailed the section laying down covering fire, while he moved forward to bring the scout back.

‘Are you going or not?’ yelled Jeffries.

He was truly scared and his hands were shaking, he really did not want to do this.

‘Ok, ok I’m going in, going in’, he replied. ‘Start covering fire on the count of three’. Now everything was in narrow focus. It’s a simple task he thought, just run forward 20 metres, pick up Dave and run back and hope that there would be enough covering fire to stop any enemy from having a go.

He yelled out the numbers, just as they were taught in training, ‘One, two, threeee!’

Twenty metres never seemed so long, the covering fire reached a crescendo when he picked up Dave, who started screaming, as they staggered back to some low ground behind the line of fire.

As they hit the ground, the reason for Dave’s screams became obvious, he had at least two rounds in the upper left thigh and a large piece of flesh hanging down, exposing part of his femur.

‘Don’t worry, the Dustoff chopper is on the way, you’re going to make it’, said the section commander, trying to reassure him, although the look on his face would have shown the lie.

The medic took over, while the others covered the platoon sweep across the front. As usual, ‘Mr Charles’ had vanished.

They had a few minutes rest before moving forward. Smoking nervously, guzzling water between puffs. They were always so thirsty after a contact.

He could hear Dave moaning in the background and felt the build up of anger and fear.

The sun was low in the sky as the section moved forward, to meet Lieutenant Thornton and the radio operator while the platoon sergeant and the medic waited with Wilson for the Dustoff helicopter.

The section commander was ordered to move his section forward when he noticed two large banana leaves on the ground, about eight metres in front of them, although there were no banana trees nearby.
The implication dawned on him, just as one of the leaves was raised as if by an invisible cord and underneath he saw a pair of eyes looking at them. He froze in surprise, too stunned for any reaction as the leaf descended. Then, with a combination of rage and fear of the Viet Cong that had shot his scout, brought his rifle to the shoulder and fired four deliberately aimed shots. As the rounds punched the Viet Cong backwards as he fired a burst with his Kalashnikov, narrowly missing Lieutenant Thornton.

This was followed by deafening silence, with all of them lying on the ground looking at each other.

With the unsaid question, 'was he dead?'

The usual answer—maybe.

One of the riflemen yelled out, 'I've got a grenade'. Seconds later, the force of the explosion shuddered through the ground, as the grenade put a definitive end to the life of a brave enemy sentry.

They moved down and joined the rest of the platoon as the tail end section and started moving forward with another section taking the lead. After moving less than 200 metres there was an eruption of machine-gun fire and rocket propelled grenades.

Almost immediately, forward movement became impossible.

'Looks like we've found the bunker system' said Fang, as if he were discussing the weather.

Suddenly 'Charlie' was firing from both sides, indicating that all three sections had unknowingly penetrated the bunker system and were now caught in a cross fire.

The platoon commander Lieutenant Thornton came stumbling back with blood streaming from a head wound. 'We've lost the radio operator', he said, 'And the lead section is stuck'.

Misunderstanding him, the section commander said 'What do you mean f....d?'

'Stuck, I said stuck', replied Thornton, like a piece of black comedy.

'What's the difference', he thought, they were still in deep trouble.

At that point Lieutenant Thornton ordered the section commander forward, to deal with the rocket fire.

As the section moved forward, one of the riflemen from the lead section came crawling back, his legs covered in blood.

'What's happening up front?' asked the section commander.

'I don't know, I don't know,' he replied, 'There are a lot of wounded'. The look in his eyes was
a combination of fear and pain. He was a replacement who had left Australia three weeks before, to replace another casualty. This would be his first and last contact, he would be going home.

A few metres further on they found the radio operator unconscious with shrapnel wounds to his head and right shoulder. There was no reaction as the section commander took the radio off his back and started speaking with the company commander, while one of the riflemen gave first aid to the radio operator.

‘We have about nine down’, said the section commander, trying to sound in control. (The figure was a guess. In the end the total would be 14.)

‘Where is Sunray?’ said the major asking for the platoon commander.

‘Sunray is down and we are requesting Dustoff’, he replied.

‘Your Dustoff is on the way, pass me Sunray’

‘Passing now, wait out’ he said running back to Lieutenant Thornton. As he gave him the radio, once again his section was ordered forward, this time to help withdraw the forward elements of the platoon.

As they made their way up to the forward section, he looked back and saw one of his riflemen, who was sitting against a tree moaning, with the centre section of his nose and part of his eye socket shot away, unable to see anything. In an act of mateship, one of the other wounded saw his predicament and returned to take his hand and guide him back.

At the forward edge of the contact they accounted for everybody except the machine gunner from the lead section, who was pinned down by two VC firing rockets at him.

‘I think I can see them’, said Fang.

Just then there was a huge explosion as a rocket hit the tree above Fang, who took most of the blast and some shrapnel.

Surprisingly, he was still quite lucid and able to function.

A few seconds later the machine gunner called out ‘They’re moving on your left’.

‘Where are they?’ yelled the section commander.

‘I don’t know, but if you stand up you can probably see them’.

So in an act born out of rage for his destroyed section, he got up on one knee and saw two VC about 30 metres away ready to fire another rocket.

He fired a long burst which bowled over the first with the rocket launcher, then all of a sudden,
he glimpsed the tell tale sign of dust being kicked up by a light machine gun on his left and felt a massive thud in the hip which spun him around, with his rifle falling from his hands.

Dazed and on the ground for some seconds, he was unable to comprehend what had happened. Then realised that he’d been shot.

‘Oh no! They got me’, he thought as he tried frantically to move his leg and look for his rifle at the same time, feeling naked without it. Finally he saw it a couple of metres away and crawled across to pick it up.

As he picked it up, the machine gunner from the lead section came crashing through the bushes.

‘Thanks, I thought I was done’, he gasped.

Amazingly, after at least four rockets fired at him, he had emerged without a scratch.

The others however, were not in good shape.

Strangely enough, nobody complained of any pain, perhaps they were overwhelmed by the knowledge that they still had to get out of the bunker system in the growing darkness, with ‘Charlie’ all over the place.

Using fire and movement, covering each other, it took them more than an hour to fight their way back 300 metres, to the relative safety of the dust off area. Towards the end of the withdrawal from the bunker system, the situation had become rather desperate as they were running out of ammunition. By the time they reached the Dustoff area, some had less than 20 rounds of ammunition left. They had fired more than 150 rounds each in the last two hours.

The scene could only be described as chaotic carnage, with the wounded moaning and screaming while others provided first aid. One of the riflemen from 2 Section had taken some shrapnel in the stomach and was screaming for water, which he couldn’t have.

‘Thank Christ I’ve been shot in the hip, at least I can drink’, thought the section commander, as he gulped down the last of his water.

Nearby, the platoon sergeant was calling in artillery, flares and tracer lit up the night sky like red rain, while helicopter gun ships provided covering fire, at 12,000 rounds a minute, for the dust off helicopters hovering overhead, winching up the wounded.

Throughout the carnage, the noise and confusion there were selfless acts of bravery and consideration that seems to be the usual thing among frontline soldiers. Sharing the last few drops of water, or a cigarette with another, tightening up a bandage for a mate to stop the bleeding.

One of the section commanders, showing real coolness under fire, went out alone into the night dodging ‘Mr Charles’, to look for and guide the reinforcements back. His actions earned him a DCM for bravery.
By now the section commander started going in and out of consciousness, with the combination of excruciating pain, shock and the loss of blood. For some minutes all would seem clear then everything went blurry, he was alternating between the two, when finally it was his turn to be winched up into the helicopter.

He was in the air above the tree line, in a casualty evacuation module, a device which allowed the casualty to be wrapped from head to toe in canvas, with the arms on the outside and a headpiece through which the winch hook could be attached.

To any Viet Cong watching, this must have seemed bizarre, a figure like an Egyptian Mummy spinning slowly, being winched by the head through the night sky. In his semi-conscious state it was surreal, something out of science fiction, watching all this from above with the artillery shells exploding in the distance and the helicopter gun ships flying past, firing continuously to protect him and the other wounded.

As he was dragged into the helicopter he saw four others lying on the floor, with blood everywhere and the helicopter crewman trying to control the situation, looked more like a terrified Martian with his face reflecting the green light from the control panel. At that time he hadn't read Dante's Inferno but on reflection, it would have been a reasonable modern day version.

They were banking away steeply, heading south towards the Australian base when he saw that the pilots were dressed in black rather than the regulation green, it was a couple of minutes before he realised that in fact the pilots were soaked in sweat, from holding the helicopter at the hover for about 15 minutes as they winched up the wounded. They had risked a lot for his section.

Thirty minutes later they landed at the Australian Field Hospital and were met by the triage team, who were trying to deal with more than 20 seriously wounded soldiers. It was absolute mayhem as they sorted them out in order of urgency. The dead, the nearly dead and the living could be considered general categories.

Earlier that day 8 RAR had been involved in a series of mine incidents and there was a number less seriously wounded, still waiting to be treated.

Unfortunately, they would be waiting a bit longer, as more urgent cases from 3 Platoon were placed ahead of them.

Over the next two days many of these soldiers would undergo multiple operations, the medical teams spending more than 36 hours without sleep and without losing a single patient.

On the 28th of February 1970, of the 28 soldiers in 3 Platoon A Coy, 6RAR, 14 were wounded in action, a casualty rate of exactly 50 per cent. In a portent of things to come, Mr Charles had fought very well, he deserved to win, no maybe about that.

Ten days later they were flown back to Australia on a specially equipped Hercules aircraft. As they climbed out over the coast of Vietnam, there was a sense of relief, that they would all make it home alive.
That no one died was due in no small part to the bravery of the Dustoff pilots and the extraordinary work done by the doctors and nurses in the field hospital.

Of course, some would suffer long-term damage, but they were alive and in Vietnam, if you had to come back home before the completion of your tour, the alternative of a plastic bag was not very interesting.

Weeks later, he saw the telegram, sent by the Army, which informed his family that he had been wounded.

‘We regret to inform you, that your son is seriously but not very seriously ill, as a result of wounds received in action in Phuoc Tuy Province South Vietnam’.

In that moment he realised that while sometimes it may be necessary to take life seriously, it is probably never a good idea to take life very seriously.

Editor’s Note

Each year the Victorian branch of the Department of Veterans’ Affairs conducts the Story Writing and Art Competition inviting entries from the veteran community. The winners are selected by a panel of Department of Veterans’ Affairs judges and this year Percy Titchener’s story was selected as entry deemed worthy of encouragement and was awarded the Australian Defence Force Journal Prize.

The Board of Management of the Australian Defence Force Journal has sponsored this prize for many years.
'ANZACS and Ireland' offers a unique perspective on the relationship between Australia and Ireland using the First World War as its backdrop. The relationship itself shouldn't be surprising as Kildea points out that more than 25 per cent of Australians today claim Irish ancestry. However, the connections forged between the men of the 1st Australian and New Zealand Army Corps and the Irish during the Great War have remained largely hidden in the annals of history until now. Jeff Kildea, who is a practising barrister and part-time academic in Irish Studies at the University of New South Wales, recounts the stories of these soldiers both on the battlefield, where they often fought alongside Irish battalions of the British Army, and on leave in Ireland. Ireland was a popular leave destination for Anzacs for two principal reasons: firstly, it was the furthest point from the Western Front that could realistically be reached in the two weeks available; and secondly, a large number of Anzacs had either been born in Ireland or were of Irish extraction.

Unsurprisingly, a significant portion of the book is devoted to the Dardanelles campaign, with Gallipoli featuring heavily. In Chapter One, Kildea cleverly contrasts the Anzac Cove landings of 25 April 1915 with the actions of Irish Regulars at V-Beach on the same day. He then goes on to offer an insightful analysis of the subsequent battles in which Irishmen of Kitchener’s New Army and the Anzacs fought alongside each other until December 1915 when the offensive ended in ignominious defeat and withdrawal. He points out that whilst the Gallipoli experience reinforced Australia’s emerging sense of nationhood, for many in Ireland it represented a turning point in Anglo–Irish relations, which were to remain frosty, I would argue, until the signing of the Good Friday Agreement in 1998. In Australia, the sacrifices at Gallipoli represented a coming of age for the Australian nation whereas in Ireland the sacrificing of thousands of Irish soldiers, many of whom had joined the British Army to further the cause of Irish Home Rule, appeared to be a betrayal of their loyalty. For me this is the most ironic part of the book. Irish soldiers who fought for Australia were welcomed home as heroes whilst those who fought equally hard within the British Army were treated with indifference when they returned to Ireland.

In Chapter Two, Kildea analyses the 1916 Easter Uprising in Dublin in some detail. He skilfully points out that this event served as the most important catalyst for the treatment received by
Irish soldiers returning home from the war. This is in sharp contrast to the reception received by their Anzac counterparts whose memory is revered to this day across Australia and New Zealand. The chapter includes personal accounts of some of the diggers in Dublin who found themselves unwittingly embroiled in this rebellion when they were forced to support British troops defending the city against Irishmen with whom they had no quarrel. The chapter ends with an interesting piece on attitudes to the Easter Uprising which provides a uniquely Australian slant on how the brutal actions of the British, after they had crushed the rebellion, stiffened Irish nationalist sentiment which had been relatively benign until then. Kildea accurately points out that the execution of the leaders of the Easter Uprising had a profound effect on the Irish Nationalist psyche. As a professional Irish officer, I find it deeply sad that the gallant actions of Irish soldiers in Gallipoli and on the Western Front were deliberately sullied across many parts of Ireland in the pursuit of domestic political agendas.

Throughout Chapter Three, Kildea recounts the personal stories of a small handful of the thousands of Irish men and women who joined the Australian forces and fought for Australia—the so called Irish Anzacs. From the ranks of private soldier to general, Kildea reminds the reader that the Irish were to be found at all levels of the Australian armed forces at this time. He includes the remarkable story of Private Martin O’Meara, an Irish-born Anzac, who won the Victoria Cross in France in 1916. He also tells the stories of a nurse, two generals, two chaplains, two prisoners of war, a submariner and several other Irish Anzacs whose names are recorded on war memorials across Ireland; both north and south of the border. Chapter Four gives a vivid description of Ireland during the Great War period from the perspective of Australian soldiers on leave there. This portion includes personal recollections taken directly from the diaries and letters written home by these six-bob-a-day tourists many of whom took the opportunity to visit relatives still living in Ireland. In this chapter Kildea also points out that some of these tourists chose to remain AWOL in Ireland in preference to returning to the horrors of France and the Front.

Chapter Five tells the sad stories of the Australian men and women who never made it back to Australia and who are buried in Ireland—the wattle among the shamrock as they are poignantly referred to by Kildea. This chapter includes a short piece on the sinking of the RMS Leinster on 10 October 1918 off the coast of Ireland; an event which cost the lives of at least seven Australians who were on board and returning to their units from leave in Ireland at the time. Chapter Six rounds off Kildea’s fascinating book by exploring the concept of remembrance in Australia and Ireland over the course of the 20th century. This brings his work up to the contemporary period and considers the part remembrance has played in building each nation. From the Irish perspective, he looks at the way Loyalists and Republicans in Northern Ireland have manipulated remembrance as a way of continuing their political causes long after the First World War ended.

I have read many accounts of the actions of the Irish Regiments during the Great War and consider this work to be equal to any other treatise that I have seen. Kildea skilfully blends personal accounts with his own analysis in a way that keeps the reader’s attention. As he rightly points out, the people of Australia and Ireland have much in common and each nationality feels at home in the other’s country; as a born and bred Irishman serving as an exchange officer at the Australian Defence College I can personally vouch for this fact. ANZACS and Ireland reminds us that these ties were strengthened by the actions of ordinary men and women who found
themselves living through extraordinary times. As a member of the last remaining Irish Infantry Regiment of the Line within the British Army, I found Kildea’s book to be a compelling read and one which I highly recommend.

LAST LINE OF DEFENCE:
New Zealanders Remember the War at Home

Edited by Megan Hutching
ISBN: 9781 8695 06056

Reviewed by Lieutenant Colonel Hamish Shearer, NZ Army

Last Line of Defence, edited by Megan Hutchings from the Ministry for Culture and Heritage (NZ), is the final in a series of books based on oral histories from veterans from the Second World War. The book was published in 2007 by Harper Collins Publishers (NZ) Limited. It is 272 pages in length and reads as a collection of personal stories comprehensively illustrated by photographs from that era.

Prime Minister Helen Clarke’s foreword praises the women who were charged with protecting New Zealand—‘New Zealand’s last line of defence’. She draws the reader’s attention to the 115,000 men and women who served in uniform in New Zealand, principally in the Women’s War Service Auxiliary, the Emergency Precautions Service, the Emergency Fire Service, and home based Army, Navy and Air Force units, most of which filled these roles on top of their regular jobs, often putting a uniform on after work to serve their country.

As a New Zealander, I found this book an interesting read. I must admit most of my personal readings and military studies of World War II have focused my attention on the campaigns and battles of Europe and the Pacific. I found surprisingly, to read an account of those who served, or remained at home during this period quite interesting. The personal stories gave an insight into the national psyche that existed at home in New Zealand, their thoughts and perceptions of the war far removed from the combat experienced by the 70,000 or so servicemen that served abroad. Stories such as that of Mervyn Browne, a conscientious objector, who after ignoring his call for service was arrested, and served in various prisons and detention facilities in New Zealand’s North Island until his release in 1946. He even managed to escape from the Strathmore detention camp near Reporoa, before being recaptured and finishing the war in Auckland’s Mt Eden Prison.

I also enjoyed studying the plentiful photographs that supported each story. While growing up I had often wondered what role the many reinforced concrete structures scattered along New Zealand’s coastline played in New Zealand’s homeland security; the personal accounts and photographs brought these structures to life and answered the question. The photographs of the military bases, many of which still exist, and the individuals and collective photographs
of men and women all serve to personalise this book and make it unique. The photographs alone are worth a look.

I would recommend this book to someone looking for an alternative view of New Zealand during the Second World War and anyone wishing to gain an understanding of the impact that the war had on the lives of those who remained, and a better understanding of the character of the New Zealander at war.

BAREFOOT SOLDIER:
The Amazing True Story of Courage Under Fire

Johnson Beharry VC with Nick Cook
Sphere, 2007
ISBN: 978 0 7515 3879 3

Reviewed by Colonel Chris Field

Private Johnson Beharry, The Princess of Wales’s Royal Regiment. For his actions on 1 May and 11 June 2004 in saving the lives of his Warrior crew by dogged and determined perseverance when injured and under sustained enemy attack. The Victoria Cross.

An 18 year old member of the Australian Defence Force (ADF) was born in 1990. In that person’s life, the Victoria Cross, the Commonwealth’s highest military decoration for valour, has been earned and recognised on three occasions: Corporal Bill Apiata, New Zealand Special Air Service, Afghanistan, 2004; Private Johnson Beharry, 1st Battalion, Princess of Wales’s Royal Regiment, Iraq, May and June 2004; and, Corporal Bryan Budd, 3rd Battalion The Parachute Regiment, Afghanistan, July and August 2006 (posthumous).

The above list is noteworthy, not only for its select members, but for the fact that all members are either Junior Non-Commissioned Officers, or in Johnson Beharry’s case, a Private. These facts make Johnson Beharry’s autobiographical book, which includes descriptions of his valour under fire, a rare occurrence in our lifetimes, and for that reason alone, well worth reading.

In a nation as wealthy as Australia, it is hard to imagine many people who could compare their childhood with Beharry’s. The first half of Beharry’s story is bleak and seemingly hopeless. His forthright descriptions of his childhood and early adolescence are heart rending—’a fear that grips me in the depths of my belly’. His character is always strong, and his head full of dreams, but reality in Grenada is all encompassing in dread, hard-knocks, and disadvantage.

Johnson Beharry’s story is somewhat reminiscent of the fictional character in Greek mythology, Sisyphus, who was a king punished by being cursed to roll a huge boulder up a hill, only to watch it roll down again, and repeat this throughout eternity. Unlike Sisyphus, Beharry is not a bad person. Beharry is a smart young man, who from poverty and abuse in Grenada in the West
Indies, manages to find his niche, and ultimately excel, in the British Army. Beharry’s Sisyphean challenges are clearly established in his book, and range to include his humble beginnings, lack of an early education, drugs and alcohol, peer and cultural pressures in Grenada, his struggles in foreign England, and conclude with challenges in the British Army.

Unlike Sisyphus, Beharry, with the assistance of his inspirational grandmother, his religious and superstitious beliefs, and some benevolent relatives, breaks the cycle and, by gaining skills, acceptance, and confidence in the British Army, Beharry creates a story of hope and optimism for the reader.

Once he finds his place in the British Army, Beharry’s story becomes more uplifting. From this book it becomes clear that the British Army which, like other Commonwealth derived armed forces, including the Australian Defence Force (ADF), is based on discipline, teamwork, respect, and good humour actually saves Beharry’s life. For in the British Army, Private Beharry, who always dreamed of driving a race car, and who loved to drive the Warrior Infantry Fighting Vehicle—‘it’s not as quick as a Porsche 911, but I don’t care’—is given a new identity, and new opportunities. He is no model soldier, but he is industrious and practical, with a genuine and caring soul, who demonstrates an ability to sacrifice his own safety for his team and for his mates.

Beharry’s regiment comprises archetypal British nationals, combined with a polyglot Commonwealth body of men, from Fiji, Jamaica, New Zealand, and Beharry’s Grenada. It is a credit to the British military system, that such a disparate body of individuals—‘we’re all running from something’—could be moulded into a professional and lethal military organisation.

For armed vehicle enthusiasts, this book gives ample description of the British Warrior Infantry Fighting Vehicle’s capabilities. The Warrior, when fighting in a combined arms environment that includes infantry, British Challenger 2 tanks, indirect fire support, unmanned aerial vehicles, and joint air support, is an impressive vehicle that most certainly saved Beharry’s life. For ADF planners intending to place our people in complex environments, pitted against lethal, pervasive, and adaptive adversaries, the capabilities of Warrior are a stark reminder that our people will face dangerous circumstances. Our people need protected mobility in order to ensure their survival—Warrior could ‘provide protection against 14.5mm armour-piercing rounds, 155mm air-burst shell fragments, and nine-kilogram anti-tank mines’. Such protected mobility enables our forces, like Beharry’s regiment, to take punishment from, and then take the fight to, our adversaries.

A small criticism of this book is the paucity of maps. The map of Grenada lacks detail about Beharry’s childhood haunts, which are described beautifully in the text. And, while the map of Al Amarah in southern Iraq, the location where Beharry earned, on two separate occasions, his Victoria Cross, is produce in useful detail, there are no maps of Kosovo, where Beharry’s regiment also deployed. The military reader in particular would find a map of Kosovo, detailing Beharry’s operations, a useful addition to fully appreciating Johnson Beharry’s remarkable service.
ALL THE BULL’S MEN:
No. 2 Australian Independent Company – 2/2nd Commando Squadron

Cyril Ayris
2/2nd Commando Association, 2006
ISBN: 0646458248

Reviewed by Dr Lindsay Carey, Chaplain Squadron Leader (RAAFSR)

Amidst the plethora of notable Australian wartime dramas such as Gallipoli, the Kokoda Trail and the bombings of Darwin, there is one Australian battle which triumphed against all odds yet has failed to be truly celebrated. The ‘Battle for Timor’ was considered a priority for the security of Australia against the ravenous Japanese Imperial Army of WWII advancing towards Australian shores.

To counteract the potential invasion, some 300 Australian troops from around Australia, dubbed ‘the hush-hush boys’, secretly trained in guerilla combat at Wilson’s Promontory (Victoria) to form the elite 2/2nd Independent ‘Commando’ Company which eventually tackled over 3,000 invading Japanese into Portuguese Timor from February 1942.

Journalist and war historian Cyril Ayris has sought to correct Australia’s forgotten fight for Timor by recounting the fascinating story of the unit and its men. All the Bull’s Men is named after the 2/2nd Independent Company Commanding Officer Major Geoff Laidlaw, a former Manly surf lifesaver who was nicknamed ‘the Bull’. Well-respected by his troops, Laidlaw had more than just a sizeable enemy to battle. Extremely mountainous and hazardous terrain, hunger, sickness from malaria, exhaustion, lack of equipment, ragged clothing, worn boots and battle fatigue were just some of the everyday struggles. Added to these difficulties was their inadequate radio communication and the assumption by the Australian Army command that, given the overwhelming size of the invading Japanese force, it was likely the entire Australian commando group on Timor were dead or taken prisoners of war.

To the contrary, Laidlaw and his men made good use of their special service guerilla training, to live off the land and cunningly strategise their mobile attacks to the utter frustration of the Japanese command. While it can be argued that the Japanese strategically and quickly dominated other Pacific areas, the Australian commandos successfully constrained the Japanese advance across Portuguese Timor for 12 months—sufficiently long enough to make ineffective the resources and morale of their enemy until Australian reinforcements arrived.

Laidlaw, however, was not the only military hero in this text. The unit’s medical officer Charles Alfred Dunkley, a graduate of Melbourne University and son of Sir Frank Gibson (Member of the West Australian State Parliament), is also credited by the surviving members as having cared for the troops amidst ferocious fighting, not only in Timor but also with the same unit into New Guinea and finally New Britain.
One of the particularly noteworthy and ethical points raised by this book was the military advantage for the Australian commandos brought about by their compassionate and highly professional interaction with the local Timorese. While the Japanese Army readily and immorally exploited the locals for personal advantage, the Australians were extremely respectful of their hosts. So much so that the Portuguese Timor boys (called ‘creados’) provided food, shelter, assisted with transport and readily supplied information about Japanese movements to aid the Australians. This helped the Australian troops substantially and the creados earned considerable praise from the commandos for providing timely intelligence that saved Australian troops on many occasions and brought them victory at other times.

Based upon factual data, numerous personal biographies, plus interviews with survivors of the 2/2nd Commando Unit and their various original photos of troops in Timor, Cyril Ayris’s book has obviously been thoroughly researched, creatively written and (given its glossy high quality production) provides a very interesting and enjoyable read. The book could only be considered inspirational and tremendously encouraging for today’s military leaders facing a formidable opposition and needing the assistance of the local citizens.

Available: 2/2nd Commando Association, PO Box Willeton, Western Australia, 6955.

**BATTLE OF CRETE:**
**Australian Army Campaigns Series – 1**

Albert Palazzo  
Army History Unit, Canberra, 2007  
ISBN: 9780980320411

Reviewed by Jerry Bishop

This book is another useful contribution to the body of Australian military history produced by the Army History Unit under the leadership of its Director, Roger Lee.

This is the second edition of Dr Palazzo’s interesting, but sometimes frustrating, book on the Battle of Crete. Its first iteration was as an e-book in 2005 and many of the map and chart reproductions have, unfortunately, suffered a significant loss of legibility as a consequence. They are meant to be viewed on a computer screen not as half- or full-page illustrations on a B5 printed page. For example, I was irritated by my inability to identify any of the actual German landing zones on any of the maps which claimed to show ‘German Intended/Planned and Actual Landing Zones’.

That said, I understand that the task of converting it from an e-book to a ‘normal’ book was quite a challenge but, if one wishes the reader to be able to follow the detail of a complicated, widely dispersed and somewhat disjointed defence, then a good clear map is most important. Even though I am familiar with the geography and topography of the island (which I toured
extensively in 1987) a useful addition might therefore have been a fold-out topographic map at the end of the book which a reader could leave open while reading the text. As it was, I pulled out my old Michelin map to keep track of things and, although it shows several more roads than there were in 1941, I found it invaluable.

In the Preface, Dr Palazzo notes that the book’s primary audience is the Australian Army’s junior leaders. That is clear from the style. He gives careful biographies of the main players in the form of boxes or panels. The same technique is used to explain key weapons, aircraft and items of equipment. He also uses ‘Post-it’ notes to draw out lessons that should be learned from the many mistakes that were made. While the latter can be a useful teaching technique, it can also irritate a more informed and mature reader. It is very much a textbook for those with little or no prior knowledge of the defence of the island.

I thought it odd that early in the piece the author mentions Ultra (on page 9), but exactly what Ultra was is not explained until a box doing so appears on page 25. The author explains clearly the confused and unhelpful command and control arrangements but not why, in most cases, particularly given Ultra, the defenders expected the brunt of the attack to come from the sea rather than the air.

Although the German High Command clearly considered Crete an important strategic buffer to keep Allied forces from interdicting their oil supplies from Romania, and as a base from which to support the Afrika Korps, and to attempt to disrupt the Allied defence of Egypt and the canal, there is little evidence to show that it was ever used thus. The opening of the Russian Front saw to that.

The Germans had no significant naval presence in the Mediterranean (other than some submarines) and certainly lacked the capacity to move large numbers of combat troops from Greece to effect an opposed landing.

While Dr Palazzo dissects the poor tactical dispositions arrived at by several of the sector commanders (e.g. New Zealand Brigadier James Hargest at Maleme), I was left wondering why the overall commander, New Zealand Major General Bernard Freyberg, didn’t override them and focus on a defence against airborne assault. Surely Freyberg would have been provided with the best intelligence available and have known that the main threat was from the air and not the sea? The best that the author can offer is that Freyberg was hampered by a lack of artillery, shortages of equipment, obsolescent equipment, the complexity of the defending force, several poor quality subordinate leaders, a lack of headquarters staff, and poor communications.

A more assertive supreme commander would have resolved the last three of these difficulties—and quickly. Particularly as the least effective of his subordinate commanders seem to have all been New Zealanders.

Moving on, I was impressed by how well most of the Greek units acquitted themselves (e.g. at Kastelli) and the Cretan Police Academy Force. This was all new to me as, apart from passing mention in a number of unit histories, biographies and the like, the only books I had read dealing with the defence of Crete were Gavin Long’s Greece, Crete and Syria (Australian War
In an age that seems to be dominated by defensive, passive, and reactive (dressed-up as ‘pro-active’) strategies and tactics, it is refreshing to have back in print one of the classic texts on the doctrine of offence. This is a reprint of the late Rex Applegate’s (1914–1998) World War Two text on close quarter combat.

Originally published in 1943, it was one of the first texts that took the American soldier from a mindset of defensive hand-to-hand tactics to one that sought to destroy the enemy close-up. Applegate adapted the underlining philosophy of these offensive techniques from the seminal work of William E. Fairbairn. While he was working for the Shanghai Municipal Police (1907–1940), Fairbairn proposed a hybrid model of fighting techniques (termed Defendu) that he based on several Asian martial arts styles—taking the best techniques and blending them into a fighting form that had no rival.

Applegate distilled Fairbairn’s techniques into a short intense course that could be delivered to military personnel in a matter of weeks, rather than years of training. It was no surprise that General William (‘Wild Bill’) Donovan (1883–1959) asked Applegate to teach his techniques to elements of the newly created Office of Strategic Services (OSS) as part of these agents’ spy curricular.

The late E. Howard Hunt (1918–2007) wrote in his autobiography America Spy (John Wiley & Sons, 2007) about Applegate’s commando-style fighting training that he received prior to
being inserted into Imperial Japanese-held China. Hunt wrote glowingly about what he called the ‘...merciless quick-kill...’ techniques (p. 17).

No doubt practitioners of the craft of intelligence (and those colleagues in the clandestine services) understand and adhere to the ethics of spying (see Jan Goldman, *Ethics of Spying*, Scarecrow Press, 2005), but in the war on terror there is no reason to adopt what seems to be an approach that seems to comprise wholly of strategies that centre on ‘target hardening’, crime prevention through environmental design (CPTED) and the like. This type of approach places us on a defensive footing—and as any text on military doctrine will confirm, defence of a fixed position is a difficult task.

In the context of the Cold War and the dog-eat-dog world of geopolitics that permeated Hunt's time in the OSS, and later the CIA, one can understand why he held fast to the philosophy of *offence*. Hunt’s field operative training, which included Applegate's close quarter combat techniques, presented him with a simple theoretical choice—kill or get killed.

With 20/20 hindsight, it is not hard to see that the West’s Cold War Warriors contributed much to winning the battle against Communism using this doctrine. Today, parallels can be drawn between the ideologies that were once espoused by Communists and the ideologies now being advocated by radical Islamists. As such, wouldn’t it be refreshing if policy makers had a read of Applegate’s *Kill or Get Killed*, a hearty meal of red meat and a double espresso coffee—such a prescription might work wonders for formulating a strategy that puts us on an *offensive* footing—a footing that could see us gain ground against these fanatical ideologues, rather than simply hunkering-down behind barricades.

**LEARNING TO LOVE THE BOMB:**
*Canada’s Nuclear Weapons During the Cold War*

Sean M. Mahoney  
Potomac Books Inc. 2007  

Reviewed by Air Commodore Mark Lax, (Retd)

I expect most readers would be surprised to learn that Canada had a 20 year flirtation with nuclear weapons for all three of its Services, until finally renouncing ‘the bomb’ in 1984 when the last such devices were returned to the United States. While not having an indigenous weapons program, they nevertheless acquired nuclear weapons from their American neighbours for their potential use in World War III. This book tells the complete story of how Canada acquired the bomb for the RCN, the RCAF, and the Army, how they intended to use it and why.

Canada had been toying with the idea of acquiring nuclear weapons ever since the first Soviet test late in 1949, but it was two Cold War crises that shook the Canadian Government into
action—The Berlin Crisis of 1961, when the wall went up, and the Cuban Missile Crisis of 1962. By then, Canada was heavily committed to both NATO and NORAD, and under both agreements, the Canadian Government was treaty bound to support the United States when under threat. However, the Diefenbaker Administration in Canada and the Kennedy Administration in the US did not see eye-to-eye, with Canadian procrastination and at times, deliberate intransigence on issues such as the right of nuclear overflight, basing on Canadian soil and forward deployment of weapons all frustrating the Americans. The election of the Pearson Government in 1963 saw a rapid policy change and Canada soon had nuclear depth bombs for the Navy (for use against Soviet ballistic missile submarines), the Army had Honest John nuclear tipped battlefield tactical missiles for use in the European Central Region where its Brigade Group was based, and the Air Force carried both nuclear bombs and nuclear air-to-air missiles for use against Soviet long-range bombers. Thus, Canada was by no means an impartial commentator on the growing international nuclear and arms limitation debates.

The title Learning to Love the Bomb, is paraphrased from Stanley Kubrick’s brilliant satirical film Dr Strangelove, and seems quite appropriate given the moral dilemmas, political wrangling and general angst the nuclear weapon question raised in both Canadian political circles and within senior military ranks. The issue of who had authorisation to use ‘the bomb’ is well covered, but the fact that the Americans had a dual-key system (one Canadian, one American) for arming technically means Canada never had a truly independent capability. The book explores many other important issues, including deterrence theory, Canada’s cultural cringe vis-à-vis the Americans and the rights of nations to be heard in international fora. There are many striking similarities between Canada’s posturing and the debates that were going on in Australia, with Menzies’ attempt to acquire nuclear weapons around the same time, eventually thwarted by both British and American interests.

The author a historian by trade, Sean Mahoney, is a lecturer at the Canadian Royal Military College and has written widely on Canadian experiences in the Balkans, the Middle East and Afghanistan. The book is well written (although it could have been shortened), extremely well referenced and a fascinating read. This book breaks the myth of Canada as the eternal peace-broker post-World War II and will make you wonder about other secrets yet to be revealed. Recommended for readers interested in civil–military relations and the nuclear weapons issue.