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Chairman's comments

Welcome to *Australian Defence Force Journal* Issue No. 185.

This issue features a range of articles addressing both contemporary and historical issues. The lead article by Ed Judd highlights some interesting perspectives on the effects of the 'surge' by coalition forces in Iraq. Dr Craig Stockings' article on the Greek campaign of 1941 tackles the controversial subject of the impact of German armour, deducing what may be lessons for the modern day on the effectiveness of armour in difficult terrain.

Pleasingly, we also have two articles relating to the reserves. The first by Lieutenant Colonel Geoff Orme and Major James Kehoe addresses the important issue of the support provided to the families of deployed reservists. The second by Wing Commander Paul Earnshaw and Group Captain John Price highlights some very interesting comparisons between the reserve capabilities of Australia and a number of countries with similar or emerging interests in their reserves, including a critical focus on the support of employers.

We also have two articles on the topical issue of 'clean energy'. The first by Major Michael Thomas argues that the ADF is not paying sufficient attention to understanding the risks and opportunities presented by climate change. The second by Colonel Harry Kowal, a Canadian Air Force officer and graduate from last year's Defence and Strategic Studies Course at the Australian Defence College, advocates the use of nuclear energy as a 'clean energy' solution for Australia.

Finally, Lieutenant Robin Orr and his co-authors provide an authoritative and timely article on ways to minimise the adverse effects of load carriage on force generation and force sustainment. And Lieutenant Colonel Ian Langford argues the need for an 'indirect' expeditionary warfare concept to combat the threats and security challenges of future operating environments.

As usual, we have a selection of book reviews, with an additional number in the on-line version of the *Journal*. We remain keen to hear from readers wishing to join the list of reviewers. If you are interested, please provide your contact details and area of interest to the Editor at publications@defence.adc.edu.au

I should also mention that we received some very positive feedback on our last issue, which readers will recall was themed on 'the ADF command and leadership experience over the last 20 years'. We are planning a follow-on issue for March/April 2012 on 'the junior ADF leadership experience', particularly seeking contributions from non-commissioned officers and other ranks in all three Services. I would ask unit-level commanders, in particular, to identify and encourage specific individuals to make a contribution. Articles should be around 1200 words, written as a personal recollection of one or more ADF operational deployments, and submitted to the Editor by mid January 2012. The best article from each Service will be awarded \$250, with an additional \$500 for the best overall article.

I hope you enjoy this edition and continue to support the *Journal*. This is my last issue as Chairman. I will be handing over to Major General Craig Orme, who takes over as Commander, Australian Defence College on 3 August. I want to close by thanking the members of the Board of Management and particularly the Editor of the ADFJ, Dr Bob Ormston, for their continuing work on this endeavour and for their personal support to me.

James Goldrick

Rear Admiral, RAN

Commander, Australian Defence College

Chairman of the Australian Defence Force Journal Board

Counterinsurgency Efforts in Iraq and the Wider Causes of Pacification

Ed Judd, Australian National University

The 'surge' of US and Iraqi forces that began in January 2007 is often held as the key cause of the reduction in violence observed later that year. In much of the associated literature, significant debates exist over the efficacy of the surge. This article will posit that a particular narrative has emerged that ascribes success to the innovation of key US leaders. This narrative eschews critical assessment and risks ignoring the context of the surge.

In fact, while this changed approach to the conflict did contribute to the pacification of Iraq, it came on the crest of a wave of broader indigenous factors that acted in concert to reduce the rate of conflict. Separate and identifiable trends in violent behaviour correspond to various stages of the conflict and support the argument that a range of influences were present. The effects of sustained ethnic cleansing, the emergence of the 'sahwa' (awakening) movement and the unilateral ceasefire undertaken by Jaish al Mahdi (JaM) all contributed at various stages to the reduction in conflict.

The surge was significant in suppressing conflict once it came into effect. But it was also responsible for a brief upsurge in violence as troops came into closer contact with warring communities. In no way can it be argued that the surge achieved the stated goals of sponsoring reconciliation and political development. It is, however, significant to consider whether it was militarily successful. The following analysis gives a qualified endorsement to claims of the success of the surge, provided recognition is given to the wider-reaching factors present at the same time.

Assessing the surge

In addressing claims that the surge 'won the war,' it is necessary to establish *which* war is being discussed, as well as *how* victory would manifest. Thomas Ricks points out that since 2003, Iraq experienced no less than five distinct periods of conflict: a blitzkrieg invasion, botched occupation, durable insurgency, civil war and finally a counterinsurgency campaign, which were all observable at various stages.¹ From February 2006, the key conflicts were insurgency and civil war which, while clearly linked, shall be treated as two separate phenomena.² Both are significant in assessing the surge.

The tactics utilised across 2007 were oriented towards counterinsurgency but it was inter-sectarian conflict that motivated the US escalation. Achieving the goals laid out in George W. Bush's 'New Way Forward' speech necessitated suppressing the insurgency as well as breaking the cycle of civil war so that long term strategic benchmarks could be met. It is relevant to question whether the surge should be considered solely as an increased troop commitment or as part of a fundamental strategic shift, although such discussion is beyond the scope of this enquiry. Herein, the surge will be taken to encompass both the increase in troop numbers as well as the revised counterinsurgency strategies those troops employed.

Using these parameters for success, it is clear that the goals of the surge were not met. The original aim of the surge was for military victory to create an environment that would foster reconciliation and allow for political development.³ This has not been achieved and, at the time of writing, the Iraqi parliament has only just returned from suspension after eight months of repeated failures to form a coalition government. In the last three years, key political benchmarks on political reconciliation and development have not been met and leaders have instead been preoccupied with consolidating their own sectarian support.⁴ In the opinion of Lieutenant General Ray Odierno, while a more peaceful 'breathing space' was created in late 2007, no breathing occurred and the window of peace was not adequately exploited.⁵ Given the established failure to achieve these wider goals, the only point open for debate becomes the efficacy of the counterinsurgency tactics employed in the surge.

The theory outlined herein is supported by trends observable in the Multi National Force – Iraq (MNF-I) 'Significant Activities Database (III)' and proceeds as follows.⁶ The bombing of the al 'Askariyya shrine in February 2006 marked the beginning of a period of intense sectarian conflict, with violence peaking in late 2006 before beginning to decrease. The significant declines before the surge came into full effect in 2007 are explained primarily by the effects of sustained ethnic cleansing in contested areas, as well as the 'awakening' (sahwa) movement. General David Petraeus' September 2007 testimony before the House Committees on Armed Services and Foreign Affairs supports this assertion, citing that violence peaked in December 2006 and was declining even as the first surge troops were deployed.⁷ McCausley's observation that surge troops did not fully deploy and begin in earnest until mid-June adds further weight to the argument that factors unrelated to the US military deployment bore influence on the pace of violence in Iraq.⁸

A plateau across early 2007 and second spike of violence in mid-2007 carries across all reviewed figures and is attributed to the beginning of surge operations and the associated increased exposure as troops moved out of forward operating bases and into the community in pursuit of more frequent engagements. From mid-2007, there appears another substantial decline in violence. It is the contention of this paper that this reduction is primarily attributable to two major factors: the tactics employed as part of the surge and the JaM ceasefire that occurred from August 2007.

Iraqi fears of US withdrawal and a subsequently increased local stake in security are argued to form a minor cause. Changed patterns of Iranian influence and increasing efficiency of intelligence and other secret operations must also be acknowledged but will be considered unreviewable due to the secrecy and uncertainty surrounding them at this stage. At its core, this theory suggests that violence was already in decline by the time the surge was announced. The tactics employed did contribute to pacification (alongside local factors) but ultimately cannot be considered to be the prime cause of the decreasing violence across 2006-07.

Ethnic polarisation

The most significant cause of the declining violence after December 2006 was related to the progression of the civil war. A calculated effort by Sunni Islamists to incite open war between Shi'a and Sunni communities—the February 2006 bombing of the al 'Askariyya shrine in Samarra—motivated conflict that led to the near total segregation of Iraqi society.⁹ The efficiency of ethnic cleansing served to separate warring communities and, after the initial intense period of fighting, reduced opportunities for conflict.¹⁰ Although largely ignored in

unclassified US reports, significant empirical evidence exists to support the theory that the war had run its course by the time surge operations commenced and contested areas had already been homogenised.¹¹

The primacy of ethnic cleansing as a key driver of conflict in Iraq appears to be supported by Wikileaks' October 2010 release of 400,000 classified files, although analysis of the full tranche is still in progress at the time of writing.¹² The most innovative proof of the importance of sectarian conflict as a cause for changes in the rate of violence comes from four UCLA (University of California – Los Angeles) geographers, who have used satellite imagery of night-time light signatures to assess population distribution in Baghdad. Their findings indicate that between March 2006 and December 2007, neighbourhoods that were heterogeneous, bordering competing ethnic strongholds or isolated from their own strongholds 'went dark.' Homogenous or otherwise defensible neighbourhoods remained well lit or even brightened, indicating that the decrease in violence was not so much a 'Pax Americana' of increased security as a permanent, self-imposed segregation.¹³

The separation of warring populations is further exemplified by a series of maps produced by Columbia University's Dr Michael Izady that highlight demographic change in Baghdad. Using information from local itinerants (primarily taxi and delivery drivers), who depend on a knowledge of sectarian 'safe zones' for their survival, Izady's maps confirm that significant population exchanges occurred between 2003 and 2009, changing the ethno-political landscape of the city and quickly reducing the opportunities for conflict.¹⁴ This trend continued even while the surge was underway. Red Crescent representatives estimate that the number of Iraqis who fled their homes quadrupled between February and November 2007, with the vast majority coming from Baghdad.¹⁵ It seems clear that rather than being pacified by the measures of the surge, the most significant cause for decreased violence was the severe and permanent ethnic cleansing that removed potential combatants from contested positions.

The Sunni awakening

While less drastic than the effects of ethnic cleansing, the emergence of indigenous self-protection militias aligned with the US had a significant effect on the progression of hostilities in a number of regions of Iraq. Originating in Anbar province, the 'sahwa' movement was a significant force for pacification that arose organically before finding common ground with US military planners.¹⁶ Although a full analysis of the 'awakening' is beyond the scope of this paper, fear over Shi'a domination and the alienation of tribal authorities by Sunni Islamists led to a strategic realignment more in tune with US goals from late 2005.¹⁷

Practices such as demanding wives from tribal leaders and dominating local revenue streams have been used by Sunni Islamist groups across the world to subsume traditional authorities and cement militants' positions within local power structures. By mid-2006, the alienation of tribal authorities reached a precipice with Islamist attempts to muscle in on the lucrative smuggling routes along the Euphrates corridor linking Syria to Iraq that were hitherto considered the domain of the Albu Risha clan. In response to their growing marginalisation, Sheikh Abdul Sattar al Rishawi began an organised rejection of al Qaeda, which upon his assassination was developed by his brother Ahmad into a movement with national scope. It has been suggested that the relatively low standing of the Albu Risha family within the Dulaim tribe was a significant factor in the broad appeal of the movement, as Abdul Sattar (and then Ahmad) had to rely on political manoeuvre rather than traditional authority to gain support.¹⁸

The co-optation of Sunni militias by the MNF helped cultivate a local auxiliary force and by November 2007 almost 100,000 ‘concerned local citizens’ were assisting the MNF against insurgents within their own communities.¹⁹ Later volunteers came from across the sectarian spectrum, with Shi’a movements in Diyala and the southern provinces successful in limiting the ability for JaM to operate within local populations.²⁰ Accounts of the successes of the ‘awakening’ are widespread, with the most common evidence being the rate at which Anbar (and in particular the cities of Ramadi and Fallujah) went from being among the most dangerous areas in Iraq to one of its safest.²¹

John McCary echoes the popular argument that the Sunni insurgency was broken as early as late 2006, with the pressures of sectarian conflict leading Sunnis to search for allies who could assist in security from Islamists and the Shi’a majority.²² While the surge did involve increases in the co-optation and utilisation of *sahwa* militias, their origins and achievements before 2007 mean that their successes must be recognised independently. Accordingly, while it may have contributed to a decline in hostilities, the Sunni awakening cannot be considered a victory in Iraqi political development. The movement encourages the independence of Sunni groups and breaks a key historical tenet of Middle Eastern state-building—the subordination of tribes to the state. In Steve Simon’s view, the empowerment of exclusionary, non-government groups will in future present a significant obstacle to reconciliation and reintegration.²³

JaM ceasefire

JaM’s unilateral ceasefire from August 2007 was a major factor in the suddenly declining violence of late 2007. Under the leadership of Moqtada al Sadr, the ‘Mahdi Army’ grew from a small Shi’a self-defence militia to a significant force challenging the Iraqi government, MNF occupation and Sunni groups who wished to regain dominance over Shi’a communities. While internal fractures and fraudulent self-identification by unrelated violent groups makes pinpointing JaM activities difficult, it is estimated to have comprised over 60,000 combatants in 2007, who operated more efficiently than the Iraqi army.²⁴ As one of the largest and most violent forces in Iraq, the influence of JaM on the anti-occupation insurgency and sectarian civil war cannot be underestimated. The International Crisis Group (ICG) cites the dramatic decline in bloodshed in late 2007 as resulting directly from al Sadr’s decision to freeze hostilities.²⁵

Taking a more moderate view and maintaining the primacy of the surge, Lieutenant General Odierno still credits the JaM ceasefire as being responsible for 15-20 per cent of the reduction in violence experienced throughout 2007.²⁶ While it definitely resulted in reduced violence, through removing a significant militant force, the JaM ceasefire cannot be regarded as any type of political development. Although the ICG suggests that the ceasefire was the result of internal fracturing, as well as local and international pressures, it also concedes that the quiescence may be a strategic lull intended to guarantee JaM’s readiness to forcefully re-emerge upon the US withdrawal. JaM remains entrenched in its constituent areas and has maintained the ability to defend itself against all attackers.²⁷ Given this—and while the disengagement of JaM has clearly reduced conflict—it has been a unilateral undertaking and may be revoked at any time and consequently cannot be regarded as a success of any counterinsurgency strategy.

The threat of impending withdrawal

As well as those factors influencing the conflict through a direct mechanism, it is often argued that the impending US withdrawal removed the moral hazard granted to restive parties and forced both the government and Sunni groups to make plans for self reliance for their security. Colin Kahl and William Odom explain that since the 2006 mid-term swing against the Republican party, perceptions of widespread dissatisfaction and impending withdrawal permeated the Iraqi political establishment. In this environment, they argue that the reality of a US withdrawal prompted a reconsideration of security, pushing the Iraqi government to take action against extremist elements that threatened stability. Before this, combative parties operated with the knowledge that any decisive action in the civil war would be counterbalanced by the MNF.²⁸

Apparently President Obama's favoured explanation for the fall in violence, this explanation relies on evidence such as Prime Minister Nouri al Maliki's decision to confront JaM in early 2008.²⁹ While a possible motivation to alter behaviour (with demonstrated efficacy in the case of Sunni insurgents), the fear of abandonment is discredited by the evidence normally used to support it. Maliki's positioning against Shi'a extremists has been convincingly argued to be motivated more by a desire to remove political rivals than the aim of promoting stability.³⁰ Although the theory cannot be totally discounted, it cannot be taken as a major cause for the reduction in hostilities, as no concerted effort on the part of the Iraqi government was demonstrated.

Evaluating the surge

There can be no doubt that the refreshed US approach, comprised of increased troop numbers and a more focused counterinsurgency strategy contributed to the overall pacification of Iraq across 2007. The methods employed represented a consolidation of historical experience and a newfound unity of effort, while the increased presence provided the means to enact an effective counterinsurgency. As well as the previously highlighted statistical evidence showing a decline in violence from mid-2007, widespread anecdotal evidence supports the assertion that the surge was a tactical success.³¹ While a comprehensive discussion of the historical underpinnings of the surge tactics will not be undertaken, it is worth briefly pointing out the influences of classical theorists. The existence of such influences shows critical insight and a level of theoretical development which indicate, if nothing more, that the tactics used were prepared in consideration of the broader historical and theoretical context of counterinsurgency.

In accordance with these teachings, a constant, accessible presence in the community was found to yield immediate benefits in population security through decreased response times and increased intelligence gathering opportunities.³² Physical barriers to movement restricted the movement of car bombs and weapons and allowed for controlled access to secure areas.³³ A movement from sporadic 'in-and-out' searches to a more methodical searching, clearing and holding process allowed the consolidation of safe zones and shows a clear appreciation for the 'ink spot' process developed by Sir Robert Thompson in Malaya.³⁴ The co-optation of the aforementioned *sahwa* militias into the US-funded 'Sons of Iraq' in effect amounts to the raising of a local auxiliary force, providing additional forces, local intelligence and an indigenous responsibility for security.

The local census undertaken by the 1st Squadron, 4th Cavalry Regiment in Dora could have been taken directly from the pages of Galula's Counterinsurgency Warfare and provided unprecedented intelligence, making covert insurgent operation near impossible.³⁵ In line with Thompson's experiences in Malaya and Vietnam, the distinction was drawn between 'irreconcilables' and those insurgents who could be persuaded to lay down their arms and in some cases contribute intelligence or active support.³⁶ Engagement with local power structures and capacity building at lower levels was strengthened, as was partnering with local security forces (both government and militia). Finally, General Petraeus' restrictions on altering his orders throughout the chain of command contributed significantly to the unity of purpose stressed by all classical theorists.³⁷

None of these are novel ideas. All have been discussed at length by counterinsurgency scholars and their collected works refined into the US Army and Marine Corps' 'Counterinsurgency Field Manual' (FM3-24).³⁸ The development of this as a unified approach came on the back of successful regional efforts, by the 101st Airborne in Mosul, 3rd Armoured Cavalry in Tal Afar and 1 Brigade, 1st Armoured Division in Ramadi, which all utilised counterinsurgency 'best practice' well before it became the mantra of the entire MNF.³⁹ In light of this, the development and implementation of FM3-24 and indeed the entire planning of the surge was more significant for the unity of effort it sponsored, rather than for any new innovation or idea.⁴⁰

Although the success of this defined strategic unity is clear, it is important to interrogate the 'narrative of triumph' that emerged with the surge. Colonel Gian Gentile decries a trend in which the success of the planning behind the surge is uncritically accepted as a straightforward explanation for victory. The idea of the old-fashioned and inflexible Rumsfeld, Khalilzad and Casey being replaced by the dynamic and forward-thinking Gates, Crocker and Petraeus echoes the popular narratives surrounding Abrams replacing Westmoreland in Vietnam or Templer replacing Briggs in Malaya. While an element of truth is probably at the core of this, the concept of the war being won solely by strategic revolution is antithetical to the development of a sound understanding of the conflict.⁴¹

Exemplified in a wide range of accounts, this version of events discourages critical introspection and dogmatically overstates the effectiveness of the changed tactics, at the expense of crediting the wider forces acting at the time.⁴² Forming strong evidence of this, the first six months of the surge deployment (January-June 2007) were among the bloodiest since 2003, indicating that the changed role of counterinsurgent forces was itself a significant cause of violence.⁴³ While this could be argued to be the necessary friction encountered during the 'clear' phase of a 'clear, hold, build' approach, the fact that violence was already trending downwards indicates that the effects of the revised strategy was less significant than initially thought.

On this basis, it seems clear that while the surge did successfully dampen violence in Iraq, it came on the back of pre-existing trends and a large amount of that pacification may have been responding to violence that emerged as a consequence of the increased exposure of surge troops. In addition, the comparable successes of the more hands-off role played in the south (where the US acted largely through the Islamic Supreme Council of Iraq) indicates a plurality of causes for pacification and undermines the argument that the surge was the prime cause.⁴⁴ Accounts of this narrative also rarely mention the role of Iraqi forces, even though the local security forces deployed alongside surge units were fighting (and dying) at a rate many times that of the MNF.

Conclusion

Ultimately, criticism that suggests the surge failed militarily is unfounded. While its wider political goals were not achieved, reviewed empirical evidence does indicate that the newfound unity of purpose did help sponsor a decrease in violence. At the same time, accounts that ascribe excessive credit to an overhauled approach instituted by 'young Turks' of the US military and political administration risk overlooking important surrounding factors that definitely bore influence on the conflict. The surge did help but not so much as other factors in play at the time.

The single most significant element in the reduced violence was the fact that sectarian conflict was easing after its earlier efficiency. By 2007, ethnic cleansing had cleared contested or vulnerable areas and the majority of inhabitants had either fled the country or relocated to secure homogenous enclaves. By the time the surge started, there were simply fewer targets available for sectarian attacks.

The *sahwa* movement forms a second highly significant factor. Geographically limited but by no means ineffective, the strategic realignment of Anbar's Sunni tribes (and later, a more extensive cross-section of Iraqi society) against extremists was the main cause of pacification in the groups' local areas. Motivated by a fear of Shi'a domination and a gradual turn against Sunni Islamists, the 'awakening' cannot be regarded as a success of the surge. While participants were later widely co-opted into the 'Sons of Iraq,' the movement emerged locally and must be regarded as an indigenous factor that contributed to wider goals. The ceasefire announced by JaM leader Moqtada al Sadr in August 2007 forms another such indigenous factor. The unilateral removal of an estimated 60,000 highly active militants from the conflict had a direct effect on the intensity of fighting and, while unconnected with the greater goals of the surge, undoubtedly contributed to the relative peace that emerged in later 2007.

Rather than any single factor constituting a 'magic key' to the conflict, the reduction in violence seen in late 2007 came as a result of a number of elements operating at different times. No single factor deserves full credit or condemnation but a proper understanding of the events of the surge requires the recognition of their individual and combined influence on a highly complex and multifaceted conflict.

Ed Judd is a 'conflict anthropologist' from the Australian National University, Canberra. He specialises in the individual decisions leading to non-state conflict and instability and has performed fieldwork in the Middle East and West Africa aimed at engaging with public perceptions of violence. He has recently completed a research project at Copenhagen University on the discursive and rational factors behind insurgency in Indonesia, Thailand and the Philippines and is currently performing research in conflict-affected areas of the Caucasus.

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The Fairy Tale of the Panzers in Greece, April 1941

Dr Craig Stockings, UNSW@ADFA

On 28 October 1940, Fascist Italy launched an invasion of Greece from Albania. But to Benito Mussolini's considerable chagrin, subsequent events did not proceed according to plan. Not only did the Greek army halt the advancing Italians but, in short order, drove them back over the Albanian frontier. Such initial Greek success made the enforcement of an earlier British promise of military support to the Greeks—should they be attacked by a foreign power—largely unnecessary. The Greeks did not need, ask for or require any substantial British ground deployment to repel the hapless Italian expedition.

Events in the early months of 1941, however, tipped the strategic balance in the Balkans markedly. As the prospects of German intervention became increasingly clear, the Greek government reversed its earlier position and invited the British to send what forces could be spared. Aside from a single British armoured brigade, the subsequent Imperial effort to defend Greece was placed largely in the hands of Dominion troops from Australia and New Zealand, fresh from training and operations in the Western Desert in North Africa. Greek and British fears proved well-founded when, on 6 April 1941, German troops marched into Greece and Yugoslavia. The Yugoslavs were overrun in a matter of days.

The ensuing campaign in Greece (Operation MARITA) lasted just over three weeks and ended with a complete German victory, during which British and Dominion troops (collectively known as 'W Force') had retreated some 430kms in 10 days. By 20 April, when it was clear that it could do no more than slow the German advance, the Greek government agreed that this expeditionary force should be evacuated. The withdrawal began on the beaches of Attica and the Peloponnese four days later. Over the next five nights, around 50,000 Allied troops departed the Greek mainland. On 25 April, the Greek government left for Crete, which was subsequently attacked by German forces on 20 May—initiating another important and related campaign but one beyond the scope of this investigation.

Despite the significance of the Greek campaign within the international history of the Second World War, and its significance within the individual military historiographies of the belligerents, relatively little research has yet been conducted into many of its operational aspects. Since Robin Higham's *Diary of a Disaster*, (which focused predominantly on Britain's decision to deploy W Force to Greece and was published more than 20 years ago), international scholarship has thus far generally paid scant attention to it.¹ Excluding larger works on modern Greek military, strategic and diplomatic history, various official histories, personal memoirs and anecdotal material, very few books or even scholarly articles have been published specifically on the period of the German invasion.

Fewer still deal in any meaningful or detailed way with operational events.² Many of those that do assert a battlefield focus are traditional, non-academic narratives of events, often replete with colourful (if on occasion ahistorical) anecdotes and 'ripping yarns'.³ Most, to some degree, fall victim to commemorative urges and cultural relativism. Even in this context, when compared to the literature which exists for the Battle for Crete which followed, such a body of work is still very small. So too, it represents only a tiny fraction of the research done in recent

years into the operational aspects of the fall of France, for example, or the campaigns in North Africa. The battle for mainland Greece in April 1941 remains somewhat of a blind-spot in the existing historical record.

Perhaps as a consequence of the limited historical research conducted, and subsequent paucity of English-language literature on the operational aspects of the Greek campaign, over the last 70 years a number of serious misunderstandings have developed and been knowingly or unknowingly perpetuated. Many were born of Allied wartime propaganda—1941 was a period of desperation for Britain and her allies, not at all a time for critical reflection. If Greece could not bring the good news that the populations of those nations fighting the Axis powers craved, after an unbroken string of German victories thus far in the war, then at the very least a story of the campaign was required for the public that softened the blow, glossed over the mistakes and obscured military shortcomings that had precipitated the disaster.

Other myths sprouted from rather self-serving after-action reports and subsequent memoirs from senior Allied officers, conscious of the need to protect their professional reputations. While such agendas are understandable, what is less forgivable is the speed and degree to which, well after the war, these skewed accounts became the dominant English-language narrative—swallowed, in many cases and by many authors, without question or critique.

One of the most powerful misconceptions or ‘semi-truths’ about the Greek campaign, used to explain (or rather explain-away) the W Force defeat in Greece, was the decisive impact of German armour against which the beleaguered W Force had no counter. The general idea is that tenacious British and Dominion troops were only pushed from their defensive positions on account of waves of next-to-unstoppable German tanks. Bayonets could not penetrate steel. No amount of courage could change this fact. If the odds in this regard had been more even, so the story goes, then the outcome may well have been reversed. This key explanation of W Force defeats, and the tradition it represents however, is mistaken in fact and inference.

It is not at all difficult to provide samples, over time, of the evolution of this myth. The path to a misguided interpretation of the impact of German armour in Greece began, as might be expected, almost as soon as the campaign was complete. Christopher Buckley’s monograph, for example, published in 1941 with British government support, described in vivid detail how W Force was ‘overmatched’ by ‘better equipped, and far more numerous German adversaries’.⁴ Buckley’s type of immediate, almost pseudo-propaganda, was soon reinforced by a series of memoirs and biographies in the 1950s and 1960s. Rather unsurprisingly, the account of the Greece campaign written by Lieutenant General H.M. Wilson, the officer in command of W Force, is a vigorous testimonial to the critical role of German armour.⁵

Subsequent memoirs—like those of Vice Admiral H.T Baillie-Grohman, the British naval officer in charge of the ‘landward’ side of the eventual W Force evacuation from Greece, and published in 1961—fit and reinforced the mould. For Baillie-Grohman, Imperial troops were ‘beaten, not through lack of courage or skill’, but because they ‘did not possess the quality and quantity of arms with which to win’.⁶ Even John Connell’s otherwise first-rate 1964 biography of Field Marshal Archibald Wavell, the overall British commander in the Middle East in 1941, repeated the mantra of inevitable defeat in ‘... the face of immense numerical superiority’ and how the defenders were ‘pressed’ out of key defensive localities like the Pinios Gorge, by rampaging (although in truth in barely present and wholly ineffective) ‘German armour’.⁷

The types of works noted above, which tended to establish and reinforce a conformity of interpretation about the causes for British failure in Greece in the 20 years after the campaign was completed, went largely unchallenged by the official histories of the campaign. In 1956, I.S.O. Playfair's volume on Britain's war in the Middle East strengthened the mistaken notion of German armoured superiority in its observations, for example, that the 9th Panzer Division clashed with W Force troops at Kleidi Pass, in northern Greece, and that the 2nd Panzer Division forced the defenders from Pinios Gorge.⁸ At no stage did these divisions operate against W Force as complete formations. For the price of a few extra words, Playfair might have added phrases such as 'reconnaissance elements from' or 'the leading elements of'. Such omissions are glaring and misleading.

Many of these types of problems carried over into W.G. McClymont's official history of New Zealand's participation in the campaign published in 1959. Like Playfair, by way of explanation for W Force's defeat, McClymont notes the 'the small Imperial force available' and 'the strength of the German army'.⁹ Gavin Long's official history of Australian involvement, published three years after McClymont's volume, is a little more circumspect but no less encouraging of immediate post-war misinterpretations. Long contended that the 'defeat suffered by the [Anzac] corps' was the result of 'an enemy force stronger in both armour and infantry'.¹⁰ It was a case of 'one unarmoured man against six armoured men'.¹¹

Built on such foundations, the few works published in the 1970s that related to the Greek campaign continued the tradition. Ivan Chapman's 1975 biography of Major General Iven Mackay, in command of the 6th Australian Division in Greece, extended the idea of W Force facing German armoured hordes. Chapman quotes Mackay himself in that 'no general in his right mind would tackle them [the Germans] in open battle without guaranteed superiority—in the number of divisions but especially tanks'.¹² Unstoppable German armour (and airpower) in Greece, speaks Mackay through Chapman, were decisive. Mackay looked '... forward to the time when we shall equal him in the number of our aeroplanes and tanks'.¹³

Nor has the passage of time seen the more recent biographers of key W Force officers in Greece deviate much from the script. And, given the dearth of literature specifically dealing with the campaign, these types of works have been very influential. David Horner's comprehensive 1998 biography of Field Marshal Thomas Blamey, in command of the Anzac Corps in Greece, described 'a powerful enemy offensive with tanks'.¹⁴ Horner specifically refers to how 'a German armoured division tried to rush the head of Servia Pass' on 15 April—without distinguishing this division, as a formation, from the small vanguard element of it which actually conducted this attack.¹⁵

In the Pinios Gorge, writes Horner, 'German tanks mounted a strong attack'—but there were, as will be demonstrated, very few of them and German infantry (without numerical superiority) were decisive here, not German armour.¹⁶ In truth, the 'determined German armoured attacks' Horner uses to give context to W Force's retreats were, in reality, very negligible factors.¹⁷ Most recently, Mark Johnstone's pictorial biography of the 6th Australian Division contended of the veterans of the campaign that 'their feeling that the odds had been desperately unfair had a solid basis in fact'.¹⁸ Johnstone is incorrect.

More general works on World War 2, even by eminent historians, have seemed to embrace the ideas put forth in earlier memoirs, official histories and biographies. In 1975, A.J.P. Taylor contended that Greece was 'the old story of ambitious projects pursued with inadequate

means'.¹⁹ John Keegan's *The Second World War*, published in 1990, agreed with and extended Taylor's traditional, if misleading, themes. W Force, he wrote, 'lacked the numbers and equipment to resist the Germans ... [with Imperial troops thus] quickly hustled southwards by German tanks'.²⁰ Perhaps the most grievous contemporary perpetrators of the standard myths of Greece, however, are more populist works published in the last few years, particularly in Australia.

In 2008, Peter Ewer's *Forgotten Anzacs* hit the book stands describing, in colourful details, the apparently decisive impact of German armour. Heavy tanks, he proclaimed, 'could not be stopped by men armed with rifles'.²¹ In one action in particular, a single New Zealand infantry battalion found itself 'up against a full panzer *kampfgruppe* [battle group]'—but one that, in reality, managed in the action that followed to bring to bear perhaps two troops of tanks.²² The brigade's worth of Australian and New Zealand defenders during this same action was, according to Ewer, 'broken to pieces' and 'overrun' by this handful of vehicles.²³ '[N]owhere', says Ewer, had the defenders 'faced longer odds' than in Greece.²⁴ They fought 'experienced and superbly equipped panzer units with rifles and machine guns' and 'took their turn to be smashed to pieces by German armour'.²⁵ This never happened.

It is clear that if the type of misconception described above was true, then there is little blame to be attached to the defeated British and Commonwealth troops in Greece. The force was grossly mismatched in terms of armour and was forced to retire down the Greek peninsula, then evacuate, by the critical impact of German tanks. But it is not true. This idea, as convenient as it might have been at the time and as comfortable as it no doubt was to subsequent authors looking to celebrate and commemorate British and Dominion sacrifice, presents a flawed historical picture of the campaign. In the words of Major General Bernard Freyberg, the commander of the New Zealand contingent in Greece: 'What the author has got to do is to get at the truth, unpleasant though it may be'.²⁶ The 'truth' is that the remarkable aspect of German armour in Greece was its ineffectiveness and overall lack of influence.

The first six days of the German invasion of Greece, launched on 6 April, did not actually involve any substantial fighting on the part of W Force. Rather, the initial German thrust against Greece from bases in Bulgaria (in conjunction with simultaneous advances into Yugoslavia) was directed against the Greek defenders of the Metaxas Line—a 155kms-long chain of fortifications constructed along the line of the Greco-Bulgarian border and named after the former Greek dictator. The first time Imperial troops came to grips with the Germans was in a sharp battle fought at Kleidi Pass between 12-13 April. This engagement was a consequence of early and serious Yugoslavian collapse, which exposed northern Greece to invasion on the axis of the 'Monastir Gap'—a valley running from Monastir in the north to the Greek city of Florina, 13kms south of the Yugoslavian border.

German troops streaming down this passage threatened to flank the W Force line to the east. As a consequence, the 19th Australian Brigade, along with flanking Greek formations, was rushed northwards to plug the gap at Kleidi. The subsequent engagement did not go well for the Allies. By the evening of 13 April, the forward elements of *Leibstandarte* SS Adolf Hitler Regiment, followed by vanguard elements of the 9th Panzer Division, had broken the Australian line and were headed south. The defenders managed to escape, bruised and bloodied, in what was best described as less than an orderly withdrawal. German armour, however, cannot be said to have been decisive.²⁷ German tanks were not even present, until the rout had begun, and thus could hardly be said to have caused it. Later, after a subsequent tank engagement at

Proasteion with the 1st (UK) Brigade covering the withdrawal of the 19th Australian Brigade, the British brigade's own notes remarked on poor and ineffective German armoured manoeuvre, tactical timidity and inaccurate gunnery.²⁸

After the W Force 'delaying action' at Kleidi Pass, what followed was a nervous period of consolidation for Wilson's men as they attempted to hold German probing attacks against a series of defended passes along the Aliakmon Line, while plans were developed to withdraw much further south to a new line at Thermopylae. Here it is noteworthy that the various W Force 'defensive' positions were designed, at this stage, to slow not halt the German advance. The skirmishes in the vicinity of Katerini, for example, by the New Zealand Cavalry Regiment, were sensibly designed to delay, not to prevent, the German advance over the Aliakmon River in that sector. So too, skirmishing at Servia and the Olympus Passes (and at Plantamon) was undertaken within the context of a looming withdrawal to the Thermopylae Line.

The defenders were not there to fight to the last. They were not there to stop any further German advance. Their orders were to hold only for so long as a withdrawal could be arranged. Further west, as the British armoured brigade was moving progressively south, one troop commander noted: 'I've been a rearguard or a road block for two days and two nights, and I haven't seen or heard a German'.²⁹ He went on to ask 'what the devil are we running away from?'.³⁰ Across the W Force front, according to the German 2nd Panzer Division, the enemy 'has not yet ventured to fight'.³¹ W Force's actions during this phase of the campaign, from beginning to end, represented retrograde, not defensive operations. This remains the correct lens through which to interpret the campaign and, within this context, it is possible to continue to track the theme of (non)decisive German armour.

The first thing to note here is that while the campaign might have been moving at a rapid rate, there was nothing 'lightening' about operations of the German 2nd Armoured Division (at Olympus and Plantamon) or the 9th Panzer Division (at Servia) from 14-15 April. Rather, these powerful formations were held up for considerable time by terrain, demolitions and delaying forces. Thus, when they met the W Force line it was piecemeal and it was with vanguard and reconnaissance elements—not massed tanks. It was motorcyclists that were stopped in their tracks at the Olympus Pass and it was armoured division infantrymen and motorcyclists that were so roughly handled by the 4th (NZ) Armoured Brigade at Servia. These were all armoured division soldiers but they were not armoured soldiers.

This is too often forgotten when authors discuss the operations of such divisions. German tanks were never a serious threat to the New Zealanders at Olympus Pass. In fact, Allied artillery—once again due to the restricted field of movement available to German tank commanders—again proved an effective barrier. So too, the German infantry attacks and attempts at infiltration at Servia were themselves necessitated by the fact that the bulk of German armour and motorised elements were driven back on the roads north of the pass by effective New Zealand artillery fire. In both cases, and in line with extant German doctrine, the armoured advances against both passes were by non-armoured reconnaissance troops, until they were stopped by small arms or machine guns. These troops worked forward and indicated their position to infantrymen, which closed up behind them, usually bringing heavy mortars.

No tanks usually appeared until after this screen had done its best to locate anti-tank defences. More often than not, by the time this stage had been reached, Allied defenders were withdrawing. Nor could German tanks have been used in much more of a direct fashion, even

had German commanders wished it. Apart from the restrictive terrain, it continued to prove very difficult to concentrate vehicles due to shocking road conditions and the thoroughness of demolitions.³² Where limited numbers of German tanks were employed in this period, it was with less than decisive results. A troop that attacked the 28th (Maori) Battalion at the Olympus position was beaten off, for example, without undue concern. None of this is testament to ideas of decisive German armour.

Further to the east, the nature of Greek terrain limited the employment of all but light tanks in a failed 15 April German assault against the 21st (NZ) Battalion at Plantamon. One vehicle reached the defenders' ridgeline—and finding itself without infantry support, it turned and fled. Importantly, however, after sustaining a meagre 35 casualties, against the instructions and the clear intent passed earlier to him by Freyberg, the New Zealand battalion commander withdrew before his unit was decisively committed. It is this choice, and subsequent events on this crucial right hand flank of the W Force line in the vicinity of Pinios Gorge, which would decide much of how the remainder of the campaign unfolded.

The chances of W Force successfully withdrawing to the Thermopylae Line were in many ways reliant on the staying power of the hastily-deployed brigade sent to the area with orders to hold out until the morning of 19 April, after which time the threat to the bottle-neck at Larissa would have passed and a potentially disastrous situation would have been saved. At the same time, the opportunity to crack the defenders in this location, and thus cut-off a large proportion of W Force while it was moving south through Larissa, represented a significant opportunity for the Germans. As it turned out, a German attack was mounted in the Pinios Gorge sector over the period 17-18 April and, although successful in routing the defenders, the composite Australian and New Zealand brigade rushed to this area nonetheless managed to hold on for sufficient time to protect Larissa—if only by the skin of its teeth.

In terms of traditional perceptions regarding the impact of German armour, it is true that the attackers had tanks to support their assaults at Pinios. But here the terrain, 'which contradicted all principles and experience', once again acted against their being decisive.³⁴ Due to demolitions, German tanks from the 3rd Panzer Regiment had to be taken down to the deep and swift-flowing river one-by-one with the help of engineers, where a number were lost in the torrent and others bogged. The nine vehicles (at best) that pressed their morning attack on the 21st (NZ) Battalion faced five anti-tank guns sighted within the New Zealand position, as well as anti-tank mines and field guns prepared to fire in an anti-tank role if required. This was no German wave of steel. More German tanks were deployed at Pinios only after the 21st (NZ) Battalion had removed itself from the field.³⁵

Following its narrow escape through Larissa, the period 19-24 April was marked by three key developments for W Force—the ongoing withdrawal and occupation of the Thermopylae Line, the capitulation of the Greek Albanian armies and solidified planning for the evacuation of W force from Greece. In a very important way, the period represented an important 'success' for W Force in that it manned, consolidated and held the Thermopylae Line long enough to facilitate the beginning of the evacuation. In the process, the 19th Australian and 6th NZ Brigades, in particular, managed to delay the German advance sufficiently and, at the same, withdraw skilfully enough to escape German clutches and slip away without significant casualties.

The W Force line at Thermopylae was thus unbroken, proclaimed the press in Britain and the Dominions, thanks to the 'earnest resolution and the Anzac spirit'.³⁶ But in these types of quotes lies the essence of the problem of historical misinterpretation of the Greek campaign. W Force retrograde operations at Thermopylae were a success—but, as was the case throughout the campaign, in no way was this a case of stout-hearted defence against overwhelming waves of German armour held together by the 'mateship' of trans-Tasman allies. The real explanation was much more prosaic.

The first reason why the Thermopylae Line stood long enough to begin effecting W Force's evacuation from Greece was the continuing difficulty and sluggishness of German concentration of force in the vicinity of the village of Lamia, immediately to the north. A single axis of advance for two armoured divisions and a mountain division caused monumental traffic control problems that were never rectified. Congested roads and Allied demolitions combined to ensure that a grand total of one company of German tanks was available to pressure the W Force line before its scheduled withdrawal.

Major General H. von Greiffenberg, Chief of Staff 12th Army, considered that the destruction of road bottle-necks and bridges north of Thermopylae was 'most effective' in delaying a pursuit.³⁷ Major L. Glonbik, an intelligence officer at 12th Army headquarters, agreed that such demolitions caused a lamentable 'delay in operations'.³⁸ Had it not been for such demolitions, topography and the underdeveloped state of Greek roads north of Thermopylae, then the W Force line would have been smashed, with little concern over the defensive power of the Anzac spirit. Nor can claims of the significance of German armoured attacks during this period be sustained, despite articles like the one that ran in the Daily Telegraph in Australia on 24 April pointing explicitly to an armoured mismatch and calling for Anzac 'courage to be supported by adequate mechanised power'.³⁹

At Thermopylae, as throughout the campaign as a whole, the impact of German tanks was negligible. The engagement once again proved in Greece that a resolute infantry defence supported by artillery could stop an armoured advance. In fact, the German tank company that attacked the 6th NZ Brigade at the Thermopylae Pass was the second time in two weeks that a German armoured thrust, the likes of which had already gained a fearsome reputation, was stopped in its tracks by dug-in infantry well-supported by artillery. On 11 April, a similar attempt on Tobruk in North Africa left 17 destroyed German tanks behind. This was to be repeated at Tobruk again on 1 May.

The German tank attack against the New Zealand line at Thermopylae was a disaster for the Germans—more accurately described as an ambush—capably and decisively dealt with by well-sighted field and anti-tank artillery, and largely a consequence of poor topographical appreciation and tactical decision-making by the German armoured company commander in question.⁴⁰ Even German intelligence noted how easily the armoured thrust had been dealt with. 'The enemy showed great coolness in dealing with tanks', noted the 6th Mountain Division, 'allowing them to approach to point-blank range and then opening fire on them with anti-tank guns and artillery'.⁴¹ The reality was that, as had been the case at Pinios Gorge, far more pressure was applied against the Thermopylae Line by dismounted German infantrymen—most of whom had already undertaken exhaustive marches with restricted supplies even to get to the Thermopylae Line—than by tanks.

From 24-28 April, after W Force's withdrawal from the Thermopylae Line, British and Dominion troops were progressively evacuated from Greece. In overall terms, this operation was unquestionably successful. Around 50,000 members of W Force were taken from Greece with 12,000 more lost, mostly as prisoners, two-thirds of whom were taken at Kalamata before they could be shipped to Alexandria or the relative safety of Crete. This was a significant achievement for increasingly desperate W Force planners and the Royal Navy. The numbers salvaged from Greece were far in excess of initial predictions by senior British officers that a third of the force deployed would be lucky to escape. True to form, none of these evacuation operations and no W Force beachhead, was pressured by German tanks. Even the disaster at Kalamata was inflicted by a motorised German infantry company without armoured support.

Despite all that has thus far been noted, the idea of decisive German armour within the Greek campaign of 1941 remains a powerful and enduring idea. The sheer quantity (and quality) of German tanks and other armoured fighting vehicles involved in the campaign, so the story goes, sealed W Force's fate. Churchill himself set the pattern when he claimed the force had been 'pursued by no less than three German armoured divisions, as well as the whole strength of the German mechanised forces which could be brought to bear in the actual fighting, principally on Mount Olympus, around Grevena and at Thermopylae'.⁴² The sentiment was echoed back at him by the Australian Prime Minister, Robert Menzies, who described himself 'much disturbed by a failure here [in London] to realise the full implications of mechanisation'.⁴³

As far as offering a comfortable explanation for the rout in Greece that did not reflect badly on themselves, Allied generals were all too eager to step in line. Wavell, for one, did not hesitate to perpetuate the notion of a crucial role played by German tanks. 'No doubt that our troops were completely on top whenever they met the Germans under reasonable condition', he wrote, but a 'great numerical superiority ... [in] numbers of AFVs [armoured fighting vehicles] gave the Germans the advantage'.⁴⁴ There is no question that Wavell knew better. Blamey too pointed to this 'overwhelming superiority ... [in] AFVs which] gave to the enemy great advantage'.⁴⁵ It was entirely unsurprising that the theme was picked up by the Allied press, just as eager for palatable explanations as the military. One Australian newspaper in early May 1941 lamented that 'courage alone can't defeat a mechanised army'.⁴⁶

This basic misconception is all the more insidious for its apparent truth. Certainly, a simple comparison of the orders of battle between W Force and the German 12th Army formations deployed to Greece shows a huge discrepancy in armoured forces. The 12th Army's three armoured divisions dwarfed the fighting potential of the single British armoured brigade deployed. As has been demonstrated, however, none of the German armoured formations ever had the chance to fight en masse. Rather, it was their vanguard infantry and reconnaissance elements that invariably ran up against W Force rearguards—and these were on foot or mounted in trucks, motorbikes or bicycles, not in tanks.

In fact, the largest coordinated German tank actions—at Proasteion and the Thermopylae Pass—involved a company and a half, and a company, of German armoured vehicles respectively. At Pinios Gorge, no more than nine tanks pressured the 21st (NZ) Battalion before it began to withdraw. This was but a fraction of the armour available to the German divisions in question but it was all that was (or could be) brought to bear. W Force never fought a German armoured division in Greece. Barely any German tanks saw action against W Force at all. The terrain of central and southern Greece meant that whatever German tanks made it to the 'front' were

never able to deploy on a wide frontage, mount flanking actions on the march or provide a shock effect as demanded by German doctrine. Furthermore, in the few isolated incidents where German tanks ran up against W Force positions, they proved remarkably ineffective, largely as a consequence of terrain and W Force artillery.⁴⁷

None of this is to suggest that German tanks had no impact at all on the campaign. Indeed, German ability to move armour through mountainous country was very important and proved once again Allied estimations of 'tank-proof' terrain to be flawed, as had been the case with the mountain roads of the Ardennes. Despite the difficulties encountered, German tank crews showed it was possible to make an armoured advance even through alpine terrain. Two crucial early steps in the campaign, the seizure of Skopje and the capture of Salonika, could not have been achieved in the time required to bring about the operational effects the Germans relied on without rapid armoured thrusts. The Greek General Staff was to some degree paralysed by German speed in these examples and there was evidence of 'tank fright' in some Greek units in these cases, as there had been in France.

These operations were not, however, directed against W Force and cannot be accepted as reasons for the British and Dominion defeat. At no point can W Force ever legitimately claim to have been impacted to any significant degree by German armour. Although the idea may once have served as a useful crutch to past historians and veterans looking to explain away the Greek debacle, by no means should the notion continue to influence historians, enthusiasts or military professionals interested in the history of warfare.⁴⁸

Craig Stockings is a Senior Lecturer in History at the University of New South Wales, Australian Defence Force Academy. His areas of academic interest concern general and Australian military history and operational analysis. He has recently published a history of the Army cadet movement in Australia entitled 'The Torch and the Sword' (2007), a study of the first Libyan campaign in North Africa 1940-41: 'Bardia: Myth, Reality and the Heirs of Anzac' (2009); and an edited work on a number of common misinterpretations of Australia's military past entitled: 'Zombie Myths of Australian Military History' (2010).

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Left Behind but Not Left Out? Perceptions of support for family members of deployed reservists

Lieutenant Colonel Geoffrey J. Orme, RFD, Australian Army Reserve, and
Major E. James Kehoe, Australian Army Reserve

Introduction

The ADF, like most allied militaries, has increasingly relied on reservists to fulfil overseas deployments. Reservists in the Australian Army, individually and in force elements, have deployed frequently since 1999 and, from 2006 for example, have contributed extensively to stability operations in the Solomon Islands and Timor Leste. The 2009 Defence White Paper foreshadowed that this trend will continue.¹

The deployment of reservists may pose a special challenge both for the individuals and their families. Reservist deployments are typically drawn from units dispersed across Australia. Hence their families are similarly dispersed, usually without close ties to other military families, the Army or Defence-based support services. Moreover, the vast majority of reservists—about 80 per cent—have never previously deployed overseas.² So deployment represents a series of ‘firsts’ for most of their families.

Like full-timers and their families, deployed reservists and their families face the challenges of separation and mutual concerns about their safety and well-being. In addition, reservists and their families face transitions from civilian life to full-time service and back again. They typically have resided in a single civilian community for years, rather than being posted in and out of various communities every 2-3 years. As a consequence, reservists and their families often have extensive connections within their civilian community’s institutions—schools, sports teams, social groups, churches and workplaces—all outside the military context. For the family of a deploying reservist, these friends and colleagues may be a source of stability. But they may not have sufficient understanding of the demands of deployment to offer more than general support if problems arise.

Knowledge of the impact of deployment on reservists’ families is slim. Yet, from what is known, families matter a great deal to the well-being and performance of reservists before, during and after deployment. For example, a study of US reserve forces³ found that a family’s readiness influences the effectiveness of the member during and after the deployment and, indeed, ultimately influences whether the reservist remains in the military.⁴ A survey in the UK revealed that while families of reservists were typically proud of their contribution, the reservists experienced more difficulties at home and less marital satisfaction, compared to corresponding regulars throughout the deployment cycle.⁵

The Australian experience

This article draws on a recent survey of Australian families concerning the deployment of reservists. The results complement a general survey of the families of regular ADF members and their partners conducted by the Directorate for Strategic Personnel Policy Research (DSPPR) in 2009.⁶

The respondents in the first-mentioned survey were the family members of 32 Army reservists, from a group of 116 (4 female and 112 male) who deployed to the Solomon Islands (as Rotation 14) on Operation ANODE from December 2007 to April 2008. The reservists were drawn from units in Western Australia (75%), South Australia (20%) and Tasmania (5%). The survey respondents were recruited by a mail-out to all members of Rotation 14. The responses were anonymous and entirely voluntary. And, in order to maintain confidentiality, the respondents were not asked the gender of the serving family member.

According to the respondents, the bulk of them were either a parent (20) or sibling (3) of the reservist. Only a few were partners (8), and there was one unstated relationship. This mixture was unexpected, as previous studies have focused on partners and their young children.⁷ Although the survey was small scale, it suggests that an appreciable proportion of reservists may rely on parents or, less often, siblings for support during the deployment cycle. However, the rotation itself was approximately evenly split between members who were partnered in some fashion (54%) and those who were not (46%).

Positives and negatives of deployment for the family

The respondents were asked to list the major positive and negative results of their reservist's deployment. Seven declined to list either. Of the remaining 25, two stated that there were no positives and four stated that there were no negatives.

Table 1 shows the frequency with which the respondents listed different positive statements. Most listed more than one of each. Among the 54 positive statements, the largest proportion (69%) were expressions of pleasure and pride in their family member's accomplishments, including doing a job they loved (22%), serving Australia (20%), developing personally (15%) and assisting another country (11%). Among the remaining statements, 9% indicated that communications with the reservist were good, which reduced uncertainty and anxiety, and 7% concerned the financial benefits of the deployment. Among the remaining 15%, the statements related primarily to the strengthening of family ties.

Table 1 Perspectives of family members on positive benefits of deployment

Type of Statement	Frequency	Percentage (%)
Pleasure of member doing a job they loved	12	22
Pride in member's service to Australia	11	20
Maturation and development of member	8	15
Pride in assistance to another country	6	11
Good communication, which reduced worry	5	9
Financial benefits	4	7
Return home	2	4
Increased appreciation of family togetherness	2	4
Development of respondent's confidence	2	4
Defence Community Organisation (DCO) family functions	1	2
Less domestic work and more free time	1	2
Total	54	100

This pattern closely matches the rankings that respondents gave to the question 'What were the most important factors in the family's decision to support this current deployment'. Most important were factors relating to individual accomplishment. Specifically, increasing the reservists' skills, competencies, leadership and maturity was ranked as either first or second by 77% of the respondents. Similarly, helping the reservist meet a goal or ambition was ranked first or second by 63%. Altruistic factors, namely supporting Australia and a neighbouring nation, were valued but not as highly. These factors were ranked highly by 30% and 13% respectively. Finally, financial benefits were ranked highly by only 17%. These paralleled the rankings given to these same factors provided by reservists themselves when surveyed at the end of deployments. These same factors also appear in roughly similar proportions in the results of US surveys of the family members of reservists.⁸

From the perspective of the family members, the positives of deployment appeared to outweigh the negatives. Overall, there were fewer negative statements about deployment (35) relative to the number of positive statements (54). Table 2 shows the frequencies of negative statements by family members. The bulk of these statements (69%) revolved around difficulties in communication (20%), general loneliness (20%), separation on special occasions (14%) and anxiety concerning the whereabouts and safety of their family member (14%). Another 14% of the respondents stated that an increase in their domestic workload and child-rearing responsibilities were a negative consequence of deployment. The remaining 18% of the statements were spread across single instances of an issue. As was the case for the positive factors, these negative factors were similar to those mentioned by the family members of US reservists.⁹

Table 2 Perspectives of family members on negative aspects of deployment

Type of Statement	Frequency	Percentage (%)
Difficult and infrequent communications	7	20
Separation and loneliness	7	20
Absence for important holidays and events	5	14
Uncertainty and anxiety, lack of information	5	14
More domestic work and responsibilities	5	14
Member unsettled with respect to career on return	1	3
DCO contact was late	1	3
Poor connection to mounting unit	1	3
Delays in pay	1	3
Unsatisfactory service from pay personnel	1	3
Lack of information about date of return	1	3
Total	35	100

Provision of information

The respondents were asked about the support they received and what they would like to have received during five stages of the deployment cycle. These stages were the initial preparation, pre-deployment training, the deployment itself, the immediate post-deployment period and subsequent reintegration into civilian life.

For all stages, the most valued and most desired service was the provision of early, frequent and understandable information. The respondents were evenly split in their evaluation of whether or not the information provided was adequate. Regardless of the evaluation, the themes were the same:

- During the preparatory and pre-deployment stages, the desire for information concerning key dates, the contact details of the unit and individual reservist, and potential sources of assistance were frequently mentioned.
- During the deployment itself, newsletters and up-to-date websites concerning the formation and its activities were often requested. Early information about the date of return to Australia was a particular source of concern. Briefings provided to family members about their possible feelings and readjustment issues were well received. The chaplains, as a source of practical information, were mentioned positively.
- Following the deployment, information on the date of arrival in Australia but also the date of release to return home was highly desired. Information about assistance available to members who were unsettled after their return home was also highly valued.

The strong desire to have information as needed by the family member corresponds to US observations.¹⁰ At the same time, some respondents reported that generic information they received prior to deployment was not well matched to their circumstances, such as being provided with information relating to young children when they only had adolescent dependants.

Based on these findings, the initial ‘front loading’ of information for family members may need to be less comprehensive but rather focused on key dates and sources of further information throughout the deployment. Thereafter, periodic newsletters, the prompt up-dating of websites and, so far as operational security allows, notification concerning the timing of return to Australia and return home, would likely keep family members more comfortably informed throughout the deployment cycle.

Personal communication

In addition to information, personal communication with the reservists during the deployment was frequently mentioned, both for reducing loneliness and anxiety about the well-being of the reservists. Efficient postage of letters and packages, as well as electronic and voice communications, were highly valued.

Recent US findings indicate that families differ in their frequency and style of contact with deployed members.¹¹ According to the US findings, some deployed members remain deeply involved in family matters, others maintain an intermediate level of involvement and others have little involvement in day-to-day decisions. This variation may explain at least some of the differences among the Australian respondents in the perceived speed and quantity of communication with their reservist. These differences also indicate that different channels of communication are desirable from a family perspective.

Support services

Although mentioned less frequently than information and communication, family members did appreciate events that signified the gratitude that Army and, by extension, Australia had for the contribution of the reservists and their families. Informal events, such as barbecues throughout all stages of the deployment, were mentioned positively. There were also some requests that greater publicity be given to the activities of the reserve formations, both in the media and on ADF websites.

The family members were also asked to indicate their awareness and usage of different sources of support. Table 3 shows the percentage of respondents who reported that they were aware of each service and, if aware, whether they had used it. As can be seen, nearly all respondents were aware of the availability of chaplains. Although only a modest percentage accessed the chaplains, their pastoral care was highly valued, which is consistent with previous responses from the families of deployed regulars.¹² In addition, the chaplains provided concrete assistance on matters ranging from finding postal addresses to helping contact a reservist whose mother had become very ill.

The respondents were generally aware of other sources of support but they were infrequently used. The lowest levels of awareness were the families of other reservists (50%) and the DCO (66%).¹³ Nevertheless, these two sources came to be used with about the same frequency as the chaplains. Thus increasing the awareness of the services provided by the DCO and linkages to other reservist families in the same locale may increase the usage of those sources of support.

Table 3 Family members' awareness and usage of support

Source	Aware (%)	Usage (%)
Chaplains	91	14
Provider unit	84	4
National Welfare Coordination Centre	84	11
Support line	81	0
Defence Psychology	75	0
Defence Reserve Support	69	0
DCO	66	14
Other families	50	19

This pattern of modest usage of support services is consistent with the findings from overseas¹⁴ and from Australian regulars¹⁵ that most families generally cope well on their own with the challenges during a deployment cycle. Nevertheless, some respondents expressed reassurance that the services were available as a safety net. Thus these services may have been seen like the fire brigades or ambulances; respondents hope they don't need to use them but, when needed, they must be available.

Discussion

In broad terms, the families of deployed reservists have largely the same needs as the families of regulars.¹⁶ Above all else, the family members crave certainty about the safety and well-being of their loved one. In this respect, information coming from the reservist's formation and other parts of Defence appear to be as highly valued as direct communication with the reservists themselves. Nevertheless, direct communication is vital in various ways for maintaining the connection of the reservist to their family. Recognition of the reservists' accomplishments and contributions are appreciated by family members.

In addition to increasing the timeliness of information available to family members, the results of this survey indicate that there is an opportunity to increase awareness of support services, such as provided by DCO and other families, throughout the deployment cycle. This increased awareness might be achieved through ensuring that chaplains, of which family members are well aware, have ready and up-to-date access to information about other support services, especially their contact details. Enabling chaplains to visit family members during the deployment might add a very useful personal contact between Army and the family members.

The needs of reservists and their families for support following their period of deployment may extend well beyond the expiry of their contract for service and, consequently, their access to primary support, such as the DCO. Recent US findings have indicated that reservists may seek mental health services¹⁷ and marital counselling¹⁸ from military-funded civilian providers up to as much as 12 months after deployment. Outside their contract periods, Australian reservists and their families currently have access to the Veterans and Veterans Families Counselling Service (VVCS). When and where VVCS is not available, the Defence Employee Assistance Program¹⁹ might be used as an additional safety net, although currently it is only available to civilian Defence employees. Similar programs have been used in both Canada and the US to provide support to families of reservists throughout the deployment cycle.²⁰

Conclusion

Overseas deployments present a range of challenges for families, regardless of the full- or part-time status of the serving member. The results presented here, although limited by their small number, provide some useful avenues for future capture of the views and concerns of reservist families, who up until this survey have been a largely unknown quantity. Certainly, the impact of deployment-related initiatives, whether aimed at the entire Defence organisation or specifically at the reserves, is a matter that deserves further evaluation.

Lieutenant Colonel Geoffrey Orme is an Army Reservist and currently SO1 Psychology at the Headquarters 2 Division. He has led psychological support teams to ADF operations in Bougainville, East Timor, Solomon Islands and the Middle East area of operations, including Iraq. In his civilian capacity, he is a consulting psychologist in the corporate sector. He is currently undertaking a PhD on the effect of overseas military deployments on Australian Army reservists through the Centre for Military and Veterans Health and the University of Adelaide.

Major E. James Kehoe, PhD, is a reservist in the Australian Army Psychology Corps. He is posted as a consultant to the Head of Corps and has assisted in teaching the first appointment course for Specialist Service Officers. In civilian life, he is Professor of Psychology in experimental and organisational psychology at the University of New South Wales.

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Climate Change and the ADF

Major Michael Thomas, Australian Army

Introduction

The ADF is not paying sufficient attention to understanding the risks and opportunities presented by climate change. This lack of understanding is exposing knowledge gaps that may have significant strategic, institutional and operational consequences for Defence in the near, medium and long term.

The aim of this article is not to provide 'blue sky' solutions on how Defence might solve climate change. Rather, it is intended to stimulate interest and debate within the Defence community that has otherwise been lacking. It will highlight why Defence has been disengaged from the subject before describing how climate change might impact Defence.

A climate of disengagement

A key-word search on the website of the *ADF Journal* reveals five publications relating to environmental issues: three directly relate to environmental security, one is a discussion of Defence training areas and the fifth is an article titled 'The Military Potential of the Feral Horse and Camel in North West Australia'.¹ Such slim pickings (from 35 years of publications) are analogous to the general lack of interest shown by Defence towards the subject of climate change.

There are several reasons for this. Firstly, the ADF has had a significant operational focus since 1999, with heavy commitments across the Middle East and Asia-Pacific. During this period, the 'war on terror' and regional instability have demanded top priority. Secondly, current strategic guidance seems to cast climate change as an issue to be handled by future generations, with the 2009 Defence White Paper declaring that the consequences of climate change will not be felt before 2030.² It is perhaps unsurprising, therefore, that climate change has so far failed to engender a common sense of urgency, ownership or responsibility among either senior levels of Defence or the broader military workforce. Apparent confusion over the science and a fair degree of scepticism—has also not helped, particularly within an already conservative institution.

A third reason for the lack of attention is that the strategic, operational and tactical impacts of climate change on Defence remain ill-defined and vague. Although consensus on the macro-level (strategic) changes of global warming is slowly emerging, there is virtually zero resolution as to what the micro-level (practical) effects on Defence will be. And serious gaps in knowledge are becoming obvious. For instance, how will Defence be required to adapt to climate change? Will it require changes to its force structure or the relocation of low-lying infrastructure or estate? Will new capabilities be required to cope with new geo-strategic threats or to handle the different environmental operating conditions that may arise as a consequence of climate change? What are the timeframes? What are the priorities? Are new strategic opportunities opening up?

There is also no robust deliberation on whether Defence should actually contribute to national (and global) mitigation efforts. For instance, should Defence be part of solving the problems of climate change by reducing its 'carbon footprint' or could this end up needlessly compromising operational capability and therefore national security? Will Defence be required to 'pay' for its carbon emissions? If so, where will these savings come from? What are other defence forces around the world doing in relation to climate change and should Australia's military pay heed?

A fourth reason for Defence's disengagement could relate to the highly politicised nature of the climate change debate in Australian domestic politics, whereby any bold mitigation or adaptation initiatives by Defence—more pro-active than or diverging from current Government policy—could be construed as partisan political support. Although this may be overstated, the political context is important, particularly considering the contrasting climate change policies of Australia's major political parties.

Impacts of climate change on Defence

Direct environmental impact

An established body of scientific evidence has highlighted the direct environmental hazards being wrought by global warming. Prominent among these are rising sea-levels, increases in ocean and atmospheric temperatures, increasing variability of rainfall, increasing acidification of oceans, reduced bio-diversity, alternations in river flows, increases in the intensity of extreme weather events such as floods, cyclones and fires, and increasing rates of glacial and polar ice melting.³ For the most part, such primary hazards are considered of low to medium significance for Defence because although the consequences would be high or extreme, the actual probability (in the short term) is probably low.

This, however, may not always be the case. Based on current trajectories of global greenhouse gas (GHG) emissions, there is significant argument that the probability of direct environmental hazards occurring (and with greater intensity) is set to increase considerably over time. And worryingly, this may not be a linear (and hence predictable) process. 'Wild card' events—such as runaway melting of the West Antarctic ice sheet, thawing of the Arctic-Siberian permafrost or weakening of the North Atlantic 'thermohaline' current—represent 'tipping points' that may significantly hasten the likelihood and dramatically increase the consequences of their occurrence.

Given the unpredictability, both of their occurrence and the timeframes involved, it is important that Defence understands the damage that such hazards might wreak. One of the most vulnerable areas of Defence is its estate and facilities portfolio. The Defence estate encompasses one of the largest real estate portfolios in Australia, including 389 properties (including 72 significant bases), 25,000 assets and stewardship over millions of hectares of land.⁴ Beyond the dollar value of the capital involved (tens of billions), the Defence estate is a strategic resource that is a fundamental pillar of Australia's national security and of Australia's Defence capability.

Significantly, critical knowledge gaps exist in understanding how climate change might impact the estate. The first is the impact of rising seas on those major bases located at or near sea level. Consider, for example, the major naval and border protection ports and bases that host Australia's maritime fleet or the Army's (only) mechanised brigade located on the low-

lying plains of suburban Darwin. A one-metre sea level rise would render most of these sites unusable in their current form.

Defence industry also has many shipbuilding sites located on the waterfront around Australia that would likely be similarly compromised. Currently, Defence has no publicly-available cost estimate, risk assessment, timeframe or business continuity plan as to how sea level rise will impact these critical strategic assets. Second-order impacts, felt by the degradation of key civil and other government infrastructure that provides crucial enabling support to Defence, also need to be factored into future risk assessments.

The training of personnel would also be impacted by changing climactic conditions. Current trends—as identified by the CSIRO and Commonwealth Bureau of Meteorology—portend that Australia’s future climate will be characterised as hotter (continental wide), drier (south eastern Australia), wetter (northern tropical belt) and with more intense cyclones (northern tropical belt).⁵ The first of these variables (increasing temperatures) would also be associated with an increase in frequency of extreme hot temperature days and warm nights.

Using the ‘top end’ as an example, the number of days above 35°C per year in Darwin averaged 11 between 1971 and 2000.⁶ Even using the most conservative modelling scenarios developed by the CSIRO, the number of days in Darwin above 35°C is expected to be 28 by 2030. Under ‘least favourable’ modelling, the number of days above 35°C could be more than six times the current (totalling 69). By 2070, the number of days above 35°C, on best case modelling, is estimated at 141; and, on worst case, 308.⁷ One example of the consequences of such extreme conditions would be its impact on the ability of the Army to train across a number of ‘top end’ locations. The inability to freely train in such conditions could well degrade Army’s operational readiness.

Geo-strategic and operational impact

The direct hazards of a warming planet have major geo-strategic impacts that, in turn, could impact international peace and stability. These changes may result in a change in the size, type and location of operations that the ADF may be expected to support. This may have an impact on the types of capability that Defence will need to procure.

In the first instance, climate change is expected to act as a ‘threat multiplier’ by exacerbating already marginal conditions across the developing world.⁸ This will particularly be the case for those nations already exhibiting weak social and political conditions or those that, through historical circumstance, will find themselves at a geographical disadvantage (such as small island states or those with major infrastructure or populations in low-lying coastal areas or river deltas).

These will be important developments that Defence will need to follow closely, particularly given that Australia’s immediate strategic neighbourhood has a number of regimes already under political stress and/or particularly vulnerable to the type of environmental change that many would argue is already under way. Consider, for example, the political and/or environmental vulnerability evident in countries such as East Timor, Papua New Guinea, Fiji, Nauru, Tonga and the Solomon Islands during the previous decade. Scenarios in which fringe elements of society emerge to contest established power by exploiting (real or perceived) climate change induced hardships are not difficult to imagine.

Another geo-strategic trend is the likely emergence of new sources of climate-related tension and the exacerbation of old ones. Early indicators in Australia's wider area of strategic interest include friction throughout central Asia for dwindling water resources derived from ice melt on the Himalayan plateau; contested ambitions in the Asia-Pacific over small and submerged atolls, rocks and low-lying islands due to rising sea levels; and competing claims over the opening of the once impassable North West trade routes across the Arctic.⁹

Closer to home, the 17,000-island archipelago of Indonesia is particularly vulnerable to sea level rise, increased flooding from more intense monsoonal conditions and disruptions to fishing.¹⁰ The consequences to human security from such risks in a country of 230 million people could have profound security implications. On a smaller scale, the example of the Carteret Islands in Papua New Guinea is also prescient. In 2009, these islands made international headlines when its 1,700 residents were deemed the world's first climate change refugees because of rising sea levels. Ominously, attempts to resettle the population on Bougainville raised tensions with the local populace over access to basic resources.¹¹

The Australian Strategic Policy Institute, in a special report in 2007, provided early insight into the future operational impact on the ADF, citing an increase in climate-induced disaster relief missions; an increase in Antarctic operations due to greater interest by nations to exploit 'final frontier' resources; an increase in border protection activities (for example, more air assets for migration monitoring); and a reduction in the availability of liquid fuels for both training and operations.¹²

As a foretaste to the first of these challenges, the recent spate of extreme Australian summers has seen traditional holiday periods transformed into an operationally-demanding time for the ADF. In 2009, some 800 personnel deployed in support of the Victorian bushfires.¹³ And 2011 saw the single largest peacetime national deployment of more than 2,800 Regular and Reserve Defence personnel deployed in disaster relief operations following the Queensland and Victorian flood crises and Cyclone Yasi.¹⁴ So long as the operational tempo remains high for the Regular component of the ADF, increased utilisation of the Reserve as a domestic disaster response force can be expected as the effects of climate change unfold.

Moreover, climate change disaster relief operations will not be limited to Australia's domestic borders. The 2008 Garnaut Review asserted that Defence will be required to deploy increasingly within the region (particularly in the South West Pacific) as climate change weakens the capacity of governments to maintain stability. The Review also noted that the cost of Defence operations may be expected to rise as a result of the increased likelihood of future climate change related deployments.¹⁵

As organisations designed to assess future risk, the Department of Defence and relevant assessment agencies would be wise—if they have not already—to inject likely climate change scenarios and risk assessments into their long range planning. Certainly, the extension of climate change analysis beyond the national security framework and Defence White Paper, into Defence's planning guidance and capability context scenarios, would assist the ADF to better understand whether it will have an operational role to play as climate change unfolds. If it does, will this require changes to the current capability and force structure projections? Consider, for example, the prospect of massively-increased migration shifts (or displaced persons) as a result of climate change, with economist Nicholas Stern—author of the 2006 (UK Government-commissioned) 'Stern Review on the Economics of Climate Change'—estimating the possibility world-wide of 200 million climate change refugees by 2050.¹⁶

Along similar lines, the Garnaut Review concluded that a one-metre level sea level rise would risk inundation of 105 million people in Asia alone. Closer to home, Garnaut identified the Pacific island states of Kiribati (population 78,000), Marshall Islands (58,000), Tuvalu (9000) and Tokelau (2000) as being at risk of not supporting human habitation with just moderate levels of climate change.¹⁷ What role will the Australian military have if such scenarios unfold? If entire states are abandoned, what would be the consequences of the ensuing security vacuum and which nations might be interested in a potential resource grab?

The impact of policy response

Although the direct physical and geo-strategic effects of climate change may not be felt for some time, its impact may be realised far sooner than expected. The timeframe and extent of this impact will depend on what (policy) response measures are taken to ameliorate the effects of the changing climate. Response measures may either be mandated by the international community (for example, the UN Framework on the Convention of Climate Change via international treaties, such as the Kyoto Protocol or Copenhagen Accord) or domestically (for example, carbon price legislation).

As already alluded, response measures fall into two broad areas: mitigation or adaption strategies. Mitigation strategies are those that seek to minimise risk by reducing the hazard likelihood and consequence. Adaption strategies are those that have acknowledged some realisation of risk and are seeking the best possible adjustment under the circumstances. Domestically, most levels of government (local, state and federal) are now developing policies for a range of mitigation and/or adaption strategies. Many of these will impact the military and broader Defence organisation.

One obvious example is the proposal by the current Federal Government to tax GHG emissions by the top 500 Australian industries from July 2012. Several Defence industry companies that supply Defence with critical goods and services (including major capability and infrastructure) will fall squarely into this bracket, such as Thales Australia Holdings and Boeing Australia.¹⁸ Unless it is compensated, Defence industry could expect to pay more for energy intensive products (such as steel and aluminium) as the carbon cost is transferred along the production and supply chains. The knock-on effect would logically be an increase in the cost of capability to Defence, exacerbated by any increase in the cost of electricity to support Defence's operations, infrastructure and estate.

Defence's 'carbon footprint'

There is currently limited analysis explaining the size, context and meaning of the ADF's 'carbon footprint'. For instance, how large is it and how does it compare to other industries and militaries? Also, how does it compare on a national and global basis? These are important questions, since they will either help Defence demonstrate its positive emissions record or be used to address its shortcomings. It also places into context what can be expected of Defence in terms of mitigation and in assisting the Government and the public in deciding whether Defence is a laggard or leader when it comes to climate change.

In 2008, global human-generated GHG emissions totalled some 29.4 gigatonnes (Gt CO₂-e).¹⁹ In the same year, Australia contributed an estimated 576 million tonnes of CO₂-e (Mt CO₂-e) or just under 2 per cent of global contributions. Of Australia's output, Federal Government

departments or organisations contributed 2.8 Mt CO₂-e or roughly 0.5 per cent of domestic emissions (0.01% of global contributions). Of Australian Government emissions, the Department of Defence emitted approximately 1.7 Mt CO₂-e or about 60 per cent of total government emissions. Defence emissions can be further broken down into two main contributors with Defence establishments (buildings and bases) emitting 0.8 Mt CO₂-e and Defence fuel use (within Australia) some 0.9 Mt CO₂-e. A breakdown of Government and Defence emissions is shown at Figure 1.

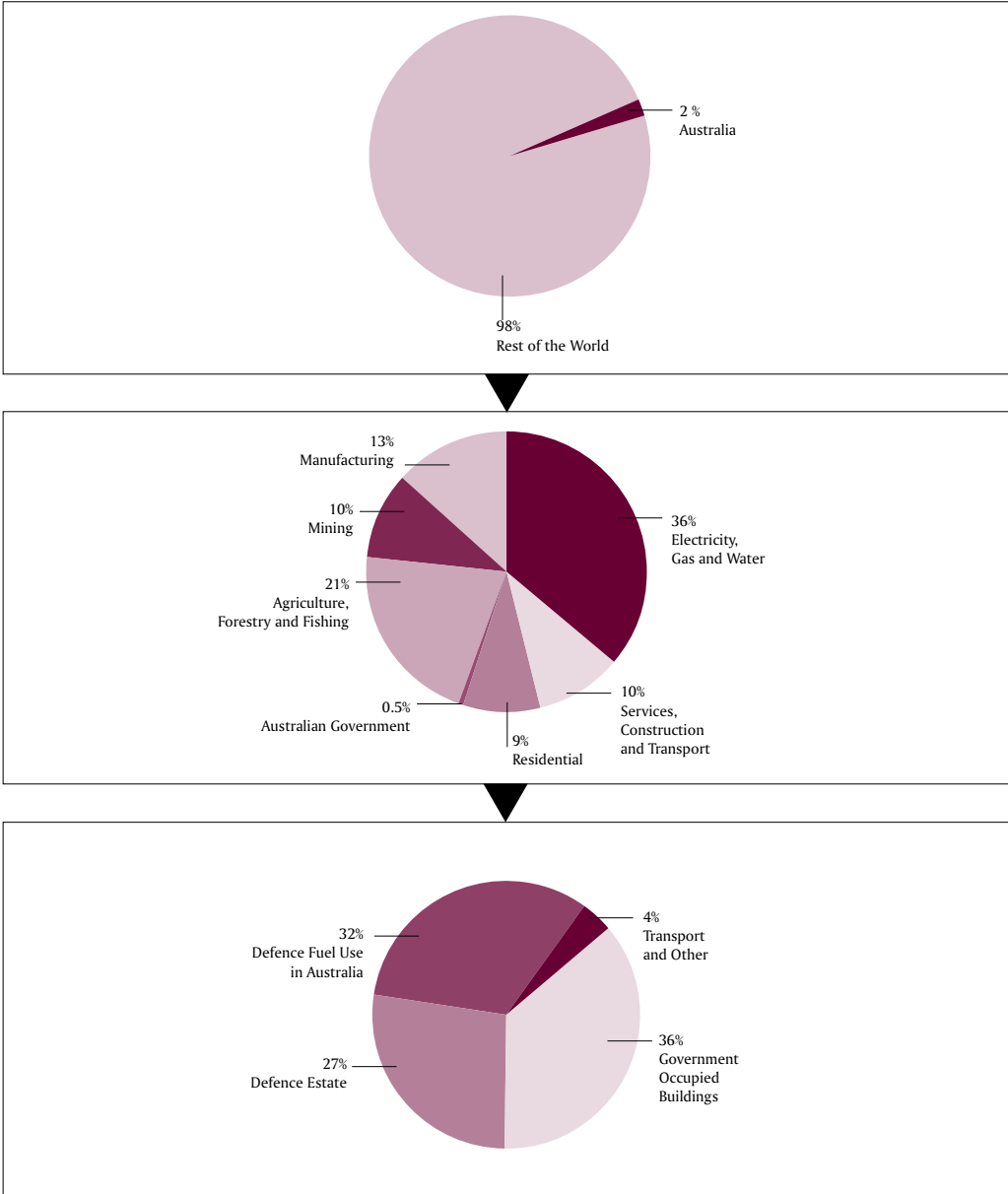


Figure 1. Global, national and Australian Government-generated GHG emissions in 2008²⁰

Juxtaposed in this manner, it would be reasonable to suggest that Australia's total emissions are insignificant in the global context. However, on closer inspection this position becomes questionable for several reasons. Firstly, although Australia is a minor contributor to overall global emissions, it still ranks as one of the highest emitting nations in both total output and on a per capita basis. In 2008, Australia was the 15th largest CO₂ emitter²¹ with per capita emissions nearly twice the OECD average and more than four times the world average.²² The second point is that while the Australian Government is a small contributor in the context of Australia's overall emissions profile, it is still larger than many small nations. Indeed, the Australian Department of Defence alone emits more GHGs than Chad, Gambia, East Timor, Nauru, Solomon Islands and Tonga combined.²³

Although Defence can be considered a significant emitter when placed in the context of Australian Government operations (the next largest emitting agency is the CSIRO at 0.13 MT CO₂-e), by Australian corporate standards Defence would be considered a mid-range GHG contributor. Of the approximately 300 Australian corporations required to report their emissions, Defence ranks at number 50. By way of comparison, Defence has a similar emissions footprint to Virgin Blue. However, it is considerably less than some of the major Australian corporations, including—in ascending order—Woolworths (2.83 Mt CO₂-e), Qantas (4.18 Mt CO₂-e), BHP (6.97 Mt CO₂-e) and the larger power companies, notably Macquarie Generation at 23.58 Mt CO₂-e. A comparison of selected Australian corporations is shown in Figure 2.

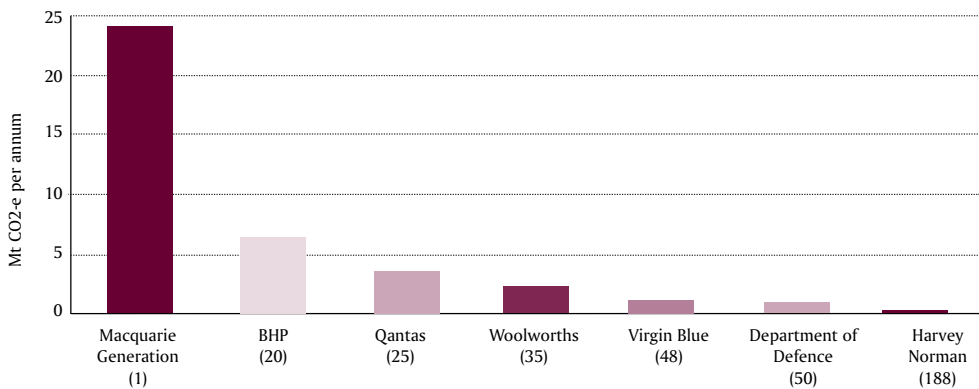


Figure 2. Comparison of selected Australian corporate GHG emissions in 2009/10²⁴

Compared to other militaries, the ADF is a mid-range emitter. Although data is scarce and difficult to find on military emissions elsewhere—as there appears to be no standardised reporting requirement and nations are often reluctant to report on their military inventories—there are also practical challenges to quantifying global military contributions in hostile operating environments, as well as the types of emissions to be included in the overall totals. Despite these challenges, Figure 3 shows a comparison of selected global militaries.

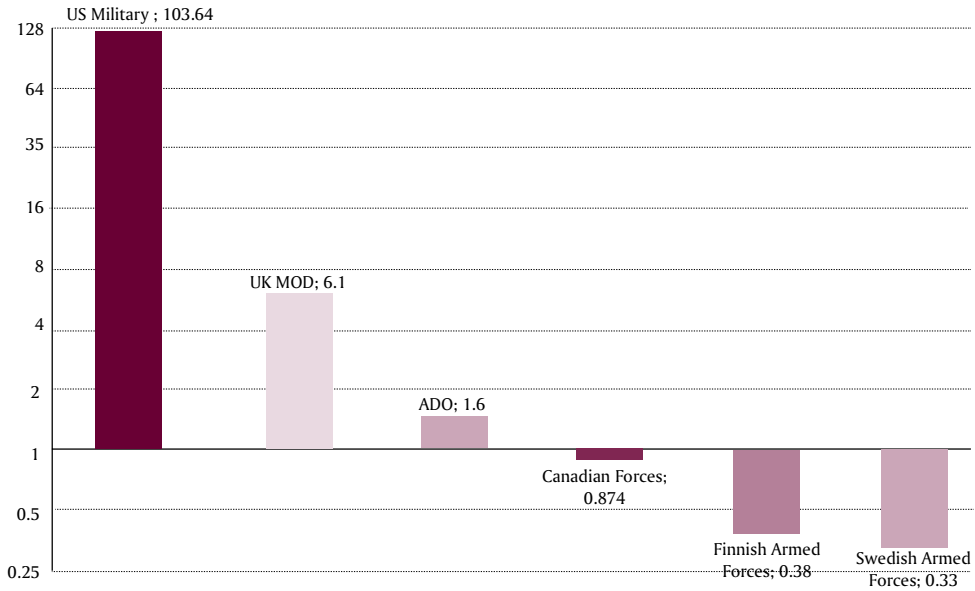


Figure 3. Global military emissions for selected national Defence organisations²⁵
 (incorporating a logarithmic scale to take account of the predominance of the US military)

A final point on military emissions is to consider what would be the combined global military GHG output. A rough estimate can be made by assuming that governments around the world contribute approximately one per cent to their national emissions inventory. Based on a global inventory of 29.4 Gt CO₂-e (for 2008), this would equate to 294 Mt CO₂-e. From available data, it is reasonable to estimate that national Defence organisations contribute approximately 50-60 per cent of total government inventories, suggesting the combined global military contribution to GHG emissions could be in the range 147-176 Mt CO₂-e (albeit notable exclusions are contributions through military deployments and by Defence industry). Notwithstanding the uncertainty of the assumptions, it seems reasonable to conclude that if global military forces were viewed as a single country, they would rank collectively in the top third of the world's largest emitters (equivalent in size to countries such as Pakistan, Egypt or Argentina).

Minimising Defence's carbon footprint

Despite the relatively minor contribution of emissions by Australia's Defence organisation, there are compelling reasons why Defence should be proactive in reducing them.

The first is the domestic dimension. The public and business community will look to the Government to make sure it is doing its fair share to reduce its own emissions. To get ahead on this front, Defence needs to review where 'the low-lying emissions fruit can be picked'. In the main, this lies with reducing emissions within the Defence estate, and initiatives such as the current base sub-metering program (which enables energy consumption by disparate 'tenants' to be invoiced on a 'user-pays' basis). But more importantly, it will also require

Defence to articulate a clear strategic vision for reducing emissions and to develop a climate change 'roadmap' on how to achieve it. Currently, Defence's embryonic policy is 'stove-piped' in a number of areas, which makes it difficult to access and interpret, and results in minimal visibility. This stands in stark contrast to several of Australia's major allies, notably the UK Ministry of Defence, which already has articulated both its climate change vision and roadmap.

The second reason for reducing emissions is the economic dimension. Putting a price on carbon will have a significant impact by ensuring that, the larger the emissions, the larger the cost. Put simply, those organisations that continue on a 'business as usual' path will become more expensive to run. Hypothetically, if Defence were to be included in the carbon price mechanism—and were there to be no commensurate budgetary increase—savings would need to be found from within current operating costs.²⁶ As a rough order of magnitude, a carbon price of \$25 per tonne for Defence would equate to an additional \$40m in carbon tax payments (based on 1.6 Mt CO₂-e of 'taxable' emissions).²⁷

The third reason to be proactive in reducing emissions is the operational benefit that may be brought about by reducing Defence's reliance on liquid fuels. As indicated, liquid fuel use is a significant contributor to both Defence and Government emissions, contributing approximately one-third of all Government emissions. Sensibly reducing the ADF's reliance on liquid fuels would not only reduce emissions but also provide significant strategic benefits in reducing reliance on overseas suppliers and shielding Defence from oil price volatilities. Operational spin offs—such as reducing the force protection requirements to establish, secure and sustain lengthy logistic fuel supply lines, as well as reducing the overall in-theatre logistics footprint—have already been articulated elsewhere.²⁸

The fourth reason for reducing emissions is to send a clear signal to Defence industry. By introducing low emission requirements as an integral part of the acquisition process, Defence industry will be forced to invest in commensurate research and development technologies. There is no surer way to reduce emissions than by rewarding contracts to those industry players that deliver quality capability with reduced emissions. The clear benefit is that Defence industry can actually diversify its products into other emerging renewable or sustainable markets. It will also enable Defence industry to become a more attractive employer for those young graduates keen on a future in the rapidly emerging sustainable and renewable sector. More broadly, the defence sector should not underestimate the missed opportunity of workforce participation if it does not position itself within the labour market as a leader in the realms of sustainable procurement.

Conclusion

Climate change is set to have a significant impact on the ADF. While the business and civil community are rapidly gaining deeper levels of knowledge and understanding of the issues at hand, the Australian Defence sector has been largely flat-footed and non-responsive. This need not be the case. Defence should be proactive in positioning itself when dealing with climate change. The opportunities presented to reduce its emissions could yield reduced operating costs, deliver operational and tactical benefits and enable it to project itself as a good 'corporate citizen' and responsible government department. To avoid mal-adaption on the issue and gain Government and community endorsement, Defence needs to develop a clear-cut climate change strategy, articulating its vision, goals and objectives. Such a strategy

needs to be prominent, enduring and constantly updated to reflect the latest scientific advice. If this is not done, then Defence may find itself ill-prepared for the challenges ahead.

Major Thomas joined the ADF in 1994 and has had a range of instructional, regimental and headquarters roles. He completed Technical Staff College in 2007 and worked in Land Systems Division as a Project Manager on 'Land 125'. He is currently the Officer Commanding 138 Signals Squadron in Melbourne. He has recently been accepted as a doctoral candidate with UNSW@ADFA.

Editor's note: Although not necessarily at variance, this article pre-dates the release of the Productivity Commission's June 2011 report on climate change.

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Employer Support for Reserves: some international comparisons of Reserve capabilities

Wing Commander Paul Earnshaw, RAAF Active Reserve, and
Group Captain John Price, RAAF Active Reserve

Introduction

The Australian Defence Organisation hosted the 'International Conference on Employer Support for Reserves' (ICESR) in Sydney in March 2009. This forum represents a loose grouping of nations with similar or emerging interests in the military and national capability of Reserves. The conference is held biennially, with hosting responsibility shared among member nations. The previous conference in 2007, hosted by the UK, included reference to a research paper on international comparisons, to be carried out and presented by Australia at the 2009 conference, to include

- the cost-benefits and effectiveness of employer incentives,
- the capability that is generated through employer incentives, and
- the changes in employer attitudes and behaviour brought about by 'statements of support'.

As host of the 2009 conference, Reserve and Employer Support Division of the Australian Defence Headquarters took on the research task. The conduct and reporting of the research aligned well with the overall intent of the conference, which was to share information and experiences on methods of support for (and by) civilian employers of Reserves and to explore future directions for the development and use of the Reserves. This article is an abridged version of the research project's findings,¹ which included submissions from Australia, the UK, Canada, Denmark, Malaysia, Pakistan, Sweden, Papua New Guinea and the US. Information relating to Greece and New Zealand was also incorporated in relevant tables.

Key findings

The quantitative and qualitative data gathered by research covers the period 2006-08 and reveals several significant issues that demonstrate a clear need to continue and improve employer support initiatives for Reserves. Without employer support initiatives, it seems unlikely that Reserve capability objectives in several countries will be realised.

Numbers

A surprising trend, exhibited by all the nations surveyed, was that where the Permanent force increases, so does the Reserves—and, where the Permanent force decreases, so does the Reserves. This is counterintuitive if there is assumed to be a correlation between the roles and functions performed by the Permanent force and Reserves, and where the capability impact of reductions in the Permanent force are offset by increases in the Reserves. It might be that some fundamental issue, such as financial constraints or capability cap, has contributed to this result. But, if so, it appears to apply across most nations.

For most countries, the ratio of authorised Permanent to Reserve numbers remained fairly stable over the period. The exception was Denmark, which appears to be engaged in a major program to reduce Reserve numbers or rebalance the total force. It is also clear that there is a wide variation in the ratio of Permanent to Reserve numbers (from 1:0.17 for Denmark to 1:0.95 for Australia), indicating no discernible critical mass for Reserve numbers that is applicable across all countries.

Using ratios as the basis for analysis, the comparison of actual numbers of Permanent and Reserve personnel against authorised numbers shows that for most countries, actual numbers and ratios were well down on authorised establishments, implying that personnel targets are not being met. Importantly, this may indicate potential shortfalls in capability resulting from shortfalls in personnel, both Permanent and Reserves.

The figures for Malaysia show that while its Reserve numbers are well down on authorised levels, the Reserve numbers increased significantly over the period, possibly indicating a very successful recruiting and retention strategy. It is also possible that some countries are able to adjust Reserve numbers quite quickly and so avoid catastrophic capability failure, although the depth and sustainment of such surge might still be problematic. The data also seems to indicate that while all countries may benefit from recruiting and retention initiatives, including employer support initiatives, it may be especially relevant for Australia, UK, Canada and Malaysia.

Reserve numbers also appear to be quite volatile when compared with Permanent numbers, and that it may be possible to vary Reserve numbers quite quickly to meet changing circumstances and, in some cases, by significant margins. The Reserves may, therefore, be considered generally as a more 'elastic' capability resource than Permanent personnel. However, it is important to note that some Reserve capabilities (and numbers of 'skills sets') will take longer to generate than others for the purposes required, such as deployment, and that the sustainment of this capability might still be problematic for some countries.

Employment

This section of the report outlines the elements of Reserve service utilised by several nations and arguably provides the most useful information for countries creating or rebalancing its Reserves, and for other nations to consider whether there is scope to adopt practices used by others.

Types of service. The data indicates that most countries employ either 'active' or 'high' readiness categories of service. Allowing for some differences in interpretation of the criteria for 'service', it appears that most nations (an exception is Pakistan) employ a portion of their Reserves at a high state of readiness and capability. Most also employ an Inactive Reserve, which appears to provide a 'pool' of personnel on which to draw and which enables both the Permanent and Reserve components to increase or decrease numbers quickly. Of note also is that most countries employ a specialist category within their Reserves. Although differences may have occurred through interpretation of criteria, it appears that nations need to draw on specialisations outside the Permanent force in times of need. It is also clear that most countries rely on some form of voluntary service for its Reserves, although across nations there is no single category of Reserve service that is 'all voluntary' or 'all compulsory'. Consequently, whether service is voluntary or compulsory appears to depend on conditions specific to that country.

Duration of service. While there appears to be some misunderstanding of this issue in the responses from some countries, a few pertinent observations can be made. Of particular interest is that for Australia, the average duration of service for most categories exceeds the mandated period of enlistment significantly (by about double). Malaysia appears to experience a similar situation. Canada reports no set periods of enlistment—and actual service is on average much less than for Australia. In contrast, Denmark’s Reserves appear to serve no longer than the required duration (although this may result from the significant drawdown in Reserves over recent years). The US appears to meet requirements for Reserve service duration.

Annual days of service. In the majority of cases, and on average, Reserve personnel tend to serve beyond the minimum mandatory requirement each year. There are exceptions to this, such as Malaysia, but most countries report that personnel in the high readiness category serve at least the required minimum number of days, with most serving for longer periods. The majority of countries report that high readiness service is voluntary, so it may also be likely that personnel in this category find such service highly rewarding.

Capabilities held only in the Reserves. Reports highlight some divergence in the understanding and interpretation by nations of this issue, especially in terms of professional employment (such as forensic dentists) and functions (such as roll-on/roll-off ferry crews). Nevertheless, it appears that in most cases the main role of the Reserves is to augment the Permanent force and, in some cases, to provide specific capabilities not present (or not present in significant numbers) in the Permanent force.

However, the information also shows that some nations have assigned their Reserves specific important functions not present in the Permanent force. These unique functions and roles appear to be country- and even Service-specific (such as Australian Army civil-military cooperation, Regional Force Surveillance Units and Reserve Response Force, and RAAF motor transport drivers). The key observation is perhaps that the Reserves generally provide the regional footprint within local communities and, in that context, provide significant local knowledge in undertaking and supporting domestic operations. Therefore, there might be value to countries by exploiting this capability for potential resource, training, capability pay-off and performance measurement benefits.

Performance

In broad terms, measurement of the performance of the Reserves is conducted within the context of the total force, and mechanisms are employed that are common across the total force. In many respects, therefore, Reserve performance may be indistinguishable as a ‘separate’ albeit ‘complementary’ capability. Within that context, it may also be difficult to identify where and in what way improvements in the Reserve capability may need to be made or where resources may be better utilised. Where the Reserve performs unique or distinct functions, perhaps more specific, comparative performance measures might be appropriate and possible.

The Reserves of all nations typically deliver considerable achievements in a wide range of operational and domestic situations. While not all nations keep records of discrete Reserve achievements, contributions to overseas deployments feature prominently in a number of reports. Clearly, Reserve personnel contribute to government and total force outcomes in a very meaningful and operationally effective way. It certainly seems that an increasing number of Reserve personnel are being employed across the globe, which tends to indicate that Reservists are valued, trusted, respected and are performing very well, and so are in increasing demand. There may be scope, therefore, to allocate further specific roles and functions to the Reserve as required.

Most nations report that they do not record, and thus generally do not know, the number of personnel who perform similar civilian and military roles. The exception is for specialist categories, such as health and legal professionals, who are employed in the Reserves specifically for their civilian skills. While there are clear capability benefits to be gained by knowing civilian skills—such as carpenters, brick layers and refrigeration repair specialists, especially when these skills are required urgently and perhaps to manage the issue of using contractors in the area of operations—privacy issues may be problematic for some countries. Also, one of the key perceived attractions for Reserve personnel is the potential to undertake activities that vary significantly from their civilian occupations.

Recruitment and retention issues

The information provided by countries indicates two subtle but very different perspectives in relation to the correlation between the ability to recruit and retain Reserve personnel and the economic conditions within countries. First, some countries advise that recruitment and retention of Reserves appears to be somewhat easier during times of national economic hardship. If that is the case, then over the next few years, recruitment and retention figures should be very positive for those countries impacted by the global financial crisis and seeking to bolster Reserve numbers. However, the quality and longevity of personnel seeking to join the Reserves may still be an issue.

Another view is that when a country's economy is relatively weak and unemployment is high, Reservists (or potential Reservists) have little bargaining power with their employers and so may reconsider their Reserve commitment (and the associated absences from civil employment), especially if their employer's business is small and/or struggling to survive. Thus, harsh economic periods may not result in a surge in Reserve recruitment or improved retention rates, with the exception perhaps of unemployed personnel. Concomitantly, a strong economy and low levels of unemployment may result in Reservists (and potential Reservists) feeling sufficiently empowered to commit to the Reserves and for the employer to support this commitment, thus leading to improved recruitment and retention rates.

This range of views suggests a potential need to examine further the issues of recruitment and retention and any correlation there might be to prevailing economic conditions/circumstances, including perhaps whether personnel have meaningful and secure civilian employment when they are recruited into or retained in the Reserve force. The results of this research may help future Reserve planning.

The information provided by some countries also suggests that long training and/or recruiting times, and national shortages of specialist skills, appear to be the predominant factors in recruitment difficulties. This observation also needs further examination, as factors such as pay, location of training and sector competition for employees may also play a significant part in recruitment decisions.

Reports indicate that operations or the potential for deployment on operations (experience and remuneration) are retention positive, so long as it is not 'over done' by too many deployments. Canada's example appears illustrative of a mutually-beneficial exchange between the civilian and Reserve communities, whereby Reserve pay and experience help offset the cost of study and gaining civilian experience. Malaysia appears to be the only nation with across-the-board retention difficulties. Most others report mixed results based on employment categories.

Command and control

For most nations, the Reserve operates under the command and control (C2) of the Permanent force and, for the most part, the main function of Reserves is to augment the Permanent force. However, Canada and the US demonstrate that there are occasions when it is necessary for the Reserve to exercise its own C2. Autonomous C2 for the Reserve, therefore, may be appropriate when it exercises specific functions and perhaps where size, accountability and efficiency demands lead to the need for discrete command and resource management arrangements.

Government incentives

Not all countries provide incentives to employers of Reserves. However, from the small sample provided, it seems fair to speculate that for those countries that provide incentives (Australia and the US in particular), there has been a positive benefit in terms of the number of Reserve personnel attracted to and retained in the force. As an example, Sweden reports that without incentives, it may not have been possible to recruit the medical specialists needed and the proficiency of medical staff 'would have been less excellent'.

Perhaps surprisingly, some Australian companies voluntarily provide 'top up' or differential pay to their Reservist employees, that is, by paying the difference between what the employee earns as a civilian employee and the (usually) lower rate paid by the ADF. Without this top up from employers, it may be that some Reservists (perhaps with critical skills) might not be prepared to join or remain in the Reserve. Significantly, where top up pay (or similar) is not provided, the financial viability of individuals may be affected with an adverse effect on Reserve recruitment and retention.

The US Government does not provide 'top up' pay to Reservists but this may change under legislation enacted in the US in 2009. However, many US employers voluntarily provide differential pay benefits to Reserves, as do some US State governments. Importantly, the US also applies a range of incentives to both employers and Reservists, such as business loans and reduced interest rates on loans, as well as tax credits to employers who pay differential pay.

Capabilities that would not be available, or significantly reduced, without incentives

This fundamental issue requires further research along the lines suggested by Canada, namely ‘what Reserve capabilities does the total force receive for the incentive investment and how are these capabilities leveraged in the absence of incentives’? Given that the main role of the Reserve is to augment the Permanent force, it seems that incentives both boost the number of personnel with required competencies already in the total force to levels necessary to achieve mission outcomes and provide critical capabilities that may not otherwise be available.

Recognising the contribution of employers

The majority of countries utilise instruments such as ‘statements of support’ to acknowledge the support and contribution provided by employers of Reserves. Importantly, countries such as the UK, Canada and Denmark have found support instruments to have significant intrinsic value even though they do not provide financial incentives to employers. Clearly, employers value such instruments, especially when presented by a person of ‘significance’, and perhaps coordinated with a visit by employers to witness first-hand their employees in ‘the field’. This approach may be useful for other countries utilising programs that enable employers to gain an appreciation of the types of roles and duties undertaken by Reserve employees. It would also appear to be useful to conduct further research into the value and benefits gained from programs that enable employers to observe employee activities first-hand in the field (such as Canada’s ‘ExecuTrek’ and Australia’s ‘Boss Lift’ and ‘Executive Stretch’ programs).

Promoting/advertising the Reserves

The information provided demonstrates that countries employ a wide and comprehensive array of means to advertise/promote their Reserves. A key common theme is the establishment of a senior, central body to promote the Reserve at both government and public levels (employers and community). Similarly, countries use the print and electronic media to advertise their Reserve capabilities and requirements to targeted audiences.

Conclusion

In summary, the key findings of the research project highlight the inability of a number of nations to meet Reserve personnel targets, some by a significant margin, which likely has a concomitant impact on the capability available to the total force. Also significant is that those nations that use incentives, notably Australia and the US, demonstrate that this mechanism has a positive impact in meeting Reserve personnel targets and, therefore, achieving capability requirements.

Above all, the research found that while there were significant similarities between countries regarding their use of Reserves and the way they are managed, including employer support initiatives, there were also important differences. It was this rich international tapestry of history, governance and experience that proved to be of particular value to ICESR’s participating nations and which provides the context for ongoing in-depth discussions and analysis of Reserve issues of common interest. Consequently, ICESR09 in Sydney tasked Australia to continue the research and present further findings at ICESR11 in Canada. It is planned that the research conducted for ICESR11 will be published by Defence in late 2011/early 2012.

Wing Commander Earnshaw served in the RAAF for 22 years, which included deployment to Egypt (UNEFII), and service in the Embassy of Australia, Washington DC. He was promoted to Wing Commander in 1985. As a public servant for 12 years, he served in several Defence organisations and, for most of 2006, as a senior policy and capability advisor to the Iraqi Ministry of Defence in Baghdad, where he was awarded the US Army's 'Commander's Award for Civilian Service' by General Martin E. Dempsey. He is a published author and a graduate of the RAAF Staff College (1985) and the Defence and Strategic Studies Course (2002). His postgraduate qualifications include PhD, MPA, MA and GradDip Admin. Wing Commander Earnshaw transferred to the Reserve in 2007.

Group Captain John Price served full time for 29 years in the RAAF before transferring to the Reserve in 2006. He holds academic qualifications in science, education, management and human resources, and has specialised in training management, occupational analysis and employment conditions policy. His work in the ADF has included liaison and collaboration with the armed forces of Malaysia, Indonesia, Philippines, Singapore, Thailand, US and UK.

NOTES

1. The full report is available at <http://www.defencereserves.com/cms_resources/documents/Employer_Support_for_Reserves.pdf>

Load Carriage and its Force Impact

Lieutenant Robin Orr, Australian Army

Dr Rodney Pope, Charles Sturt University

Dr Venerina Johnston, University of Queensland

Associate Professor Julia Coyle, Charles Sturt University

Introduction

Just as history records that military personnel have been carrying heavy loads for over two millennia (Orr, 2010), so too does it show their impact on military force sustainment and combat effectiveness. Around 800BC, the heavy loads carried by Assyrian soldiers reduced their mobility and led them to experiment continually with their shields in order to lighten their loads (Gabriel, 2002). Around 400BC, the long marches of Cyrus' 'infamous 10,000', an army of Greek mercenaries accompanied by Xenophon, would have resulted in numerous stress fractures, torn ligaments, muscle damage, blisters and abrasions. While some of these injuries can be considered minor in the context of today's available treatments, for the Cyrean soldier they could have been a matter of life or death as they hobbled to keep up with the moving army (Lee, 2007).

In World War 1, heavy loading of the foot soldier reduced the marching ability of the average soldier and was claimed to have altered the tactics of war (Lothian, 1921). The battles of Cambrai and Amiens provide examples in which forward movement, limited by physical exertion, was reduced to 9-12kms per day (Lothian, 1921). During the D-Day landings at Omaha Beach, American troops were so overburdened that their loads contributed to a number of deaths by drowning (Mayville, 1987). Carrying between 41.5 and 62.5 per cent of their body weight (Orr, 2010), most soldiers would have been seriously encumbered even before the added burdens of chest deep water, soft beach sands and heavy enemy fire.

In 1983, US soldiers assaulting an airhead in Grenada were so overloaded that one soldier described seeing '... all those guys sitting on the side of the road with IV tubes in them. There's no way the guys could [have gone on]' (Mayville, 1987, p. 26). In East Timor, the loads carried by Australian soldiers were thought to reduce their ability to pursue militia fleeing into the bush (Breen, 2000). More recently, in Afghanistan, the call has been made for light infantry that 'can move further and faster on its feet than the enemy...' (Lind, 2004, p. 14).

As in the past, the heavy loads currently being carried by many ADF members have the potential to impact adversely on force generation and sustainment, through manpower-reducing injuries as well as reducing the individual mobility and lethality of members in combat situations. This article commences with a review of contemporary knowledge regarding injuries likely to be sustained by members carrying heavy loads. It then progresses to examine the impact of load on individual mobility and lethality. Its aim is to highlight a number of ways to minimise the adverse effects of load carriage on force generation and force sustainment.

The burden of injury

Load carriage tasks frequently place increased stress on the muscles and skeleton of the carrier (Polcyn, Bensek, Harman & Obusek, 2000). This may lead to musculoskeletal injury, which in turn reduces available manpower and impacts on force generation and force sustainment. As an example of the impact on force generation, Pope et al (1999) found that over 50 per cent of Australian Army recruits discharged from recruit training were discharged as 'medically unfit', meaning the individual could not be fully rehabilitated and returned to active training within 12 weeks.

As an example of the impact of injury on force sustainment, a survey by Jennings et al (2008) identified that 80 per cent of US Army soldiers on modified work plans due to a musculoskeletal injury were unable to undertake load carriage activities, while 73 per cent were unable even to carry a rucksack. These findings are significant in highlighting the potential cost of musculoskeletal injuries on force generation and force sustainment.

When injury sites are aggregated, the lower limbs (knee, shank, ankle or foot) have been found to be the most frequent anatomical site of injury for military personnel (Jennings et al, 2008; Pope, 2007). When injuries on military load carriage marches were specifically reviewed, the lower limbs unsurprisingly also appear as the leading site of injury (Knapik, Reynolds & Harman, 2004; van Dijk, 2009). The ADF's 'Health Status Report' of 2000 not only noted that the lower limbs were the most commonly injured body parts but also that they could be attributed with the highest rate of 'working days lost' and a rate more than double the next most commonly injured body part (Defence Health Services Branch, 2000).

While recreational hikers typically report sprains to the knees and ankles as their most frequent injuries (16.6%), followed by cuts (9.6%) and blisters (6.8%) (Lobb, 2004), the primary concern for military marching was found to be blisters (Bush, Brodine & Shaffer, 2000). While foot blistering may appear to be a relatively minor condition, complications such as infection may be more serious and have in the past led to occasional fatalities (Berkley et al, 1989). Furthermore, blisters have also been associated with causing other musculoskeletal soft tissue injuries, which may result through alteration of movement patterns as 'hot spots' develop (Bush et al, 2000).

Stress fractures are of particular concern for military personnel (Kelly, Jonson, Cohen & Shaffer, 2000; Pope, 1999). Thought to have been first described by a Prussian military doctor in 1855 (Brukner & Khan, 2001), stress fracture sites of military personnel typically include the pelvis, shin, heel and foot (Kelly et al, 2000; Milgrom et al, 1985; Pester & Smith, 1992; Pope et al, 1999). Pelvic stress fractures, which have long recovery and rehabilitation periods, have been found to occur more frequently in the female population (Kelly et al, 2000; Pope, 1999).

A plausible reason behind the higher female incidence rate for stress fractures could lie in gender-related height differences, which can lead to female members overstriding in order to march 'in step' with male members. With this in mind, a study by Pope (1999), which evaluated a multi-faceted intervention—that included reducing marching speed, allowing and encouraging female recruits to march at comfortable stride lengths and providing earlier awareness of upcoming obstacles—observed a 95 per cent relative decrease in pelvic stress fracture incidence. More generically, modification of training load (pace, volume, etc) has been found to decrease the incidence of stress fractures without necessarily impacting on physical development (Bennell, Matheson, Meeuwisse & Brukner, 1999; Pester & Smith, 1992).

One particularly debilitating injury associated with heavy load carriage activities is brachial plexus palsy (damage to the spinal cord nerves) (Corkill, Liberman & Taylor, 1980; Knapik et al, 2004; Makela, Ramstad, Mattila & Pihlajamaki, 2006). Also known as rucksack or backpack palsy, most reported cases occur in military personnel (Wilson, 1987), although cases have been reported in recreational backpackers (Corkill et al, 1980) and scouts (White, 1968). While the incidence of brachial plexus injuries may not be high when compared to other load carriage injuries, recovery can take up to several months (Bessen, Belcher & Franklin, 1987; Corkill et al, 1980; Makela et al, 2006; D. C. Reid, 1992; Wilson, 1987), with surgical intervention recommended following failure to recover strength and endurance after 24 months (Drye & Zachazewski, 1996).

With this in mind, Bessen et al (1987) found that only a third of the trainees in their study who suffered from a brachial plexus palsy were retained on active duty to continue training after a period of convalescence. Not only does this injury impact on force generation and sustainment, through long rehabilitation requirements, but its nature may impact directly on a member's lethality. With weakness and paraesthesia (a sensation of tingling, pricking or numbness) being typical symptoms of brachial plexus neuropathies (Corkill et al, 1980; Knapik et al, 2004; Makela et al, 2006; D. C. Reid, 1992; Wilson, 1987), the ability of an individual to use their personal weapon could be impaired. This effect was observed in a study by Bessen et al (1987), where some military personnel presenting with brachial plexus neuropathies had difficulty even in carrying a rifle.

A study on backpacking paraesthesias, observing 280 backpackers carrying loads from 16.5-19.5kgs over 1,600kms of the Appalachian Trail, found a 34 per cent incidence of numbness or paresthesia, with digitalgia (numbness in the toes) being the most commonly identified type (Boulware, 2003). The second most common was meralgia, a paresthesia of the outer front aspect of the thigh (Boulware, 2003; Fargo & Konitzer, 2007). Recently Fargo and Konitzer (2007) reported on two case studies of coalition personnel serving in Iraq, both of whom suffered meralgia due to prolonged wearing of body armour. In these two studies, both members continued to present with symptoms a month after being diagnosed.

Injuries to the lower back are also common during or following load carriage tasks. In a study of military personnel completing a 20kms march with a 46kgs load, Knapik et al (1992) found lower back injuries to be second only to blisters. Unlike the members with blisters, however, over half of those who suffered a lower back injury were unable to complete the activity. When the biomechanical effects of load carriage on the human spine are taken into account—an increased trunk forward lean, increased lumbar compression and shear forces, changes to thoraco-pelvic rhythm and increased spinal torques (LaFiandra, Holt, Wagenaar & Obusek, 2002; LaFiandra et al, 2003; Polcyn et al, 2000)—then susceptibility to the recurrence of a lower back injury may mean these problems present on an ongoing or recurring basis.

Moreover, the incidence of musculoskeletal injury has been found to be higher during the early weeks of military training, when untrained recruits are adapting to an increase in exercise (Bush et al, 2000; Milgrom et al, 1985; Pester & Smith, 1992; Sheehan et al, 2003). Given that causal mechanisms for these injury patterns vary, Stein et al (1989) considered the onset of basic training to be the key causal injury factor, rather than the cumulative effect of marching 'mileage'. With this in mind, however, Orr and Moorby (2006) found that Australian Army recruits marched on average more than 7kms per day at the commencement of basic

training; a distance that excluded physical training sessions and drill lessons. Similarly, a study by Knapik et al (2007), which included all activities completed during the day, found that US Army basic combat trainees covered an estimated 11kms per day. Thus the commencement of training itself can be linked with cumulative loading.

Trainee injury rates are typically highest during the weeks with the highest volume of physical training (Almeida, Williams, Shaffer, & Brodine, 1999). With basic military training for all three Services escalatory in its intensity, both the sudden commencement of training and the continuous and progressive volume of conditioning may combine to over-tax the musculoskeletal system to a point where any additional increases dramatically increase the chance of injury. Following basic training, this state of increased risk may then be transferred to the member's trade training and even into their new units. Likewise, for members already in units which do not conduct sufficient physical training and load carriage conditioning, the sudden increase in training that may be experienced during pre-deployment training may predispose them to injury either during training or on deployment.

The impact of load carriage on mobility and lethality

Even if a member does not sustain an injury during load carriage, the loads carried can be expected to reduce their mobility and the mobility of their unit (LaFiandra et al, 2002; Mayville, 1987). Unsurprisingly, the amount of time taken by military personnel to cover a given distance has been found to increase with the load being carried (Harper, Knapik, & de Pontbriand, 1997; Johnson, Knapik, & Merullo, 1995; Knapik et al, 1997; Pandorf et al, 2002; Ricciardi, Deuster, & Talbot, 2008). As an example, one study found that the time to complete a 10kms march increased by 22.5 minutes (or 23 per cent) when loads were increased from 18 to 36kgs (Harper et al, 1997).

Similarly, the ability to negotiate obstacles has also been found to decrease as individual loads increase (Frykman, Harman, & Pandorf, 2000; Pandorf et al, 2002; Park et al, 2008; Polcyn et al, 2000). Of more concern is that while the absolute ability of members to negotiate some obstacles reduces as loads increase, the chance of tripping and falling also increases (Frykman et al, 2000; Park et al, 2008). When considering the confined spaces that soldiers and airmen on urban operations, or sailors on boarding parties, must negotiate while wearing body armour and carrying other loads, the lack of mobility and increased likelihood of falling and tripping could be life threatening. The same challenges are faced by Defence fire fighters when carrying self-contained breathing apparatus and moving through buildings or ships to fight fires.

Just as load weight impacts on obstacle negotiation, so too does the additional physical space taken up by the load. As an example, one study involving a crawl-through obstacle observed that completion times increase two-fold as the load increased from 14 to 27kgs, with the decreased crawl space and altered movement technique caused by the physical load space identified as the primary cause of the increase (Pandorf et al, 2002). Just as weight and size of the additional load impact on mobility, so too does load position. Additional loads carried in front of the body (as in a stores or cache carry, for example) have been found to cause the carriers to adopt a more cautious walking pattern, when negotiating obstacles, in order to avoid tripping (Perry et al, 2010).

Not only does load impact on mobility but several studies have found that load carriage tasks impact on a member's lethality. With grip strength and hand steadiness essential for the accurate employment of personal weapons, the detrimental impact of load carriage on hand tremor and grip strength have been shown to impact on marksmanship (Knapik et al, 1991; Leyk et al, 2007; Leyk et al, 2006). Furthermore, as accurate weapon fire is associated with heart rate (Hendrick, Paradis, & Hornick, 2007), increased heart rates following a load carriage event (Datta et al, 1975) can be expected to impact adversely on weapon fire accuracy.

This has been corroborated by several studies, with performance found to decline following the completion of tasks involving load carriage of 34-61kgs (Knapik et al, 1997; Knapik et al, 1991) and stretcher carry tasks (Rice, Sharp, Tharion, & Williamson, 1999), with the assessments carried out in a variety of conditions and involving different firing positions. However, a study by Patterson et al (2005) did not find any significant changes in shooting performance when a range shoot was conducted approximately 30 minutes after a load carriage task, suggesting an adequate rest period is required for marksmanship to return to 'base-line' ability. Grenade-throwing ability has likewise been found to decrease following load carriage activities (Harman et al, 1999; Harper et al, 1997; Knapik et al, 1991). One study failed to find any impact; however, that may have related to technical skills and the higher levels of fitness of the special operations soldiers who participated in the study (Knapik et al, 1997).

When it comes to general duties, studies have found that when loaded with body armour (± 10 kgs) and performing simulated work, individuals performed at a reduced physical work capacity and showed increased physical fatigue (Ricciardi et al, 2008). Following a load carriage activity, even quite fit subjects—having carried loads of 30kgs over 20kms at a self-determined pace—demonstrated significant drops in aerobic capacity, indicating fatigue and a decreased ability to do work (Shoenfeld, Shapiro, Portugeeze, Modan, & Sohar, 1977). While these impacts may seem innocuous at first glance, fatigue can manifest in other areas, notably concentration, and lead to potentially life threatening incidents, such as the accidental discharge of personal weapons during or following a patrol or boarding party.

Perhaps of most significance are the cognitive impacts of load carriage. Apart from increased fatigue and muscle discomfort, a study found that alertness and feelings of well-being diminished during load carriage (Johnson et al, 1995). A more recent study observed a significant degradation of mental operations involved in executive processing (that is, performing goal-directed actions in an environment featuring complex stimuli) when military personnel carry a load of around 30 per cent of their body weight (May, Tomporowski, & Ferrara, 2009). The research findings suggest that their decision making processes were reduced in both speed and accuracy.

Perhaps of most concern are the findings of Mahoney, Hirsch, Hasselquist et al (2007), who found that when combat loads reach around 40kgs, vigilance also decreased. While vigilance to auditory stimuli decreased, significantly greater decreases were identified in relation to tactile and visual stimuli. This is important as it suggests that when burdened with heavy loads, members may fail to notice visually-observable cues, such as improvised explosive devices when on patrols, concealed weapons when conducting boarding parties or weakened structures when fire fighting.

What does this mean in practical terms? Whether it is foot patrols conducted by Army infantry soldiers or Air Force airfield defence guards, boarding parties conducted by Navy sailors, or fire fighting and special operational duties conducted by all three Services, the loads being carried can reduce the mobility and lethality of individuals and seriously impede their ability to carry out their duties.

Minimising adverse effects

In order to reduce injuries induced by load carriage, as well as minimising the impact of load carriage on the mobility and lethality of Defence personnel, the following measures are suggested.

Physical conditioning for load carriage

The need to condition military personnel to march with loads can be traced to antiquity (Orr, 2010). As an effective means of improving load carriage task performance and helping prevent load carriage injuries (Harman et al, 2008; Knapik et al, 2004), physical conditioning forms a vital part of force generation and force sustainment. This is only the case, however, if the training is conducted appropriately.

Orr, Pope, Johnston et al (2010) recommend that specific load carriage conditioning be conducted 2-4 times per month, a volume sufficient to provide a training stimulus but not so much as to cause a rapid overload. The intensity of the training sessions needs to be sufficient to elicit the desired training response and should progress to carrying loads similar to those required for military exercises and operational tasks. However, regardless of the level of conditioning, it is important to note that there is only a certain amount of load that the body can physically withstand and, as such, the loads should not be so excessive as to lead to injury.

Defence units which fail to maintain a load carriage conditioning program that meets these recommended training guidelines could be setting themselves up for failure. If load carriage fitness is poor, the amount of time needed to condition a member for operational tasks may exceed the time available during pre-deployment training. The result would be members who are either in a state of overtraining immediately prior to deployment (due to the sudden increase in load carriage duties during pre-deployment training) or under-trained for load carriage tasks on arrival in the area of operations.

Lethality training

Lethality training, including shooting and grenade-throwing from a variety of positions in a variety of conditions (both fresh and when fatigued), should be conducted regularly rather than once or twice a year to meet qualification requirements. With shooting accuracy expected to decrease following load carriage tasks, marksmanship skills need to be given greater attention (Mayville, 1987), rather than simply increasing ammunition allotments and hence load weight. These marksmanship skills should also be expanded to include firing serials following load carriage tasks in a variety of operational settings, as opposed to range practices conducted on pristine weapons ranges. The same would apply for grenade-throwing practices and training.

Equipment control and integration

Poor load carriage equipment integration may present as a major limiting factor in load carriage capacity (Drain, Orr, Billing, & Rudzki, 2010; Patterson et al, 2005). As an example, an assessment team in 2003, reviewing the load carriage practices of US personnel on operations in Afghanistan, identified issues with cinching the pack's waist belt while wearing body armour. As pack waist belts are designed to transfer load on the shoulder and upper back, this system integration 'disconnect' potentially decreases the stability of the carrier's walking pattern and increases their injury potential (S. A. Reid & Whiteside, 2000; Sharpe, Holt, Saltzman, & Wagenaar, 2008; Wilson, 1987).

In addition, efforts to improve load carriage equipment integration need to extend beyond the load carriage system to include additional items the individual may have to carry. Failure to do so may relegate the individual to a 'Christmas tree on which we hang ornaments' (Kreisher, 2009, p. 27), a concern graphically represented in a recent DSTO risk analysis of the ground based air defence trade (Attwells et al, 2007).

Military organisations, like 'Gruntworks' in the US (Kreisher, 2009), the 'Personal Combat Equipment Team' in the UK (Office of Ministry of Defence, 2010), and 'Diggerworks' in Australia (Army, 2011), have been created to address equipment integration concerns. However, for these organisations to be effective in both the short and long term, they need to be included in personnel equipment acquisitions and provided with continual support.

Reducing the physical load

Ways to reduce physical loads need to be explored with due consideration to other influencing factors. While reviewing the history of load carriage, Orr (2010) noted that changes in military tactics, logistics and technology have failed to make significant advances in reducing the physical load of military personnel. Modernisation programs, for example, can often have countervailing effects, where loads are reduced in one area only to be returned in another. As such, rather than improve the load carriage circumstance for military personnel, the load carrier is 'overburdened with the weight of his technologies' (Task Force Devil Combined Arms Assessment Team, circa 2003, p. 87).

New load carriage transport methods, like the multifunction utility/logistics equipment (MULE) (Bachkosky et al, 2007) or lower body exoskeleton (Eby, 2005), may be viable means of assisting military personnel to reduce their carried load or enhance their ability to carry a given load. However, these logistical aids will only be effective if available and if members are not simply supplied with greater loads due to greater carrying capacity. Thus, to effectively reduce the member's physical load, the limited gains made by technological and logistic advancements should not be compromised by commanders seeing a means of supplying members with more equipment. Furthermore, methods to reduce the carried physical load should form part of a wider integrated approach to minimising the impact of load carriage rather than being relied on as the sole solution.

Summary

Load carriage tasks place physical stress on the carrier. This increase in stress may lead to injury, which in turn reduces available personnel and impacts on force generation and force sustainment. On operations, neuro-musculoskeletal injuries have the potential both to increase logistic workload and, as each individual member is effectively a weapons' platform, to reduce unit fire power and thereby increase combat risk to other members of a unit. In addition, heavy load carriage has a negative impact on an individual's mobility and lethality.

This reduction in combat task performance likewise increases the combat risk to the individual and their unit. To help mitigate these consequences, sufficient but not excessive load carriage conditioning training needs to be conducted and a greater focus needs to be placed on lethality training. The correct load carriage equipment for the task needs to be fitted, correctly worn and properly integrated. Finally, further means of reducing the carrier's physical load need to be explored as part of a wider, integrated approach to minimising the impact of load carriage on the individual.

Lieutenant Rob Orr enlisted in the Australian Regular Army in 1989. After initial training, he served as a soldier in the 6th Battalion, The Royal Australian Regiment. Transferring to the physical training instructor stream in 1995, he served in various postings throughout Australia while completing a degree in Adult Education and Training. Following completion of his Masters Degree in Physiotherapy in 2005, Lieutenant Orr was commissioned and commenced work as a physiotherapist. He is currently working as the Human Performance Officer, Special Operations HQ while completing a Doctorate (in load carriage) through the University of Queensland.

Dr Rod Pope is a researcher in the Centre for Inland Health at Charles Sturt University and an Adjunct Senior Lecturer in the Centre for Military and Veterans Health, University of Queensland. Rod has been engaged in injury prevention research and practice in the ADF context for 20 years.

Dr Venerina Johnston is a researcher and lecturer in the Division of Physiotherapy at the University of Queensland. She has qualifications in physiotherapy, occupational health and safety and work disability prevention. Her teaching responsibilities relate to her specialty area of ergonomics and occupational health. Venerina has research interests in the prevention and management of work-related musculoskeletal problems with a rich background in occupational rehabilitation and injury management.

Associate Professor Julia Coyle has two key roles as the Head of the School of Community Health at Charles Sturt University and a Director of Albury-Wodonga Health Service. Her research interests rest in two domains. First, professional practice and workforce redesign of relevance to rural health services; and second, injury prevention.

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The Argument for an ‘Indirect’ Expeditionary Warfare Concept

Lieutenant Colonel I.D. Langford, DSC, Australian Army

Introduction

The ADF requires an ‘indirect’ expeditionary warfare (IEW) concept within Army, in order to wage a protracted military campaign against the threats and security challenges likely to exist in future operating environments. Its purpose would be to defeat emerging security threats pre-emptively by leveraging off the developing set of skills in Army, as specified in ‘Adaptive Campaigning — Army’s Future Land Operating Concept’ (AC-AFLOC).¹ This foundational operating methodology provides the conceptual, doctrinal and force modernisation path for Army, specifying its key tasks as being:

... [to] safeguard Australian territory, population, infrastructure and resources; manoeuvre in the primary operating environment, including amphibious manoeuvre; [conduct] proactive combat operations against an adversary’s military bases and staging areas; and [provide] support to domestic security and emergency response tasks.²

AC-AFLOC also emphasises the need to develop concepts for operating in a ‘complex warfare’ environment.³ It specifically identifies that:

Army is to be designed for a diverse range of operations in complex environments. [It] is to be able to operate as combined arms teams and undertake combat in littoral and land environments. AC-AFLOC describes these requirements as an integrated Land Force response, within a broader joint and whole-of-Government approach, to the demands of complex war [emphasis added].⁴

The development of an IEW capability concept would complement and enhance existing AC-AFLOC operating concepts, to ensure the ADF remains postured to meet the demands of the future.

The future operating environment

The dominant Australian military experience throughout a large part of the nation’s history has been the application of military power against a defined, state-sanctioned enemy force within a conventional setting.⁵ However, after the Second World War, Australia’s strategic environment was more affected by strategic rivalry between nation-states and their competition for power and influence. Towards the end of the 20th century, the demise of the Soviet Union and the end of US-Soviet ‘bipolarity’ saw Australia’s strategic outlook strongly shaped by the strategic primacy of the US.⁶ More recently, globalisation, changing demographic trends, growth patterns, resource competition, urbanisation and the spread of technology have been significant influences in shaping today’s strategic environment.⁷

Modern military planners obviously conduct detailed analyses to anticipate trends that may affect the future operating environment and, for Australia, some of the key trends identified in the 2009 Defence White Paper were:⁸

- Australia's security outlook will be determined by an increasingly 'multi-polar' distribution of global power,
- Changing climate patterns, booming population growth and a scarcity of food and water will exacerbate existing security challenges,
- US strategic primacy will come under increased competition from rising states, notably China and India, in the decades beyond 2030, and
- The convergence of global demographic change, resource pressure, health risks and the emergence of non-state actors, such as criminal syndicates and terrorist groups, will increase the likelihood of inter-state and intra-state conflict.

For the ADF, the identification of such trends assists strategic and operational planners to focus on the specific features that are likely to be of particular relevance to their planning. The key features highlighted in AC-AFLOC were:⁹

- Operational environments are likely to be littoral in nature,
- Population areas are likely to intensify in number, resulting in the further proliferation of 'mega-cities' throughout the developing and developed world,
- Intra-state conflict will be an enduring feature of warfare, as non-state actors seek to exhaust their adversaries through attacks on non-military targets, such as economic and social systems,
- State-on-state warfare is possible between state actors,
- Lethality systems (weapons) will continue to permeate from state actors to non-state actors (criminals, terrorists, radical ideologues etc),
- The operating environment will become increasingly disaggregated, that is, both state and non-state actors will become more dispersed as they attempt to operate below their adversaries' detection threshold,
- Complex operating systems will increasingly become the dominant battlespace in both inter-state and intra-state conflicts, and
- These types of conflict will span all elements of national power and will require a whole-of-nation response.

On the basis of this analysis—and similar assessments made in the 2009 Defence White Paper—it seems reasonable to expect that the future operating environment will continue to adjust and shift rapidly, as well as increase in complexity. Success for any actor within the international system, both state and non-state, will ultimately depend on their ability to adapt quickly, so that they rapidly emerge to a position of superior strength relative to any opposing actor within the international system.

The current 'expeditionary warfare' concept

A vital element of Army's commitment to the defence of Australia is the need to be proficient at 'expeditionary warfare', which is defined by the US military as 'a military operation conducted by an armed force to accomplish a specific objective in a foreign country'.¹⁰ The relevance of expeditionary warfare to the modern operating environment is obvious—the littoral nature of the future operating environment, the emergence of 'mega-cities' as a result of demographic change and the increase in competition for and access to resources (particularly near coastal areas) make this a vital capability for the ADF to survive and thrive in the emergent operating environment.

The essential tenets of expeditionary warfare are captured in AC-AFLOC. 'Manoeuvre theory' (and mission command), 'complex adaptive theory' and 'systems theory', all make up what is described by the Australian Army as 'adaptive campaigning'.¹¹ It comprises of five 'lines of operation', namely:

- Joint land combat,
- Population protection,
- Information actions,
- Population support, and
- Indigenous capacity building.¹²

'Adaptive campaigning' is designed to capture core traditional military tasks for the Army, as well as the additional 'frames' and actors that can be expected to affect the future operating environment. However, to meet these additional frames and actors—and subsequent emergent behaviour—Army will need additional skills beyond the traditional war-fighting functions of a land army. These additional, non-traditional skills could be characterised as 'indirect' skills, in that they are currently beyond Army capability and do not exist within its current core tasks. Hence, 'indirect expeditionary warfare' (IEW) is being proposed as a future capability to meet this need.

An IEW capability

IEW would seek to identify emergent threats to Australia as part of the ADF's response mechanism to any emerging, uncertain security situation. It would comprise a range of conventional and irregular capabilities, with the aim of assisting key stakeholders to avoid and/or mitigate the scale of any emerging crisis through the conduct of preventative, indirect actions. IEW operations would typically be time-focused, urgent and emphasise pro-active prevention rather than remedial action. Needless to say, they would occur in trying and uncertain circumstances.

IEW could operate across the spectrum of conflict but would be most influential and effective in the developing stages of a crisis. The insertion of any subsequent and additional ADF joint task force (JTF) would be in the 'surged' or sequel phase of an IEW operation (see Figure 1). Initial IEW actions would prepare and 're-frame' the operating environment by reducing the risk threshold for an incoming JTF—or instead 'control' the emerging crisis to a level that could be managed by an alternative force, such as the indigenous force of the host nation. At

its most successful, IEW would reduce or eliminate the need for the introduction of a JTF or major ground force, thereby preserving ADF resources and capability for other future conflicts.

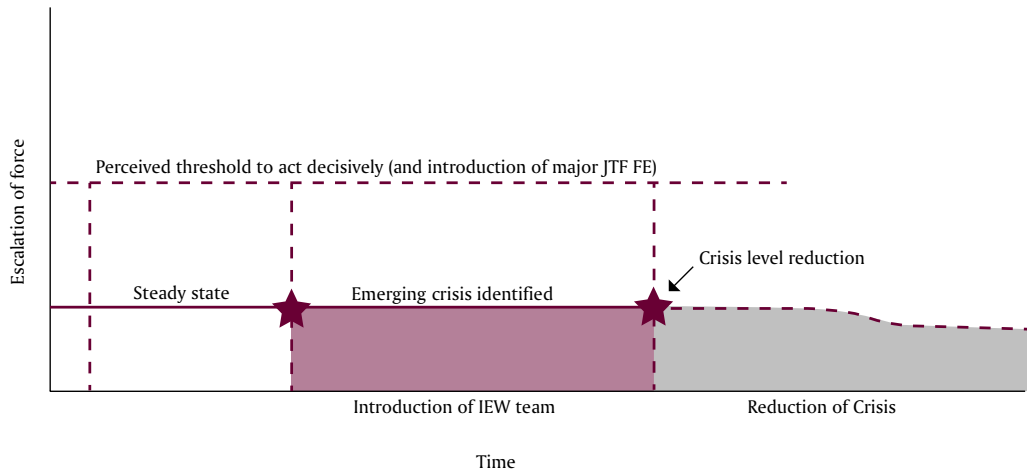


Figure 1. Crisis prevention and mitigation through IEW

One of the key features of IEW is its emphasis on using indirect approaches, as an alternative to the commitment of more traditional military forces. To that end, IEW would focus on the following applications:

- An emphasis on the underlying economic, political, cultural or security conditions that fuelled the emergence of the threat,
- The use of irregular and non-conventional means and methods against an adversary, which may include clandestine and covert actions, operations in combination with the host nation force or through the non-conventional use of conventional capabilities, and/or
- Subverting the power and influence of the adversary over the target population groups through psychological operations, public diplomacy, public affairs, security operations, resource control, operational deception and other means.¹³

IEW would strive to exploit the cognitive, moral and psychological dimensions of conflict. The aim would be to attack the adversary or solve the security problem from within and through others. The indirect nature of these operations would generally involve fewer troops and resources, and emphasise 'adaptive behaviour' as one of its key tenets.

Characteristics of IEW

Because of the potentially wide scope for the employment of an IEW force, there is no single situation or frame that describes how best to organise and arrange such forces. Each operation would be individual in its nature and the IEW force would be purpose-designed. There are, however, common characteristics that can help to define the nature of IEW and provide a basis for future IEW campaign 'designs'. These characteristics are not strictly the domain of IEW. But they are not currently properly 'enabled' or 'fused' as a capability in the ADF.

Dynamic context and mission unity. IEW operations would typically be conducted in fluid and volatile emerging crises. National, strategic and possibly even theatre-level objectives would not be clearly defined, because of the adapting nature of the situation. The mission of the IEW force would—and should be expected to—vary because of the changing nature of the environment. Accordingly, IEW force elements would constantly need to ‘frame’ (and re-frame) problems, detect emerging developments and adapt to their environment. They should also expect to ‘immerse’ themselves into situations in order to properly determine and advise on the nature of the crisis. And while decentralised decision-making is an important feature of IEW operations, it must obviously be ‘nested’ within the overall strategic and operational intent of the Australian Government and the host nation.

Patience, persistence and resolve. The nature of IEW means that these operations will often be conducted in a gradual, deliberate way. This provides important opportunities to gain a better understanding of the key actors. It also would give the Australian Government the time and space—through diplomatic and other non-military means—to attempt to control and influence the situation without unnecessarily inflaming tensions. In IEW, the patient pursuit of objectives and their well-defined metrics should be highlights of progress. Unlike expeditionary warfare, where the decisive employment of military combat power aims to achieve an absolute effect, IEW stresses the need for operations in varied places and over longer and more protracted periods of time.

Intelligence and action. IEW must also be able to collect, analyse and distribute intelligence to consumers within the intelligence community. Critically, IEW should specialise in the collection of ‘human intelligence’ (HUMINT). The use of ‘human terrain teams’ are a feature of IEW and their emphasis on collecting HUMINT via cultural intelligence will help inform decision making. These cultural aspects include language, traditions, local law and protocols, tribal affiliations and networks, and social studies to give IEW an ‘optic’ that will provide the indicators and warnings needed to detect the emergence and intentions of an adversary.

IEW force elements must also be equipped to act decisively if required. These tasks might include (but are not limited to):

- Lethal and non-lethal force, including anti-terror and counter-terror operations, low signature precision strike and counter-weapons proliferation,
- Humanitarian aid distribution,
- Key leader engagement,
- Local law enforcement,
- Psychological operations,
- Public affairs and civil affairs operations,
- Intelligence collection,
- Information operations, and
- Strategic communication and electronic warfare operations.

Typical IEW operations

For the purposes of discussion, IEW might comprise five types of operations, tailored to the specific situation but typically integrated and with several being conducted concurrently. They include:

- Strategic communications operations.
- Security partnership operations.
- Decisive intelligence and precision action operations.
- Low visibility enabling operations.
- Provision of essential services.

Strategic communications operations. These operations, drawing on US doctrine, encompass

... those processes and efforts that understand and engage key audiences, to create, strengthen or preserve conditions favorable [sic] to advance national interests and objectives through the use of coordinated information, themes, plans, programs and actions synchronized with other elements of national power.¹⁴

They differ from broader JTF and ADF strategic communications in that the primary focus of the IEW message is to promote the legitimacy of a host nation, partnership or the Australian Government's involvement. Common themes that could be expected to feature include legitimacy, trust, credibility, cultural sensitivity and perceptions. Strategic communications in IEW would normally be seen as an offensive tool and should be employed as part of a 'shaping action'.

'Information operations' in IEW support strategic communications and are also important in trying to understand and influence the complex environment. They should anticipate adversarial propaganda and develop mechanisms for defeating it. Public affairs, civil affairs, psychological operations and intelligence collection perform 'enabling actions' for strategic communications and, importantly, set the conditions for future IEW and expeditionary warfare, when and if they are required.

Security partnership operations. These operations require a joint IEW force that works to build up and expand the capabilities of a host nation. Importantly, they must be seen as a preventative measure, before a smaller crisis matures and evolves into a more serious and far-reaching security challenge. While the force composition will depend on the nature of the tasks, IEW deployment teams would typically involve elements of both the military and other agencies. The rapid expansion of host nation security capabilities is the enduring priority of these operations, which ultimately aim to protect the host nation from subversion, lawlessness and insurgency.¹⁵

Security partnership operations, as part of IEW, can also generate new capabilities for the host nation that would otherwise be cost-prohibitive or not yet introduced into their security forces. Examples include the provision of tactical uninhabited aerial vehicles (UAVs), leaflet drops and transistor radio deliveries (to support host nation strategic communications operations), electronic attack, counter-WMD, consequence management (in the event of a large scale natural disaster), intelligence collection and fusion for host nation prosecution,

combat search and rescue, joint targeting (either through trained targeting personnel or the provision of specialist equipment) and policing technical skills, such as forensics, criminal investigations and evidence gathering.

Decisive intelligence and precision action operations. IEW force elements must have the ability to transition rapidly from indirect supporting operations to decisive military operations. An example would be the employment of a targeting and decisive action model known as 'F3EA' (find, fix, finish, exploit, analyse).¹⁶ This uses IEW skills, such as persistent intelligence collection, which would allow the IEW team—having adapted to the situation—to generate tempo and decision speed that exceeds that of an adversary. This intelligence would in turn enable the adversary to be 'found and fixed', regardless of appearance, clothing, operating methods or rate of effort. The IEW team can then 'finish' the target, scaling their response in a way that is adaptive to the adversary and the environment, either by precision- or mass-effect weapons.

Finally, the IEW team would 'exploit and analyse' the target to gain an insight into the adversary's system, allowing for further weaknesses to be identified for possible future exploitation. This, in turn, would cue the intelligence assets to begin operations against this discovered weakness and so the process would begin again. Indeed, an IEW force that is F3EA-capable is able to design, plan, adapt and act while allowing for the development of future operations that are not contingent on a higher headquarters or external strategic intelligence lead. And F3EA has proven itself operationally—an example was the targeting and killing of the Al-Qaida terrorist leader al-Zarqawi in Iraq in 2006.¹⁷

Low visibility enabling operations. Defeating an adversary indirectly or averting a crisis usually requires the employment of a combination of conventional and non-conventional methods, including clandestine or covert actions, operations in combination with irregular forces or the non-conventional use of conventional capabilities.¹⁸ In order to achieve this, an IEW team must be capable of operating below the detection abilities of the adversary.

Provision of essential services. The provision of essential services is an important capability for IEW. Unlike major military-civil operations, where the JTF would provide the infrastructure and personnel for the establishment of essential services, the IEW team would comprise personnel who are specifically trained and skilled to advise and assist the host nation. The provision of essential services, at an early stage of a developing crisis, assists in providing legitimacy for the IEW force elements and with the host nation which, in turn, becomes more legitimate in the eyes of the civilian populace. The ability to assess and survey the requirement for essential services must also form part of the IEW capability, in order to allow the priorities for the host nation and the IEW team to shift in line with the emerging situation.

An IEW essential service capability must also be able to complement and seamlessly operate alongside and in consideration of other stakeholders, such as Australian Government departments, host nation government agencies, non-governmental organisations and foreign partner governments and their agencies. Importantly, IEW force elements need a substantial 'reach-back' capability in terms of authorities and financial delegation, so that they can make commitments to the host nation without excessive and unnecessary bureaucratic interference.

IEW across the conflict spectrum

Each and every IEW operation would vary in the mix and application of capabilities and characteristics. In certain circumstances, it could require force elements to provide specialist support to a faltering friendly government in danger of losing its legitimacy against a growing insurgency. This could occur in a climate of widespread lawlessness and sectarian violence. Other issues may include an ongoing humanitarian crisis, as well as unwanted interference from another state actor. In this case, 'decisive intelligence and precision action' operations, supported by 'strategic communications' operations, might form the bulwark of response from an IEW team. The subsequent introduction of a conventional follow-on force could also be supported through security partnership operations and the provision of essential services.

A less challenging mission could involve the provision of assistance to a government grappling with a natural disaster, such as a tsunami or cyclone. In this instance, a breakdown of law and order, as well as the loss of government services in the wake of the event, may delegitimise the host nation government. An IEW team might be expected to focus on strategic communications, security partnership operations and the provision of essential services, as part of their overall strategy to support the host nation. In this circumstance, an IEW team may be effective in restoring host nation government legitimacy, negating the need for the introduction of other forces.

In either situation, the IEW team would need to understand the emerging situation, anticipate the complexities of the operating environment and readily adapt in order to generate effective and enduring solutions.

Conclusion

It has been argued in this article that the ADF requires an IEW operating concept in order to wage an effective campaign against emerging threats to regional security. Such a capability could act as the 'leading edge' of an Australian-directed 'surge' into a host nation, bringing capabilities and capacities that could mitigate or eliminate the developing causes of a crisis, especially during the early stages of its development.

The Australian Government has many facets to its strategic 'shaping and influencing' activities, invariably interlinked with a range of diplomatic initiatives. The ADF has a significant role to play in this domain. IEW would enhance Australia's expeditionary capability and give those whose interests are inimical to Australia reason to pause. IEW would enhance collective security efforts. It would also provide the Australian Government with a new range of options for 'shaping and influencing' on a more consistent and significant scale.

Lieutenant Colonel Ian Langford, DSC is a Commando officer within Special Operations Command. He has deployed as an operational commander with the Special Operations Task Group to Afghanistan. He has additionally served in that theatre with the NATO Special Operations Coordination Centre on the 2008 review of ISAF special operations. He is a Distinguished Graduate of the US Marine Command and Staff College (2009) and was the 2010 Honour Graduate the USMC School of Advanced War-fighting. He has also served on multiple tours to Timor Leste, the broader Middle East, Bougainville, the Solomon Islands and as part of Australia's domestic counter-terrorist response.

NOTES

1. Australian Army, *Adaptive Campaigning — Army's Future Land Operating Concept (AC-AFLOC)*, Department of Defence: Canberra, 2009. AC-AFLOC seeks to build on the Australian Army's previous conceptual documents, 'Complex Warfighting' and 'Adaptive Campaigning'. These concepts are underpinned by the Army's fundamental approach to warfare as articulated in LWD 1: *The Fundamentals of Land Warfare, 2008*. AC-FLOC is also reflective of the Defence White Paper 2009, the Defence Capability Plan and other Service initiatives. These documents establish the operating paradigms for the formulation of all Australian Army capability within the broader ADF framework.
2. Australian Army, *Adaptive Campaigning*, foreword.
3. 'Complex environments' are the environment shaped by physical, human and informational factors that interact in a mutually-reinforcing fashion. It is terrain that limits the utility of technological intelligence, surveillance and reconnaissance and which reduces opportunities for long-range engagement with a consequent increased emphasis on close combat.
4. Australian Army, *Adaptive Campaigning*, foreword.
5. By 'conventional' I mean conflicts that are fought *by convention* rather than with purely symmetric weapons and tactics. This is an important distinction because the Australian Army has considerable experience in 'small wars' and 'irregular wars', as well as large-scale warfare. See F.A. von der Heydte, *Modern Irregular Warfare in Defense Policy as a Military Phenomena*, translated by George Gregory, New Benjamin Franklin House: New York, 1986.
6. Australian Government, *Defending Australia in the Asia Pacific Century: Force 2030*, Department of Defence: Canberra, 2009, p. 30.
7. Australian Army, *Adaptive Campaigning*, p. 27.
8. Australian Government, *Defending Australia in the Asia Pacific Century*, pp. 29-37.
9. Australian Army, *Adaptive Campaigning*, pp. 13-9.
10. 'Expeditionary warfare' is defined by the US Marine Corps as 'a military operation conducted by an armed force to accomplish a specific objective in a foreign country': US Marine Corps, *Expeditionary Warfare*, Marine Corps Doctrinal Publication 3, Department of the Navy: Washington DC, 1998.
11. Australian Army, *Adaptive Campaigning*, pp. 20-40.
12. Australian Army, *Adaptive Campaigning*, p. 22.
13. US Government, *Military Support to Indirect Security and Stability Surge Operations – A Study*, Department of Defense: Washington DC, 2007, p. 38.
14. US Government, *Military Support to Indirect Security and Stability Surge Operations*, p. 39.
15. US Government, *Military Support to Indirect Security and Stability Surge Operations*, p. 41.
16. M. Flynn, R. Juergens and T. Cantrell, 'Employing ISR- SOF Best Practice', *Joint Forces Quarterly*, Issue No. 50, 3rd Quarter 2008, p. 56. While F3EA is not strictly limited to special operations, it is an example of where special forces teams, using this targeting process, displayed elements of CASO (complex adaptive special operations) in their ability to continuously adapt to the environment to ensure they maintained positive control over the targeting and killing of an Al-Qaida leader.
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Nuclear Energy in Australia

Colonel Harry J. Kowal, Canadian Air Force

Introduction

Concerns for energy security are fanning the flames of debate for nuclear energy in Australia. With the finite nature of conventional resources, such as coal, oil and natural gas, and their detrimental impact on the environment, there is an increasingly urgent need for other power sources that are cleaner and more efficient. Renewable energy has gained much attention in this area and has the potential to contribute considerably to the generation of electricity. However, renewables are predominantly unsuited for 'baseload' power and are still under development.¹ Highlighting the pros and cons of nuclear energy, the 2006 'Switkowski Report' concluded that nuclear power can make a valuable contribution to the future energy mix in Australia because it is a 'mature, safe and clean means of generating baseload electricity'.²

To date, the Australian Government has yet to commit to nuclear energy. In fact, during the last election campaign, the only platform on which the two major parties agreed was *not* to pursue nuclear power for Australia.³ This situation, however, does not signify the end of the debate. Nor does it mean that Australia will never embrace nuclear energy. Despite the current Government's position, there have been reports of increased support for nuclear energy in Australia, with some experts predicting commercial nuclear power as early as 2025.⁴ Needless to say, the recent crisis in Japan at the Fukushima nuclear power station, as well as Germany's subsequent decision to shut down all its nuclear power plants by 2022, will undoubtedly have a significant impact on Australian thinking.⁵

Before embracing a domestic nuclear energy program, the Australian Government would also need to address certain regulatory challenges and policy gaps to enable the development of a safe, sustainable and economically viable industry. With commercial nuclear power plants operating in 31 countries around the world, much can be learned from a policy perspective to prepare Australia for a nuclear power decision, were it to go down that path.⁶ This article advocates the use of nuclear energy in Australia and examines key factors that would influence sound nuclear energy policy and the development of a nuclear energy industry as a 'clean energy' solution in contributing to Australia's energy future.

Australia's nuclear power debate

The Australian debate is inextricably linked with energy security, described simply as 'the provision of reasonably priced, reliable and environmentally friendly energy'.⁷ While straightforward in concept, energy security has become a significant strategic challenge for most nations because of a forecasted growth in demand for resources and mounting concerns for the environment. Both these factors impact the use of fossil fuels, such as coal, oil and natural gas, because they are finite (estimated to peak as early as 2050), cause pollution (which adversely affects health and the environment) and produce carbon dioxide (a known contributor to global warming).⁸

It is expected that conventional energy resources will be used for many years to come. However, the protection of the environment demands an immediate reduction of pollution and greenhouse gas emissions.⁹ Accordingly, future energy demands will need to be less dependent on conventional resources. Much effort has been invested in the use of renewable energy forms, such as solar, wind, hydro, geo-thermal and bio-energy, which stand to play a significant role in energy security. Some renewables, however, are still in the developmental stage and most cannot supply baseload energy requirements.¹⁰ There is also ongoing speculation that some renewables, such as solar and wind, are still too expensive to make them economically viable.¹¹ Overall, energy security of the future will likely depend on the efficient use of conventional resources and the expansion of renewable technologies. However, 'renewable energy and energy efficiency [alone] won't solve the energy and climate crisis'.¹²

Nuclear energy, on the other hand, is a proven technology that is economically competitive and can contribute directly to energy security in keeping with environmental responsibilities.¹³ In a recent publication, Brook sums up the reasons why nuclear energy is a viable energy alternative as follows:

... nuclear fuel is virtually unlimited and packs a huge energy punch, ... new technology solves the nuclear waste problem, ... nuclear power is the safest energy option, ... advanced nuclear power will strengthen global security, ... nuclear power's true costs are lower than either fossil fuels or renewables, [and] ... nuclear power can lead the 'clean energy' revolution.¹⁴

Joskow and Parson also support nuclear power generation because it is efficient, its fuel is plentiful and it can provide baseload energy requirements.¹⁵ It is no wonder that the global use of nuclear power is on the rise, with China, for example, projected to become the world's largest producer of nuclear energy by 2050.¹⁶ With its efficiency, low-carbon footprint and proven ability to provide baseload power, nuclear energy seems destined to be an increasing part of the global mix of future energy resources.

The Australian Government views energy security as a strategic priority because the demand for energy is expected to double by 2050 and roughly 90 per cent of Australia's current electricity is generated using coal, which is responsible for over one-third of Australia's total greenhouse gas emissions.¹⁷ Committed to clean energy solutions and a reduction in the use of fossil fuels, the Australian Government is supportive of renewables, with the Department of Resources, Energy and Tourism as the lead agency.¹⁸

While renewable technologies currently account for only 5 per cent of Australia's total electricity consumption, the Government has passed legislation that '20 per cent of Australia's electricity supply must come from renewable energy sources by 2020'.¹⁹ Although renewables have the potential to expand further their contribution to Australia's energy mix, there are some developmental hurdles, and technology prevents it from having a baseload capacity. Hence to support the Government's desire for a significant reduction in the use of conventional resources, other forms of energy must be considered.

The nuclear power debate in Australia has been around for decades.²⁰ With almost 40 per cent of the world's known uranium reserves, it could be reasonably expected that Australia would have a mature and vibrant commercial nuclear energy industry.²¹ This, however, is not the case. While Australia is heavily involved in the uranium export market, nuclear energy technology is only used for limited support to the medical, industrial and scientific communities, with a small

research reactor located in Sydney.²² A detailed examination of the potential for nuclear energy in Australia was sponsored by the Government as recently as 2006. The study concluded that '[n]uclear power is the least-cost low emission technology that can provide baseload power, is well established and can play a role in Australia's future [electricity] generation mix'.²³

There are other compelling reasons for Australia to embrace nuclear energy. The Australian Government has argued that, in the future, Australian energy resources will have the potential 'to exercise greater influence in international discussions, in cooperation with our Asia-Pacific trading partners'.²⁴ Goldemberg and Higgins contend that the prestige associated with a nuclear power capability could elevate Australia's political influence to that of Europe and the US.²⁵ A heightened ability to exercise 'soft power' diplomacy would enhance Australia's ability to contribute to regional and global stability, which are elements fundamental to Australia's national interests.²⁶

As Power explains, Australia must also be careful not to get left behind by advances in technology and military capabilities in its own neighbourhood.²⁷ Not only has China declared its intentions for nuclear energy growth but Indonesia, Thailand, Vietnam, Malaysia and the Philippines have also declared their commitment to developing their own nuclear energy programs.²⁸ Should nuclear technology, a technology that can be converted into nuclear weapons, become commonplace in the Asia-Pacific region, Australia would be at a distinct technological disadvantage in the region and may possibly become permanently reliant on the nuclear umbrella of the US.²⁹

Indeed, there are a number of valid reasons for Australia to pursue nuclear energy and informed authors continue to generate well-researched publications asserting its benefits.³⁰ The Australian Government, however, is not yet willing to adopt the nuclear power solution. The reluctance to embrace nuclear energy 'could be due to Australia's perceived good fortune in possessing abundant fossil fuel resources and to the anticipation of a future that includes renewable technologies'.³¹ Australian opinions and attitudes toward nuclear energy have also been shaped by historical events, such as the accidents at Three Mile Island in 1979, Chernobyl in 1986 and most recently in Japan.³²

But Australian attitudes and opinions could change. Stehlik reports on a recent survey involving 300 Australian respondents, with the results indicating a clear concern for global warming and future energy resources.³³ When asked about their energy preference, the majority responded favourably to conventional and renewable sources of power but also considered nuclear energy as a feasible future contributor in Australia. Overall, the majority acknowledged that recent media coverage of the nuclear debate had positively influenced their opinion concerning nuclear energy.

Moreover, with increasing public focus on reducing greenhouse gas emissions, it can be argued that it is only a matter of time before the search for clean energy solutions leads to nuclear energy. Not only can nuclear power contribute to the security of Australia's energy future but Australia is also uniquely positioned with an abundance of uranium deposits to support a commercial nuclear energy industry. Should Australian attitudes become more supportive of nuclear energy, the Government would have the political impetus to initiate the development of a nuclear energy program.

Policy considerations

For nuclear energy to be part of Australia's energy mix, nuclear energy policy must fit seamlessly into energy policy. Therefore, the terms of reference for the 'Energy White Paper' and the 'Strategic Directions Paper for National Energy Policy - Framework 2030' become guiding documents.³⁴ There are numerous other sources of information which would influence the development of nuclear energy policy, including the consultation process for developing the Energy White Paper and the myriad of publications that have already examined nuclear energy as a potential energy option for Australia.³⁵ The following considerations would need to be addressed.

Governance

Because nuclear energy is a new form of energy for Australia, the establishment of 'good governance' for nuclear energy policy would drive new or modified institutions, as well as amendments to legislation and cooperative agreements across all levels of government.³⁶ The World Energy Council advises specifically that nuclear energy development mandates a clear regulatory framework for 'safety requirements and control; reactor licensing; site permits; discharge authorisations; waste management and disposal; and decommissioning rules and financing'.³⁷

In his review of nuclear-related regulation in Australia, Switkowski concluded that although there are already high standards of regulation in place for uranium mining, the transportation of radioactive materials, radioactive waste management and nuclear research facilities, there are opportunities to better harmonise existing arrangements and for better integration of health, safety and environment assessment and licensing processes.³⁸ The report also highlighted the need for an appropriate licensing and monitoring body to oversee the construction and operation of nuclear facilities to a high standard of health, safety and environmental protection, as well as the need for codes and standards to be developed for nuclear safety, environmental protection, operational radiation protection, facilities auditing and inspections, physical protection, civil liability and waste management.³⁹

Health and safety considerations

There is no question that the use of nuclear energy can pose risks to the public and the environment. Even though some have argued that, in view of the low incident rate, nuclear power has gained an unwarranted reputation for being dangerous, the tragedies of Chernobyl, Three-Mile Island and Fukushima are still vivid memories.⁴⁰ A comprehensive focus on health and safety is, therefore, critical to the successful implementation of a nuclear energy policy.

Although the principles of nuclear safety are identical across states and countries, the various methods by which they are applied can result in differences in safety requirements or even safety levels.⁴¹ Moreover, while health and safety regulation is a national responsibility, the risks of nuclear energy transcend borders; hence, nuclear energy policy requires an international standards approach. The application of international standards can also promote confidence in safety and facilitate international commerce and trade.⁴²

International safety standards have been developed by the International Atomic Energy Agency (IAEA). Switkowski concluded that the existing health and safety framework in Australia has provided sound oversight to the uranium industry and, therefore, that Australia already has the foundation to regulate the rest of the nuclear fuel cycle equally well.⁴³ However, as a participant in the entire fuel cycle, Australia would need to review its existing health and safety frameworks for compliance with IAEA international standards.

For continuous improvement of safety standards, practices and regulations, a number of information gathering mechanisms are available, including incident reporting systems, purpose-oriented meetings and cooperative review efforts.⁴⁴ With the global growth of nuclear energy technologies, it is also important to develop strong international relationships.⁴⁵ The Asian Nuclear Safety Network, for example, provides a focus on nuclear safety-related issues in the Asia-Pacific by 'communicating, exchanging, pooling, analysing and sharing the existing and new knowledge, and practical experience in the field of nuclear safety'.⁴⁶

Australia already works closely with the Asian Nuclear Safety Network as a partner organisation through the Australian Radiation Protection and Nuclear Safety Agency. However, to take full advantage of the networking benefits, membership in the Asian Nuclear Safety Network would be paramount. For a global perspective on nuclear safety, Australia would also benefit from joining the World Association of Nuclear Operators, which serves as a worldwide venue for nuclear operators to work together.⁴⁷

Nuclear waste considerations

A major concern with nuclear power generation is the safe disposal of radioactive waste, which must be managed properly so as not to cause harm to people or permanent damage to the environment.⁴⁸ Nuclear power plants typically require long-term, deep disposal sites for nuclear waste and Australia is well-positioned with large remote areas that can serve that purpose. With today's technology, spent fuel volumes can be surprisingly small, 'amounting to only 2-3 cubic metres per annum for a 1000 MW nuclear power station if the fuel is reprocessed; about 10 cubic metres if not'.⁴⁹ Public support for nuclear energy will remain cautious, however, until repositories are operational and fully demonstrated.⁵⁰

Clearly, a sustainable Australian nuclear power industry needs to place emphasis on dealing effectively with nuclear waste issues. A successful framework for nuclear waste management is in place in most European countries with advanced nuclear programs, which adopt 'the principle of separation between policy-making and legislation, regulatory activities and implementing activities'.⁵¹ This approach is also in place in Australia in support of uranium mining and other uses of radioactive materials. However, existing legislation prohibitions, such as those pertaining to waste management in some states, would need to be re-assessed and possibly rescinded for Australia's participation in the full nuclear cycle.⁵²

Security considerations

For nuclear power to be a reliable and sustainable source of energy, it needs to be secure. The 2001 terrorist attacks on the US serve as a reminder of the need for the physical security of infrastructure; but there are also other dimensions of security that apply to nuclear energy.⁵³ The potential proliferation of nuclear technology and fissile material, for example, is a matter of dire concern, since nuclear power uses the same technology used to create nuclear weapons.⁵⁴

As the global focal point for nuclear standards and cooperation, the IAEA defines nuclear security in terms of 'theft, sabotage, unauthorised access and illegal transfer or other malicious acts involving nuclear material and other radioactive substances and their associated facilities'.⁵⁵ To help member states tackle issues of security, the Agency has published a series of nuclear security guidelines, with detailed information on border monitoring equipment, nuclear forensics support, radioactive material, protection of nuclear power plants, radioactive sources and devices, illicit trafficking in nuclear and other radioactive material, nuclear security culture, insider threats and transport of radioactive material.⁵⁶

Global concerns for proliferation are addressed by the Nuclear Non-Proliferation Treaty; however, the Treaty does allow the exchange of nuclear technology for peaceful purposes.⁵⁷ A number of organisations, such as the Global Nuclear Energy Partnership, are committed to the peaceful use of nuclear energy, the reduction of proliferation risks and the safe storage of nuclear waste.⁵⁸ Switkowski reported that Australia already has a solid foundation working with such international institutions, demonstrated by strict adherence to stringent IAEA safeguards for the supply of uranium.⁵⁹ With participation in the full nuclear cycle, however, membership in the World Association of Nuclear Operators would also offer Australia opportunities for the exchange of information to enhance nuclear security. It would be equally important for Australia to stay current with any new frameworks for international energy cooperation, such as the US' proposal to conduct 'cradle-to-grave' management of nuclear fuel.⁶⁰

Industry considerations

The development of a functioning and sustainable nuclear energy industry in Australia would require a concerted investment across a number of communities and over a myriad of activities that would need to be initiated and nurtured. These include growing expertise in the workforce, building safe and secure facilities, managing the nuclear cycle, and conducting relevant research and development, to name a few.⁶¹

The workforce in Australia is well-educated and skilled, but human resources for the development of a nuclear energy industry are in short supply.⁶² While the deficiencies could be addressed in the short term by accessing skilled overseas workers, the government and the energy sector would need to work together to develop the industry for the long term.⁶³ As Stehlik offers, education plays a key role in socialising nuclear energy concepts and would need to be approached from two different perspectives, 'first, the skills development associated with science, engineering and technology and the place of energy in society; and second, the history and impact of both civilian and military nuclear power'.⁶⁴

Educational programs are also important for ensuring the availability of subject matter experts, such as scientists, engineers and technologists, with the skills and knowledge to support the functioning and effective oversight of nuclear-related activities.⁶⁵ Given the limited public spending on nuclear education over the last 20 years, Switkowski concluded that a significant investment from the Government in nuclear training and education would be essential to the development of a sustainable Australian nuclear energy industry.⁶⁶ Because nuclear energy projects tend to be remotely located, the nuclear energy industry could also be an opportunity to engage indigenous communities.⁶⁷

To launch the nuclear industry in Australia, the Government could take a similar approach to that of Canada, which created the Atomic Energy of Canada Limited, as a 'Crown corporation' dedicated to peaceful applications of nuclear energy, and formed a partnership with Canadian General Electric and Ontario Hydro to produce the first reactor.⁶⁸ As an industry design criteria, the choice of power plant is important, since the desired capacity dictates the number of reactors required as well as the size of the organisation needed to manage the nuclear cycle.

Take, for example, Canada's ACR-1000 advanced reactor, which is a 'Generation III+' power plant with an estimated capacity of 1.2 GWe (gigawatts of electrical output). It is able to generate enough electricity for about two million people per year (thus saving approximately 14.5 million tonnes of carbon dioxide emissions that would have been produced using traditional coal).⁶⁹ To supply 20 per cent of the current population with electricity generated by nuclear energy, as suggested by Kemeny, Australia would need to establish a 2.6 GWe nuclear energy capacity.⁷⁰ However, with the expectation that Australia's energy demand is going to double by 2050, Australia would potentially need 5.2 GWe of nuclear energy (at least five nuclear reactors, each with a minimum capacity of 1 GWe).⁷¹

From an industry perspective, a robust research and development capability is critical to sustaining and enhancing nuclear technology that supports the entire nuclear cycle in the safest and most secure manner.⁷² 'Generation IV' nuclear power plants, for example, are fast reactors that are expected to be available by 2030, with efficiencies promising '50-60 times more energy from the uranium fuel by using both the U235 and the far more plentiful U238, unused by earlier generations and currently stockpiled for reprocessing or deep disposal'.⁷³ To remain current in the industry, Australia would need to invest in research and development initiatives and would benefit specifically from committing to the Generation IV International Forum, a collaboration effort of ten countries working together to lay the groundwork for the fourth-generation nuclear reactor.⁷⁴

The development of a nuclear energy industry in Australia could only be achieved with the support of the public, who are currently genuinely sceptical about embracing nuclear power. Since implementation would involve numerous departments, agencies and companies over a number of years, any delay in construction would jeopardise public support. While mitigation strategies could be implemented, such as investing in power plant designs already operating in other countries that meet international standards, steadfast government commitment over the long term would be essential to seeing the initiative through.⁷⁵ Overall, government and industry would have an obligation to communicate effectively a consolidated plan for implementing a nuclear energy program in a transparent manner that instils confidence in the public sector and contributes to greater understanding of the benefits and risks involved with nuclear energy compared to other forms of energy.⁷⁶

Cost

A number of expenses must be taken into consideration to gain a true appreciation for all the costs involved in the development and sustainment of an economically viable nuclear energy industry in Australia. These costs would include initial investment (construction, education and training, research and development etc), annual operating and maintenance, fuel and waste management, and decommissioning.

Construction costs for a given nuclear power plant are a function of many variables from design and capacity, manpower and materials, to site location and licensing arrangements. Since the first plant constructed typically costs more than subsequent plants (as much as 35 per cent more), it is more efficient to build multiple plants of the same design. Construction costs are often quoted as ‘overnight’ costs, which represent the expenses if the construction happened in a single day, and include site preparation, regulatory compliance, engineering support, materials procurement, facility construction and contingencies.

Since nuclear power plants cannot be constructed overnight, interest costs during construction, such as financing and sequencing of expenditures, also need to be factored in—and they can add 20-30 per cent to the costs depending on construction time and interest rates. The costs associated with operating and maintenance are also dependent on many variables, from wages and equipment maintenance to the management team operating the plant. Costs for fuel are variable, because they are based on the performance of the uranium market, front-end costs such as conversion, enrichment and fabrication, as well as back-end costs, such as waste management. Finally, the costs associated with decommissioning contribute to overall lifecycle expenses but are relatively small at around 3 per cent of the investment.⁷⁷

The estimated cost of a Generation III nuclear power plant is roughly A\$5.5 billion per GWe.⁷⁸ Given that Australia would need a 5.2 GWe capacity to support 20 per cent of the 2050 predicted energy demand, the estimated capital investment would be around A\$28.6 billion.⁷⁹ There are other costs, however, associated with supporting a nuclear energy industry since a number of new organisations would need to be established.

A Department of Energy, for example, could become the focal point for ensuring a secure energy future for Australia with a mandate in part to develop a safe, secure and sustainable nuclear energy program that enhances Australia’s social, economic and environmental well-being. Since nuclear energy policy would impact a number of organisation, a ‘whole of government’ approach would be critical, thus necessitating collaboration an investment across institutional boundaries. An Office of Nuclear Energy Development could champion specifically the implementation of nuclear energy policy, consistent with the goals of the energy policy and in coordination with the various government departments. It could provide advice on nuclear energy policy, as well as any institutional, legislative or financial matters relevant to a nuclear energy industry in Australia. It could also establish a Public Affairs Section to develop and execute a robust communication plan and a Performance Monitoring Section to set up a system of evaluation to assess implementation progress and performance of the policy.

In addition, it would be beneficial to examine the creation of other organisation such as an Australian Nuclear Institute as centre of expertise for nuclear education and training, and a Corporation for Australian Nuclear Energy as a Commonwealth Corporation with a mandate to construct and manage nuclear power plants for the safe, secure and peaceful applications of nuclear energy. Various other existing departments would also need investment and augmentation by specialist staff. Factoring in all of these costs could easily push the upfront investment costs over A\$30 billion.⁸⁰

While the costs associated with growing and sustaining a nuclear power industry in Australia are significant, the decision whether or not to embrace nuclear energy should not be based on economics alone ‘since several of its most attractive aspects lie in contributions to the public good’.⁸¹ An investment in an energy program with low carbon technologies would not only

enable Australia to contribute to addressing the problem of climate change but also generate new industries and create new job opportunities.⁸²

Nuclear energy in Canada, for example, is a A\$7.8 billion per year industry with over 71,000 jobs, involving more than 150 companies that are directly or indirectly related to nuclear power, not including uranium mining.⁸³ To offset investment costs, there are a number of methods available to government, from encouraging private ownership through loans to incorporating some of the costs into the price of electricity. It has also been suggested that approximately A\$5 billion per year of additional funding could be available from re-directing the current subsidies for fossil fuels—and still more funding could be obtained by the implementation of a carbon tax, both of which would send a clear message that Australia views clean energy as a priority.⁸⁴

Conclusion

Energy security is a strategic concern for many nations because of the anticipated strain on energy resources from growing populations. While conventional fuels are expected to last for many years, concerns for the environmental mandate the immediate pursuit of clean energy solutions. Renewable technologies have the potential to contribute to energy security but, so far, are inefficient and lack the ability to provide baseload power. Nuclear energy on the other hand is quite efficient, has a low carbon footprint and a proven ability to provide baseload power.

Australia considers energy security a strategic priority and aims to reduce the use of fossil fuels as part of its commitment to combating climate change. With approximately 90 per cent of Australia's electricity generated using coal—and demand for energy expected to double by 2050—this is quite a challenge. While the Government has committed to increasing the use of renewables from 5 to 20 per cent by 2020, Australia must look to other sources of clean energy, such as nuclear, to break from its dependency on conventional fuels.

There are many reasons that make nuclear energy a logical choice for Australia, not the least of which include the abundance of domestic uranium and the requirement to keep pace with technology in the Asia-Pacific region. While nuclear power has been debated for a number of years in Australia, the Government has yet to embrace it as a commercial industry to generate electricity. As the search for clean energy options continues, however, Australian attitudes may change and nuclear energy could become an integral part of Australia's future energy mix.

The information presented in this paper is offered to help shape policy considerations for Australia should the Government decide to embrace nuclear power. A number of influencing factors have been examined, such as governance, health, safety, security and nuclear waste, as well as industry considerations and cost. And while significant, the costs associated with developing nuclear power in Australia not only would support Australia's clean energy policy but generate numerous new industries and create thousands of new job opportunities.

Colonel Harry Kowal is an Aerospace Engineer in the Canadian Forces. He holds a Bachelor Degree in Mechanical Engineering (1984) and Masters Degree (2002) in Defence Studies from the Royal Military College (RMC) of Canada, a Masters Degree (1990) and Doctorate (1997) in Aerospace Engineering from the United States University of Tennessee Space Institute

(UTSI), as well as a Masters Degree (2010) in Arts (Strategic Studies) from Deakin University in Australia. He is a graduate of the Canadian Forces College, Command and Staff Course 28, and the Centre for Defence and Strategic Studies (CDSS) 2010. He is also a Licensed Professional Engineer, a Qualified Flight Test Engineer and the recipient of the Air Command Commendation in recognition of his leadership and contribution to Aircraft Technician Transformation.

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NOTES

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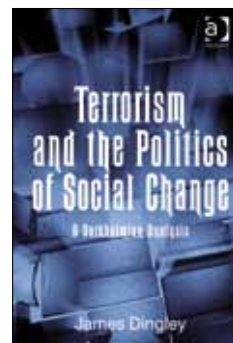
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Book reviews

Terrorism and the Politics of Social Change: a 'Durkheimian' analysis

James Dingley
Ashgate: Farnham UK, 2010
ISBN: 978-0-7546-7822-9

Reviewed by Lieutenant Commander Richard Adams, RAN



Presenting a convincing, cohesive and closely argued analysis, this work is a significant and accessible contribution to the professional literature. While asserting that terrorism is neither a new, nor primarily political phenomenon, Dingley illuminates a theoretical gap. He reasons that terrorism and violent extremism have always accompanied the political evolution of states. But, in contrast to typical studies grounded in international relations, Dingley presents a rich cultural analysis. Contextualised by Durkheimian theory, Dingley explicates terrorism as a sociological response to the challenges of political change.

Recounting the historical framework of violent extremism, Dingley considers the pivotal ideas of nationalism, religion, the Enlightenment and the reciprocal theories of Romanticism. Understanding these ideas and their influence enables a critical examination of terrorism as a response to the political evolution of societies.

This evolution, explains Dingley, is deeply threatening—particularly for those whose socio-economic position and status is tied to specific roles within inherited social structures. Recalling the Thomistic Aristotelianism of Alasdair MacIntyre, Dingley's argument culminates in the logic that, for the illiterate and uneducated, mortality entails inevitably from the extinction of established social patterns and practice. Thus fearful in an extraordinary degree, disadvantaged and ill-educated people recourse to violence as the only means by which they can express outrage—or seek defence.

Explaining that most terrorism emanates from traditional societies, Dingley investigates and illuminates the phenomenon of social dependency. This trend is marked in peasant societies, where people are bound emotively to their land; working it, living on it and *because* of it. These people perceive little more than the local knowledge upon which they are reliant. Their place in the world is derived from a limited social group, from which they have inherited practical skills passed from generation to generation. There is, explains Dingley, a *rootedness* and group integration which imposes significant and inflexible obligations. These are isolated, introspective and unworldly societies; and when anything occurs to disrupt this world it is very intensely felt and experienced as a threat. Such a threat is modernity, the implication of which is the total, irrevocable overthrow of traditional social relations and community.

Offering a helpful historical parallel, Dingley recalls the Industrial Revolution which, in 19th century Europe, imposed much disagreeable change and invited typically violent reactions from displaced populations which saw, in the process of industrialisation, an anti-religious anti-social force. Violent reactions such as this, and such as those which now confront the West, are not mindless. Rather, violence is explicated as a deliberate attempt to preserve a status quo from which people derive social security and in which much is ordained as sacred or spiritually significant.

Arranged in six chapters and a conclusion, this is a work which reflects Dingley's deep connection to terrorism and extremism. For 20 years a resident of Northern Ireland, and currently living and working in Kurdistan, Dingley has researched terrorism extensively, and met many terrorists from Ireland, Iraq and Turkey. The author's sensitivity to the issues he addresses is amplified by service with the security forces of many countries, and as a NATO instructor.

Practitioners and scholars alike will derive benefit from Dingley's work, which makes a decisive, systematic, yet readable contribution to our understanding of terrorism as a political and social construct, the impact of which will reverberate for years to come.

***The Last Knight:
a biography of General Sir Phillip Bennett AC, KBE, DSO***

Robert Lowry
Big Sky Publishing: Newport NSW, 2011
ISBN: 978-0-9808-1404-0

Reviewed by Dr Noel Sproles



General Bennett was the last CGS to receive a knighthood, so the book's title is apt even if it is not unique. This biography follows General Bennett's life from when he was a schoolboy in Western Australia to RMC, and his steady progress through the ranks from staff cadet to general, and then as Governor of Tasmania. Along the way he served as the mortar platoon commander with 3RAR at Kapyong and as CO of 1RAR at the battle for Fire Base Coral in Vietnam in 1968.

When serving as the OC of 2 Commando Company in 1960, several of his soldiers died during a training exercise at an area known as The Rip, near the entrance to Port Phillip Bay. Subsequent investigations exonerated him from any blame but at the time it looked as if it could be the end of a promising career. But this was not to be and he went on to become Commander 1st Division, ACDFS (Assistant Chief of the Defence Force Staff), CGS and, finally, CDF in 1984. He completed his military career in 1987 and was appointed Governor of Tasmania, retiring from that position in 1995.

Approximately one third of the book is devoted to General Bennett's life up until the time he became a General Officer. An equal amount of space is devoted to his term as CDF, while only the final short chapter covers the period of his vice-regal appointment in Tasmania. The book is well illustrated with photographs and the occasional map. There are fulsome end notes, appendices, bibliography and, for the uninitiated, a complete list of abbreviations used. While we are well advised to be wary of judging a book by its cover, *The Last Knight* has the best designed and most impressive dust jacket that I have seen for a long time.

Several pages are devoted to the objections which General Bennett has, as one of the unit commanders involved, with observations made in the official history relating to the deployment into Fire Base Coral. The briefing provided by the Americans and South Vietnamese at Tan Uyen, prior to the Task Force move from Fire Base Bearcat, left no doubt that a hostile reception was a distinct possibility. But General Bennett states that he was not made aware of this and that the official history unfairly includes him in distributing blame for the shortcomings in the plan for the deployment. Given that he is a former CDF, who is now prepared to put his disagreement on record, I feel that this difference of opinion is something that should be resolved once and for all.

Frequent reference is made throughout the biography to personal reports written on General Bennett both by Australian and UK officers. These are quite pertinent as they are the contemporaneous views of officers senior to General Bennett at the time, and so cannot be said to have been influenced by hindsight. They show him to be a capable and professional officer, assiduously acquiring the necessary knowledge and skills which would serve him well in the high offices he eventually attained.

He was CDF in the period following the retirement of Sir Arthur Tange and it was a time when the Department of Defence and the ADF struggled to establish the boundaries between each other in areas such as policy development. In his term of office, the Dibb Report was published; it was a period of transition of authority from the service chiefs to HQ ADF; and control of battlefield helicopters was transferred from the RAAF to the Army. This portion of the book concentrates on these events and covers them in detail. It is a pity that the story finishes with General Bennett's departure from the office of CDF—and perhaps the author may consider completing the story at a future date.

The Last Knight is what could be classified as a scholarly biography in that it is more a factual account of General Bennett's life rather than one which attempts to analyse critically the subject's personality or his reasoning behind actions taken. There are no private letters to reveal the character behind the public façade nor are there any behind-the-scenes revelations to be found. Although I made General Bennett's acquaintance several times during my Army career, I only knew him at a superficial level. I do not know him any better now for having read this biography. It begs the question therefore; what is it that the author felt that General Bennett did or stood for or exemplified that was so special that he was driven to write his biography? Unfortunately, the question goes unanswered.

While the publisher's notes make much of such things as his being the first post-World War 2 officer to reach senior army rank, and the last knight to command the ADF, these are really only trivia. They are not the stuff of greatness. Throughout the book, the author seems at pains to impress that although General Bennett was a competent and dedicated professional, he never stood out in any particular manner from a peer group of equally able officers. It is made

clear that his elevation to the highest office came not because he was plucked from the back of the pack, like Eisenhower, but was more due to happenstance. He was in the right place at the right time which, of course, is not at all unusual. We are told that while he participated in events that shaped the ADF as we know it today, he was not the instigator of those events. They were started by others and, in due course, he passed them on to be continued by those who followed him.

At several places in the biography, there arose openings for the author to explore what motivated General Bennett and to analyse his character in order to better understand these motivations. Some just begged to be delved into but it was not to be. There is no questioning as to why he supported the idea of joint operations, even when some of his service chiefs opposed it in preference for maintenance of the status quo. The thoughts of such a senior and experienced officer pursuing such goals at that point in time should have some historical significance, yet Lowry chose not to exploit these opportunities.

For anyone who remembers the times and the actors involved, this book will hold some appeal. As for everyone else, I doubt if there will be much of interest here for them. If they did not know the man beforehand, they will still not really know him after reading this biography. They will find a skeleton but no flesh. Some may find the sequence of events relating to the struggles between the Department and the military in the 1970s and 1980s of value. However, even this is deficient in that it is incomplete and a biography is not the proper vehicle for telling it. I feel that the author has failed to make a case for General Bennett's story to be rated as any more significant than any other from the plethora of senior military officers who have come and gone in recent years. The author has downplayed his achievement in becoming the most senior military officer in the ADF, and fails to explore his subject's character and reasoning behind the positions he took as CDF. As a consequence, I feel that the result is a less than substantial biography.

Military Culture and Education

Douglas Higbee (ed.)
Ashgate: Farnham UK, 2010
ISBN: 978-1-4094-0758-4

Reviewed by Helen Mitchard, DSTO



This collection explores the multiple ways in which the military and academe interact between themselves and with other cultures and argues for the utility of a component of liberal education within 'professional military education' (PME). The book contends that creative thinking is promoted by a liberal education, claiming that the study of humanities emphasises critical thinking because students consistently consider issues where there is no single correct answer.

Authorship of individual chapters is almost evenly split between military officers and academics at civilian institutions, although the division is blurred in that several authors are both officers and academics. Most academic authors are from the humanities, with only one from the social sciences.

Part 1, 'Intersections In and Out of the Field', consists of three chapters. The first opens by contrasting a liberal education with PME. Chapter 2 discusses issues around the use of ethnography in the military, particularly in Iraq. Part 1 finishes with an American professor recounting experiences with the Iraqi Army.

Part 2, 'Military Academies and Humanistic Enquiry', begins the theme that carries through into the third part, where formal western military education is considered. The chapter titled 'Teaching citizen soldiers' sees the author trace the roots of his personal teaching philosophy. He presents the argument for a less individually and economically centred view of the self and presents evidence for this environment in a section on the Navy. The next contribution sees cultural similarities between academe and the military, and presents evidence that the military is also a refuge for socialists.

Chapter 6 considers the usefulness of literature to the military by providing an avenue for reflection and discussion, both necessary for the development of leaders. In the next chapter, the authors—one civilian and one military—describe their experience of teaching military students, as opposed to students specialising in a single discipline. They acknowledge the differing goals between civilian and military education and the issues that arise due to this tension. In the last chapter of this section, the author discusses homophobia and the military. Although realistic about the challenges involved, the argument is presented that through literature, students can distinguish homosexuality, homoeroticism and homosociality, and define the differences within a forum that provides safety.

Part 3, 'Teaching in Professional Military Schools', contains three chapters. The first focuses on developing military expertise and the assistance that can be given to and by academe. In the next chapter, the author offers his subjective recollections based on 30 years at the US Air Warfare College. The final chapter contains reflections on experiences in transitioning to a military faculty, concluding that students are students, whether military or not and provides insights on how to educate officers.

In many chapters there are suggestions of how both the military and academe can progress to better understand and utilise each other. There are proposals for funding, research and curriculum evolution but there is a somewhat awkward connection between the second and third chapters and the rest of the book, which is more focused on PME. The vast majority of the book, including the first chapter, addresses PME and liberal education issues. The second and third chapters deal with the interactions between academe and the US, Afghanistan and Iraqi armies. While there is some attention given to training, it is not a major focus.

The chapters are written based on personal experiences and readers should not reject any chapter due to strong beliefs; instead, they should examine their own experiences and cultural assumptions in an effort to identify the reasons why they feel disquiet. Overall, the book is an interesting look at the interaction between US and Canadian academe and military cultures and starts a conversation on the pressures inherent in spanning these diverse cultures and on steps toward a more productive engagement.

One Hundred Years of US Navy Air Power

Douglas V. Smith (ed.)
Naval Institute Press: Annapolis, 2010
ISBN: 978-1-5911-4795-4

Reviewed by Air Commodore Mark Lax, OAM, CSM (Retd)



Since the end of World War 2, the US Navy has created arguably the second largest and most powerful air force in the world. Operating from its fleet of aircraft carriers deployed across the seven seas, the US Navy—together with its sister service, the US Marines—continues to provide America with the ability to project global power without the reliance on third-party land basing.

This development has not been without expense or controversy. The Nimitz class carriers alone are reputed to cost over US\$4.5bn each—and that is without aircraft or crewing. And the US Navy has ten of them! But this book is not just about aircraft carriers. It charts the development of naval aviation through the decades to the present. Pivotal in the emerging doctrine were the 'Interwar Fleet Manoeuvres', conducted between 1919 and 1940, which set the direction of US naval development into World War 2 and beyond. Today, we would call this 'experimentation and force options testing' and, to me, this makes the elements of Chapter 7 most important.

In 2010, the US Navy celebrated 100 years of naval air power, so the Naval Institute Press released this book in celebration and commemoration of that milestone. Dedicated to those who have worn the 'wings of gold', it is a chronological compendium of essays on the naval air power theme through a retrospective lens. Fourteen chapters cover topics such as the struggle that naval aviation had to gain acceptance, the introduction of flying boats and airships in the 1930s as first steps, the role of 'the Admirals' in the aviation debate, naval aircraft development and, naturally, the importance of aircraft carriers.

The US Navy's close association with aircraft began on 4 November 1911, when Eugene Ely flew a 50-horsepower Curtiss biplane off the USS *Birmingham*. The cruiser's Captain had fitted a launch platform for the demonstration which, while successful, did not impress the fleet Admirals. Labelled a 'stunt', it took some years to register its importance for the future of naval warfighting. The 'battleships versus aircraft carrier' debate was long and hard argued. But from 'small acorn of an idea, a mighty oak grew', with the US Navy now able to dominate the oceans at will—thanks to its air power.

The book is totally US Navy centric and the theme of the supremacy of the aircraft carrier predominates throughout. While a great historical summary of sea-borne aviation development, the book makes no predictions nor offers insights into the future. The last chapter by Norman Friedman on US carrier evolution chooses to end with a panegyric on the carriers' success, rather than address its challenges. This leaves the reader wondering what is next for US Navy air power. A glimpse into the next 100 years would have been a nice touch on which to conclude.

The hardback book is 373 pages with biographical notes on contributors, a good index and 30 black-and-white photos scattered within the text. Extensive chapter endnotes attest to the academic rigor of the essays, each written by a US expert in the field. Worth a look if you are interested in sea-based air power. As for the largest air force in the world, that title goes to the US Air Force of course!

Peace Regime Building on the Korean Peninsula and Northeast Asian Security Cooperation

Tae-Hwan Kwak and Seung-Ho Joo (eds.)
Ashgate: Farnham UK, 2010
ISBN: 978-1-4094-0719-5

Reviewed by Andrew Forbes, Sea Power Centre - Australia



It is a fairly obvious and trite assertion that the further you are 'away' from a problem, the greater the difference in your perception of the issues, compared to those held by the protagonists. This is certainly the case with the Korean peninsula, which many countries regard as a strategic flashpoint but over which they have differing concerns. Most would consider North Korea's apparent irrational behaviour to be the cause of regional instability and, as Northeast Asia is the driver for global economic growth, events there have international impacts.

These concerns may range from North Korea's alleged support for international terrorism, transnational crime, missile firings and possession of nuclear weapons. But often forgotten in the West is the basic fact that the Korean War continues, as the 1953 Armistice only provided temporary respite from major warfare—the North still conducts a range of lower level attacks and harassment against the South. So, while the West might focus on the nuclear issue, South Korea also has to worry about a range of other issues, including the ever-present threat of invasion by the North.

This edited volume, with papers predominantly from Korean authors, as well as contributions from the US, Japan and China, examines how the two Koreas might reach an eventual accommodation and the pitfalls experienced thus far and those identifiable ahead. This examination is done within the framework of the 'Korean peace building regime', which operates at two levels: the two Koreas talking at an inter-Korea level; and the two Koreas plus the US, China, Japan and Russia at the international level (the Six Party Talks).

This framework highlights the difficulties in finding any solution to the divided Korea. There are peninsula issues between the two countries and then there is the nuclear issue that brings in the other players. China's support to North Korea, South Korea's alliance with the US (flowing from the Korean War) and the geographical proximity of Japan also complicates the situation.

The focus of the peace building regime is to reduce tension and achieve national reconciliation through the development of confidence-building measures and international cooperation, aiming to replace the 1953 Armistice with a peace treaty and then reunification. But it is not

evident that North Korea has any real interest in reunification and while it appears an article of faith in the South, the lessons and political/economic cost of German reunification may have lowered expectations. Also not clear is how long China will continue to support the North and on what terms it might 'agree' to unification; US military forces in the South remain a consideration in Chinese political and military planning.

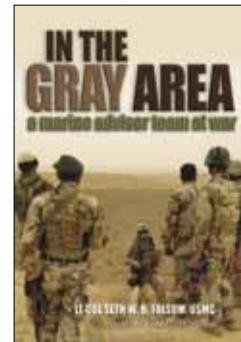
While some of the papers briefly discuss the ongoing North Korean low level harassment against the South—and there is considerable discussion of the lengthy (and fruitless) talks between the two Koreas—the focus of the volume is on the nuclear issue and the role of the Six Party Talks to reach an accommodation. Thus far, and as reported in the press, these talks have been unsuccessful.

The authors are all experts and many have been involved in Korean issues and various discussions over the decades. There is a wealth of information in each paper, although there is some unavoidable repetition across them. This volume is recommended for specialists focused on Korea and those who need to know the background and chronology of these issues as a basis for further research. But it is not a volume for the general reader.

***In the Gray Area:
a Marine advisor team at war***

Seth W.B. Folsom
Naval Institute Press: Annapolis, 2010
ISBN: 978-1-5911-4281-2

Reviewed by Dr Richard B. Connell, UNSW@ADFA



In the Gray Area is the second of Lieutenant Colonel Folsom's memoirs about his experiences with the US Marine Corps (the USMC or the Corps) in war-time Iraq. In this one, he recounts his experience as an advisor to the Iraqi Army rather than a USMC line officer, the subject of his first. He starts with his recruitment and the training he received with the 14 other members of the Marine advisory team he commanded. He then describes the challenges of Marine advisory work once on site. He concludes with an assessment of himself as an advisor and his team's contribution to the 3rd Battalion, 28th Brigade, 7th Infantry Division, the unit in which it was embedded.

Prior to the outset of his advisory journey, he expresses ambivalence about his new assignment and questions whether he is suited for it in terms of skill sets and temperament. During his first assignment in Iraq, he commanded a reconnaissance company with a predictable daily rhythm and routine. He notes that his previous success had been in a highly-defined role in a structured, hierarchal and formal organisational environment, for which he was well trained as an infantry officer and well suited personally. His new role as mentor/advisor, and the environment in which he had to perform it, are the polar opposite. He correctly anticipates that as an advisor, a premium will be placed on flexibility and the ability to function without

guidance from above; and that he must learn to influence his counterpart by argumentation, much like a consultant, rather than exercise authority by command. Otherwise put, he would have to operate in a 'gray [sic] area' where boundaries for his responsibilities and ability to exercise leadership are nebulous.

Much of the book deals with the problems the team faces working in an alien cultural and institutional environment, for which it was inadequately trained, and the personal conflict Folsom experiences in trying to come to terms with them and his counterpart. The counterpart, on whom the success of the team's mission depended, was a complacent battalion commander with an 'old army' orientation. That is, an army in which officers blamed their problems on others, didn't accept responsibility and where there was little or no task accountability and little motivation to change.

The Iraqi Army's institutional weaknesses and the commander's orientation manifested themselves as a wide range of capability limitations and personal attitudes and behaviours that were anathema to Folsom. The following examples, cited by Folsom, are indicative:

- The logistics system was dysfunctional. The battalion had to rely on the USMC for supplies of fuel, ammunition and other materiel to carry out its mission. More generally, there was little support of any kind provided by divisions to brigades and brigades to battalions.
- Within the battalion itself, there was little or no pre-mission planning or post-operation debriefing. And there was little or no coordination with other Iraqi Army units or security forces.
- Officers and ranks did not share the same living conditions. Folsom suggests that the enlisted personnel served in a state of virtual 'servitude'.
- Gift-giving to influence decisions (perceived as 'bribery' by the team) was rampant.
- Mistrust characterised most horizontal and vertical unit and individual relationships. For example, the Officer Commanding distrusted his staff and his direct reports, withheld information from them and tended to micro-manage their activities.

Mission debilitating factors also characterised the external environment. Among the more serious was a lack of trust between the battalion and the local Iraqi Police. The latter were viewed as corrupt and incompetent by the battalion, and the Iraqi Army commander believed his local police counterpart was cooperating with the insurgents. Adding to this problem was a turf war between the two organisations that involved dividing responsibilities for built-up and rural operations, when both had sound reasons for wanting to operate in the built-up areas.

These and other seemingly insurmountable problems resulted in Folsom becoming frustrated with his assignment early on. To help him deal with his frustration, he undertook periodic self examinations that were oriented towards both identifying what he might do better to accomplish his mission and how he personally might more easily cope with both the environment and his relationship with his counterpart. During several of these examinations, he reminded himself that he should not adopt a 'not invented here' attitude toward the Iraqi Army but should seek 'Iraqi solutions to Iraqi problems'. In the event, however, he frequently recommended USMC solutions and used Corps standards to assess the battalion's progress and the success of the team's efforts. This modus operandi became his greatest source of frustration, notwithstanding his self awareness of the need for local solutions.

By the end of the deployment, members of the team had become cynical about what their mission had accomplished and the prospects for the battalion to perform its mission adequately on its own after the team was permanently withdrawn, something planned for the immediate future.

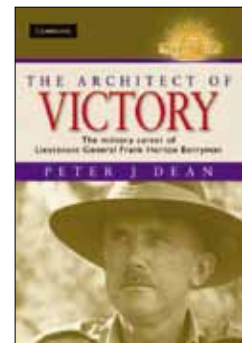
Although Folsom and his team questioned whether they had significantly contributed to the battalion's modernisation, they seemed to have actually had a modicum of success. The battalion increasingly engaged in Marine-type mission planning; some symptoms of a lack of discipline in the battalion, like accidental discharges, had been reduced; the battalion had demonstrated its ability to coordinate and synchronise its activities with a quick reaction force tasked with disrupting a small smuggling operation and, in numerous small ways, the Iraqi soldiers mimicked the marines' positive behaviours. Yet, in Folsom's final self assessment, he concludes that 'I was not cut out to be an advisor'. Given the magnitude of the challenges he and his team faced, the limited time they had to achieve results (four months) and in light of the team's successes, however modest, readers may well feel that he was too hard on himself.

In the Gray Area highlights the kaleidoscope of cultural, institutional and personal challenges a line officer faced accomplishing advisory duties while embedded with the Iraqi Army. Folsom's description of these and his musings about problem solving in an alien environment—and coping with a recalcitrant counterpart—are instructive for personnel working with foreign forces in training, on exercises or on secondment for any reason. More generally, the book is useful in raising cultural sensitivity, a critical ingredient for success for military personnel in foreign environments.

The Architect of Victory: the military career of Lieutenant General Sir Frank Horton Berryman

Peter J. Dean
Cambridge University Press: Melbourne, 2011
ISBN: 978-0-5217-6685-2

Reviewed by Dr Dominic Katter



Australian society in recent decades has developed a familiarity with Australian and foreign military leaders. In no particular order, names such as Schwarzkopf, Franks and Petraeus have been regularly in the Australian media. However, the societal focus remains, as it did in the Second World War, on the military leader and not their direct subordinates. *The Architect of Victory* is a biography of Lieutenant General Sir Frank Horton Berryman, KCVO, CB, CBE, DSO, who was predominantly an Australian staff officer, without significant Australian public recognition.

Born in 1894, Berryman served in the Australian Army from 1915 until 1954, commanding at Merdjayoun in Syria in 1941 and as II Corps Commander in New Guinea in 1943-44. *The Architect of Victory* is an in-depth consideration of him as an individual, but it also delves into

the relevant strategic and tactical circumstances of his service. The author, Dr Peter Dean, is a lecturer in history at the University of Notre Dame, Sydney and is a past recipient of two Australian Army history scholarships. He has also served in the Army Reserve since 1993.

The book is arranged into four parts: Berryman's beginnings in the Army, including his First World War service; his command in 1941; his command in 1943-44; and his duties and activities after World War 2. Dean's research for this work was undertaken as part of his doctoral thesis and is therefore very well referenced, with some 70 maps and illustrations. The text enters very precise detail at times, particularly in relation to the battles for Bardia and Tobruk in 1940-1941, the war with Japan in 1941-1942 and the conflicts in New Guinea from 1942-45.

Although the author focuses predominantly on the military aspects of Berryman's life, it is still possible to gain an understanding of his character, not just in relation to the military. The work is admiring of the actions and service of Berryman and concludes that he should be considered at least the equal of his colleagues, despite his relative lack of fame and recognition.

Berryman remained in the Army in the inter-war period, spending 19 years as a Captain. The text includes valuable discussions of the challenges that existed in integrating the militia with the regular Army, particularly at the commencement of the Second World War, when there was a particular prevalence of jealousies and rivalries. The reader is left with the enduring theme that Berryman was particularly skilled as a planner, yet his courage is acknowledged: Berryman was mentioned in dispatches and received a gunshot wound to the right eye in September 1918, while commanding the 14th Battery, 2nd Division AIF.

The final part of the book traverses the period after Berryman's retirement from the Army in 1954, when he became the Director-General for the well-remembered Royal Tour of Australia by Queen Elizabeth II. It is remarkably appropriate that he had such an instrumental role as planner for the Royal Tour, which was another example of his enduring capabilities as a high-level planner.

This book is an important contribution, not only for its detail of the life of a significant Australian military officer but also because of the contextual analysis that it articulates of the personalities among the Army leadership during World War 2. As Lieutenant General Sir John Lavarack stated in a letter to the official historian, Gavin Long:

Berryman [was] the best combination of fighting leader, staff officer, and administrator that I have met so far in our [A]rmy, and I should think he would be hard to beat anywhere.

14 February 1945, written from the Australian Military Mission in Washington.

***Anzacs at War:
from Gallipoli to the present day***

Peter Pedersen
Allen & Unwin: Crows Nest, 2010
ISBN: 978-1-7423-7200-6

Reviewed by Dr Gregory P. Gilbert,
Air Power Development Centre



The Anzac spirit continues to have meaning and relevance for the sense of identity of both Australians and New Zealanders. They still call on it in times of adversity.

These words, written by Peter Pedersen in the introduction to *Anzacs at War*, say it all. This is not a military history of the efforts of Australians and New Zealanders at war (conveniently but often inaccurately labelled as Anzacs) but a cornucopia of historical narratives selected to reinforce the Anzac legend. Some might see *Anzacs at War* as another example of the relentless militarisation of our history, while others would see this book as a collection of inspirational stories displaying the true Anzac spirit. I just wonder what the serving men and women who gave their lives for God, King and country would think of this book today.

Conceptually, *Anzacs at War* has many things going for it. The boxed format, facsimile documents, lavish illustrations and extensive use of photographs make every double page come to life. It certainly helps to make the narratives more accessible but, overall, the text lets the book down. Australian military mythologies are presented as fact. Conventional army-centric stories are brought together in a highly charged and emotional setting, without any attempt to increase the reader's depth of understanding of the strategic circumstances or the role of allies and other services. The conflicts remain extremely selective and largely unintelligible, while the important experiences of those who served outside the Gallipoli/Kokoda genre or contributed on the home front are under-represented or ignored.

Perhaps the disappointing thing is that although there are many stories involving Australians and New Zealanders at war that are interesting and which do provide valuable insight into both of our national characters, the author's efforts to push the Anzac spirit often distracts the reader from the stories behind the myth. Perhaps it is the outline of the book that forces Pedersen in this direction. Many would argue, as alluded to above, that the Australian and New Zealand military cultures and experiences are significantly different and hence this attempt to combine them into a book about the Anzac spirit is also confused.

Also, the role of all three New Zealand services in the Solomon Islands, New Guinea and elsewhere in the South Pacific is poorly covered despite its great significance to today's New Zealand Defence Force. The Anzac navies and air forces are condensed to such a point that their inclusion seems more an afterthought than a serious effort to explain their contributions. Why are only the World War 2 army commanders important enough to get a double-page write-up? Since when did North Africa and Greece form part of the Middle East? Was the Allied Singapore strategy really sunk with the *Prince of Wales* and *Repulse* in December 1941, rather

than early in 1940 when the British (and Australia and New Zealand) realised that, with Britain fighting for its life in Europe, there was no spare aircraft or fleet left to protect the East? And a single double-page spread on 'present-day' conflicts does not do justice to the men and women who have served in wars, conflicts and humanitarian and peacekeeping operations since the Vietnam War, 35 years ago.

If you are after a general military history, then you should find one of the many, far better, introductory histories about Australians at war. *Anzacs at War* will be a valuable resource for anyone who wants to reinforce the Anzac spirit. For me, *Anzacs at War* is worth buying just to read the historical source material reproduced in the facsimile documents. There are a number of similar boxed collections of popular military history and it is a clever means of raising awareness among those unfamiliar with the events described. Just imagine what could have been achieved if high quality history text had been given greater priority during the production of *Anzacs at War*.

The Next 100 Years: a forecast for the 21st century

George Friedman
Black Inc: New York, 2010 (2nd Edition)
ISBN: 978-1-8639-5422-8

Reviewed by Colonel Chris Field, Australian Army



When a single war does not resolve an underlying geopolitical issue, it is refought until the issue is finally settled.

Friedman, p. 101

Given that the future is impossible to predict, the sheer audacity of George Friedman's *The Next 100 Years* is breathtaking. Friedman is an American and the thesis of his book is that while the US is dominant now, as the 21st century develops, the world will experience greater US power; in short, the US is destined to be 'socially imitated and politically condemned'.

He states that the book is 'America-centric, written from an American point of view' and then claims that the world pivots around the US. His argument is simple; for 500 years, Europe dominated the North Atlantic and therefore controlled the bulk of world trade, which resulted in a European-dominated world. World War 2 weakened Europe and, in the 1980s—for the first time in history, trans-Pacific trade equalled trans-Atlantic trade. Given that the US dominated both oceans, it also controlled the world's trading system, which resulted in the US being the ascendant world power.

In this book, Friedman makes a significant contribution in assisting people to think holistically about the 21st century by employing three frameworks to examine the future: events, trends and technology. Within these three frameworks, he identifies five tendencies: geopolitical, technological, demographic, cultural and military.

The book has 28 useful maps and tables but no footnotes, bibliography or index. The lack of referencing detracts from its value as a guide for further study and for examining the evidence that supports the author's ideas. Indeed, *The Next 100 Years* makes some unsubstantiated claims, including that 'these forecasts are based on real technology, reasonable extrapolations about future technology and reasonable war planning'. Significantly, the book is not listed as a work of fiction or non-fiction; instead, it is classified as 'forecasting'.

Despite these imperfections, *The Next 100 Years* is highly readable, informative and thought provoking. Friedman has organised the book, as a reader might expect, chronologically; first setting the context of the present world and then dividing this century into distinct double decade components—2020s, 2040s, 2060s and 2080s. It is a book easily read and the topic has implications for us all. Friedman may not be right but the book possesses logic, and readers will probably respect the sheer courage of the author as he begins to wrap thoughts and ideas around the next 100 years of human existence. And, to be fair, Friedman states up front that he will be satisfied if the book can merely explain something of how the world works today.

In this era of persistent conflict, readers of this book may be interested to know that the US 'doesn't need to win wars ... it needs to simply disrupt things so the other side can't build up sufficient strength to challenge it'.¹ Friedman's thinking on 'disruption' rather than defeating enemies is, arguably, at odds with current thinking in both the US and Australia when he states:

Al Qaeda has failed in its goals. The US has succeeded, not so much in winning the war, as in preventing the Islamists from winning and, from a geopolitical perspective, that is good enough.

Where disruption implies a compromise and an inexact conclusion to a military campaign, current strategic thinking in the US and Australia is framed in terms of defeating enemies. Where disruption implies long term campaigns which seek accepted, enduring conditions in relation to our enemies, defeat demands a defined end state and exit strategy. Friedman's pragmatic approach to disrupting enemies, set in a century of multiple international challenges, is worthy of consideration by strategic leaders in both the US and Australia.

Ominously for Australia's *Defence White Paper 2009*, Friedman does not recognise the 'strategic implications of the rise of China'.² Instead, he argues that China will not become a challenger to US power because it is geographically isolated, lacks a well-trained and experienced navy, is politically unstable and is [pre]occupied as a counterweight to Russian re-emergence. However, this assessment doesn't imply that the *Defence White Paper 2009* is wrong, especially as China's inability to threaten US hegemony does not necessarily mean that Australia's strategic environment will not be affected by China's actions in the next century.

Friedman predicts that by 2050, three other powers will emerge to become 'more powerful and assertive'. These are Japan, with a 'need for labour ... [and] access to raw materials'; Turkey, the 'historic power' and 'only modern economy' in the Muslim world; and Poland, on the 'dangerous northern European plain', fearing both Russia and Germany. Friedman predicts that these three nations will confidently face the US, 'leading, ultimately, to the next global war'. Importantly, these three nations exist on so-called cultural and geographic fault-lines, reflecting Dr Michael Evans' concept of 'liminality' that:

... refers to a country that has an 'in-between location' and is suspended between two different worlds in which there is access to both, but in which permanence in either appears to be elusive.³

Supporting these three 'more powerful and assertive' nations are five areas that Friedman identifies as potential world future conflict zones: the Pacific Basin, including China and Japan; Eurasia, which has 'fragmented and decayed' since the 1991 fall of the Soviet Union; the framework for Europe, which may have to deal with a resurgent Russia, a bullying US or internal tensions; the Islamic world, especially when faced with the emergence of the nation-state; and, Mexican-American relations, especially on the US-Mexico border as Mexico's GDP and population expand.

In addition, Friedman asserts that 'three storms on the horizon' will converge to cause conflict in the 2030s and beyond. These include demographic pressures as baby boomers leave the workforce; energy challenges as the hydrocarbon economy ends; and the reduction in productivity as the last generation of innovations peak. According to Friedman, central elements of the conflict will be energy competition, which 'de-emphasises the focus on hydrocarbon energy sources', and population pressures, including the 'dramatic decline everywhere in birth rates'.

Friedman's population argument is based on 'three core facts': life expectancy is moving toward a high of 80 years in the advanced industrial world; the number of children that women are having is declining; and it takes longer and longer to become educated. Friedman claims that these trends have 'all contributed to the dissolution of previous life and social patterns'.

While this is an important book, it is also a quick read. It is, therefore, worth the investment in time by all ADF professionals to read and reflect on Friedman's ideas; not so much to seek answers but to develop further questions.

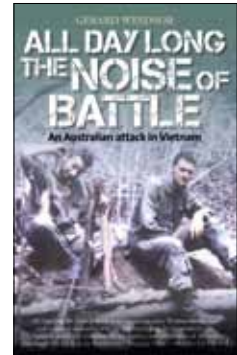
NOTES

1. 'Persistent conflict' is a term popularised by the Chief of Staff of the US Army, General George W. Casey, Jr, on 11 May 2007, when he spoke to reporters in his first interview after assuming command of the US Army: 'The US military is involved in a "persistent conflict," and the Army must be prepared to handle the commitment'. <<http://www.army.mil/news/2007/05/15/3219-gen-casey-says-army-must-be-prepared-for-persistent-conflict/>> accessed 1 March 2011.
2. Commonwealth of Australia, *Defence White Paper 2009 – Defending Australia in the Asia Pacific Century: Force 2030*, Department of Defence: Canberra, 2009, pp. 9, 16, 32-6, 43, 96 and 98.
3. Michael Evans, *The Tyranny of Dissonance – Australia's Strategic Culture and Way of War 1901–2005*, Land Warfare Studies Centre, Study Paper No. 306, February 2005, p. 26.

On-line book reviews

All Day Long the Noise of Battle: an Australian attack in Vietnam

Gerard Windsor
Pier9: Sydney, 2011
ISBN: 978-1-7426-6402-6



Reviewed by Jim Truscott

There are very few books about killing written by someone who trained to be a priest. However, this account of a three-day encounter battle from 5-7 February 1968 is far from being an ecclesiastical story. Rather, it is a harrowing tale of men under fire in an action that took place 43 years ago, when roughly 85 Australian soldiers in jungle green uniforms assaulted a best-guess of about 85 regular North Vietnamese Army troops protected by bunkers. When I read the order of battle of C Company 7RAR on Operation COBURG in the opening pages and recognised some of the names from my post-Vietnam service, it was like going back in time. As a former officer who is now well past his 'use by' date, I was enthralled by this story. Its telling of leadership, grit and determination is long overdue.

The prologue about how the author became involved with this very mortal part of Australia's military history is thought provoking and the initial chapter on differing memories of the same combat is distilling. The author takes great care to comment on the problematic nature of actual memories after such traumatic events: 'in Australian argot ... it is to meet listener's expectations'. There is some further explanation of these differences, as the contact reports were not written up until three weeks after the battle, such were the bush-time demands on the company and platoon commanders.

Nonetheless, the reconstructed accounts of individual actions and section combat against an almost invisible enemy—apart from the thunderous noise of their weapons firing—are simply not possible to describe any further than 'five metres to the left, no further than five metres to the right' and virtually nothing about anything behind the men. The story caused me to recollect Jim Connolly, when he was our tactics instructor at Duntroon, lecturing us on the mechanics of assaulting pit-by-pit with a full 40 minutes of loud machine gun fire in the background. We had to crane forward to hear him. The images that you form from the company's actions are vivid. There is the recurring shiver of seeing the enemy at close quarters at their shit pit. There is the smell of being covered in shit, as the shit pit is where the killing on both sides occurs. There is the fascination of helicopter noise.

The author also takes time to put the men in context with a background chapter on the Task Force base at Nui Dat. Tales of some men drinking to excess and others with disciplinary offences set the scene. The chapter on the commanders is all about the loneliness of command; foreboding, but nothing new there. The chapter on command perspectives by the soldiers is

full of likes and dislikes; nothing new there either but it shows that men are simply flesh-and-blood. Tragically, there is a fatality from friendly fire at the very start of the operation with devastating mental impacts on all ranks.

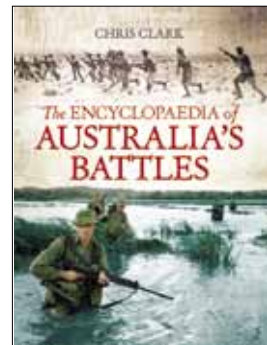
The first day of the battle is a chaotic and fierce engagement. There are killed-in-action, wounded-in-action and a few stress cases immobilising the victims. Then there are virtually no exchanges of small arms fire on the second day, apart from crawling reconnaissances by the two forward platoons under the cover of an indirect artillery and aerial bombardment, which exacts an indeterminate toll on enemy bunkers. The third day starts with hope that the enemy have left the bunker system, which was thought to have been a defended staging post for the Tet offensive.

The men mount a reconnaissance probe and are ready to assault. Then they lose radio communications when they come under intense fire again in the afternoon, as the enemy leave their bunkers to come closer to the Australians to avoid artillery fire. The situation is intense and the soldiers are saved only by the enemy's machine guns being set too high to be effective. The men endure more enemy shit pits and shrapnel showers from rocket propelled grenades. The enemy even call out some of the men's names in English at the height of the battle, before simply leaving the bunker system, when reinforced silence sets in during the late afternoon.

The relative discussion on the potentially small size enemy at the end of the book is salutary for any combat commander planning an attack. Either way, the battle remains clouded by conflicting memoirs. But so what, as unlike all other engagements in Vietnam, this was an attack and there were no tanks! It was 'a damn near run thing' to quote Wellington but for the enemy's guns being lowered a fraction. It was truly remarkable for the company to suffer only two dead and 17 wounded. This is a book that you simply race through with all credit to both the living and the dead.

The Encyclopaedia of Australia's Battles

Chris Coulthard-Clark
Sydney: Allen & Unwin, 2010
ISBN: 978-7432-7335-5



Reviewed by Dr Noel Sproles

The definition of a battle, as used in the title of this book, is very liberal indeed. It covers the gamut from corps-size attacks, such as Hamel in 1918, to a six-man patrol action in 1999 at Aidabasalala in Timor. And the definition is not restricted to actions between military forces but extends to those involving the civil police, such as the arrest of Ned Kelly at Glenrowan in 1880 and the Eureka Stockade in 1854. Even conflict between civilians, in the form of clashes between settlers, explorers and aborigines, as well as between groups of aborigines is included. For the purposes of this book then, the more familiar Clausewitzian concept of a

battle as being a clash between military forces at the operational level should be replaced by one of it being any open clash between two opposing groups, regardless of their size.

The author does not attempt to list each and every occasion that Australians were involved in such a battle. Rather, it attempts to single out instances of significant conflict involving Australians in the period since European settlement, whether at home or abroad. The author has explained his approach to the subject matter in the introduction and it is suggested that this be read before using the book. The reader will find this is especially important if it is intended to search the book by referencing the names of conflicts.

What is or is not a significant conflict is of course a subjective matter. The riots at Dingbat Flat in 1934 are mentioned, whereas those in Melbourne during the 1923 police strike are not. Why is one considered significant and the other not, particularly when one occurred in a remote mining town while the other took place in a major city and involved important historical figures such as Monash and Chauvel? It is, of course, inevitable in works of this nature that such difference of opinions will arise. However, it does not detract from the worth of the book.

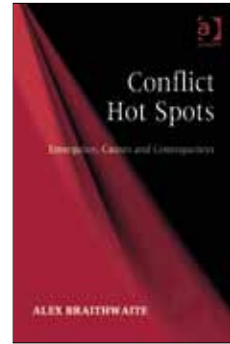
This book was first published in 1998 under the title *Where Australians Fought: the encyclopaedia of Australia's battles*. The only apparent change, apart from the revised title, is an updating of events to include conflicts subsequent to the naval operations in the Gulf of Oman late in 1990. In this 2010 edition, 320 actions are described covering the period from 1789, when aborigines and convicts clashed at Botany Bay, to 2009 in Afghanistan. The copy reviewed is in paperback and illustrated with good quality black-and-white photographs and sketch maps. Battles are presented in chronological order, enabling them to be related to each other not only in time but in place. A useful feature at the front of the book is a table, seven pages in all, listing the battles as they occurred. This, along with the index at the back, assists in searching out a particular event.

More often than not, when seeking information about a battle, we only need an overview of events. Official histories or texts devoted to the event often provide more information than is needed. The value in this book is that it gives a concise 'bare bones' account of each battle. An apt description of the work is provided in the publisher's notes on the back cover. There it is referred to as not only a reference for the specialist but a guide for the general reader as to the breadth and depth of Australia's combat experience. A further benefit is that it is written by a respected historian who has gone to some trouble to select his sources in order to present a balanced and current view of events. If the reader should wish to pursue further study, then references to the sources used are provided at the end of each account.

I have owned a copy of the original 1998 edition for some years now. I have found it most useful as a reference work, from seeking information on particular battles to following the progress of my uncle's unit along the Somme Valley in 1918. From personal experience then, I have no hesitation in recommending it.

Conflict Hot Spots: emergence, causes and consequences

Alex Braithwaite
Ashgate: Farnham UK, 2010
ISBN: 978-0-7546-7937-0



Reviewed by Colonel Chris Field, Australian Army

Conflict hot spots, according to the author, 'describe the spatial distribution of conflict ... [and arguably] enhance the risk of future conflict onsets'. In *Conflict Hot Spots*, Alex Braithwaite argues that a 'conflict hot spot represents a mechanism that causally links past and future episodes of conflict' and 'the ability to observe hot spots depends on knowledge of the geographic locations of militarised inter-state disputes'. *Conflict Hot Spots* is based on the mapping of 1840 such disputes, from a sample of 2331 conflicts that occurred between 1816 and 2001. Braithwaite's view is that 'the existence of hot spots of prior conflict dramatically increases the likelihood of future conflict'.

The author is a lecturer in international relations and director of the Master of Science program in security studies at University College London, where he specialises in international peace and security, foreign policy analysis, and terrorism.

For Australia, positioned in a complex, dynamic and changing regional and international environment, *Conflict Hot Spots* presents an important framework for consideration by ADF strategic planners and thinkers in relation to future Australian interests. Braithwaite supports this view, noting that his analysis 'will also carry significant implications for the formation of foreign policy decisions regarding the use of force'. In addition, he notes that 'while international wars are commonly held to be declining in number in the post-Cold War era, militarised inter-state disputes are becoming more frequent and [because of this] presumably, more central to ... foreign policy decision-making'.

Braithwaite further argues that 'some geographic locations have an increased *a priori* probability of being subject to competition and, therefore, hosting conflict'. According to Braithwaite, the consideration of such *a priori* probabilities involves deductive reasoning—using 'seven testable research hypotheses', from a general principle to a necessary effect—and can be derived by logic, without observed facts, and based on hypothesis or theory rather than experiment. Braithwaite also questions whether 'conflicts [are] really located non-randomly' and 'why/how do clusters of conflict affect the course of subsequent political decision-making processes'.

In examining hot spots in terms of 'geographic endowments', Braithwaite identifies three conditions that facilitate the emergence of conflict hot spots, namely the local congregation of non-democratic political regimes, the availability of valuable (and often scarce) natural resources, and proximity to numerous internal boundaries.

Conflict Hot Spots is a technical international relations book and contains many abbreviations that can distract a reader's understanding of the key messages. The abbreviations are not intuitively obvious and include complex measures such as local indicators of spatial analysis (LISA), correlates of war project (CoW), independently and identically distributed (IID), militarised inter-state dispute location (MIDLOC), warring border nations (WBNs), warring alliance partners (WAPs) and composite indicator of national capabilities (CINC), measuring 'six components of national power: military personnel, military expenditure, urban populations, total population, iron/steel production and energy consumption'. Needless to say, the inclusion of a list of abbreviations and acronyms table would assist readers to navigate the author's various conflict models.

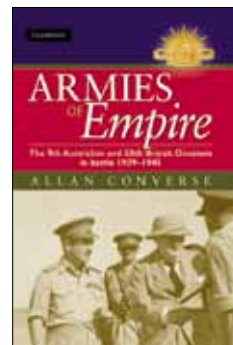
Braithwaite concludes by offering some 'sense of the future direction that the research central to [*Conflict Hot Spots*] will take'. This future direction is of potential use to ADF planners interested in gaining an additional understanding of how and why conflict hot spots occur in the world. The direction, according to Braithwaite, includes populations at risk, the clustering of political processes, spatial data and analyses, micro-foundations of the geography of conflict and the geography of political violence.

Armies of Empire: the 9th Australian and 50th British Divisions in battle 1939-1945

Allan Converse

Cambridge University Press: Port Melbourne, 2011

ISBN: 978-0-5211-9480-8



Reviewed by John Donovan

Allan Converse has provided a valuable comparison between the 50th (British) Division, a Territorial Army formation mobilised in 1939, and the 9th (Australian) Division, put together in 1941 using brigades intended for other Second AIF divisions. One striking element in this story is that while the 50th had a long history, dating back to the First World War, the 9th had greater organisational stability after its rocky start. The three brigades of the 9th stayed together, while various brigades joined and left the 50th, with organisational stability only really coming in 1944.

Converse considers that the 9th Division had better commanders than the 50th, rating Morshead more highly than any of the 50th's GOCs, who included the armoured-advocate Giffard Martel and a later (unsuccessful) corps commander, Ramsden. He also rates Wootten highly. The 50th's best GOC, Douglas Graham, did not take command until early 1944. At the next levels down, the 50th had difficulties with artillery commanders, and a high turnover rate for infantry brigadiers and battalion COs. Commanders at those levels changed much more frequently in the 50th Division than the 9th, with adverse effects on performance.

Converse sees leadership, at all levels, as critically important to success. However, he demonstrates that while a good CO could bring success, poor leadership at lower levels reduced the performance of even well trained and experienced units. He emphasises the professional ethos of the citizen-soldier leaders in the 9th Division (their equivalents in the 50th were largely British regulars, as most Territorial commanders had been removed early in the war). In contrast to the 9th Division, few officers were promoted to battalion command from within the 50th, with most COs coming from outside.

The standard of training was an important element in each division's successes (and failures) across the war. While not always popular among veteran soldiers, Converse shows continuation training to have been a significant part of the process of integrating replacements into units, particularly once the system of regionally-based units broke down in both divisions. This breakdown had adverse effects on the cohesion of units but unit loyalty remained a potent force.

Tactical development, particularly in the use of combined arms firepower to 'assist rather than substitute for infantry action', contributed to the successes of both divisions. Converse considers that the 9th was 'one of the most tactically sophisticated divisions in 8th Army' by the time of Alamein. However, learning, adaptation and tactical improvement occurred in both divisions, despite the image of the British Army as 'rigid and inflexible'.

Converse concludes that a formation with good leadership could succeed even if morale was less than perfect but that high morale could not overcome 'basic weaknesses in training, equipment and tactics'. As long as morale, even if not perfect, was 'sufficient to withstand attrition', success could be obtained by good leadership and tactics. Perhaps unknowingly, Converse echoes Sir William Slim in concluding that wars are won not by a few elite units but by the average performance of main force divisions. And the 9th and 50th Divisions were both good main force divisions.

As a publication, the indexing is poor in places. As an example, the 150th Brigade (destroyed at Gazala in June 1942) was part of the 50th Division, yet it is omitted from the index. Also, a paragraph seems to have been dropped from the Conclusion. When discussing the bases of success for the 9th and 50th Divisions, the first, second, fourth and fifth factors are mentioned but not a third. However, these are minor quibbles and, overall, this book is well worth reading.

Black Watch: Liberating Europe and catching Himmler - my extraordinary WW2 with the Highland Division

Tom Renouf
Hachette: Sydney, 2011
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Reviewed by Stewart Selwood

Black Watch is a tale about one young man and the regiment he served in throughout the Allied push across Europe in World War 2. It demonstrates the assortment of feelings and physical hardships that this young man faced, alongside those who fought and died in a gruelling and horrific war. Experiences are explained with the individuality of a soldier, not an historian. There is fact, of course, but it is the individual nature of this tale that makes *Black Watch* an interesting read that stands out against many similar World War 2 accounts.

The account opens with a view of the start of the Second World War from the eyes of a young Renouf. It shows a time of economic and political turmoil, where those at home knew little of the seriousness of what the world was about to face. However, these opening chapters also reveal much about the character of the author, as well as displaying a general picture of what soldiers were like in the latter part of the war. Like Renouf, they were not hardened soldiers; rather, they were civilians who were answering a call-to-arms by a nation which had already lost a large portion of its trained armed forces.

The opening section of this book allows one to gain a grasp of the ignorance and misunderstandings of the civilian world viewing the start of the war. It displays the reasons for the author joining the infantry, as well as the reasons and attitudes he and those like him had of wanting to go to war. The pride of the Scottish people in their local regiments is introduced in these opening chapters and continues as a main theme throughout the rest of the book. This pride is a continuing theme in this book that is easily seen as a driving force behind almost every soldier and character in the account. It is a binding theme that lasts from the opening of the book right through to the conclusion of the war and the years after.

The main part of the book is obviously the time that the author spent in preparation for, and his actions in World War 2. There is no glossing over the opinions of training facilities or those of the people met during this time. It is a frank account of what was expected and what turned out to be the reality for those in the ranks. There are accounts of friendships, whose fleeting nature demonstrates the pace at which the armed forces were moving at the time. For those of us who have no knowledge of what life in those times was like, this part of the account demonstrates quite evidently how the soldiers' lives were affected by the war. What it also shows is that there was very little complaining. There was a sense of duty and, once again, pride that kept these young men from worrying about the time they had lost.

Once the author arrives in Europe, the book gains in pace. *Black Watch* does not just focus on the one company or regiment but on numerous Scottish formations and their roles in

certain battles. It gives a broad view of what was happening in the war and the roles that these regiments, particularly the Black Watch, were playing. However, the individuality of the author's own experience saves this book from becoming simply another mini-history of a well-documented era. Renouf tells the story of his time in Europe beautifully and in an enthrallingly rustic nature.

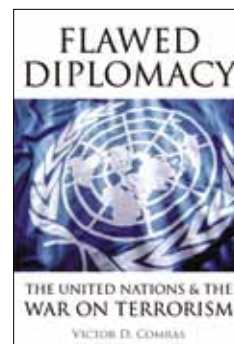
There are almost comical situations that he and his fellow soldiers find themselves in due to their inexperience. It demonstrates the citizen soldier experience. What is clear is that at the level of the basic soldier, little information was known about the true nature of most encounters. The way this account is structured means that one gets a feeling for the level of anxiety and isolation that each unit felt under fire. The author seems to be able to place you in the foxhole next to him, where you get some sense of the feelings he is describing, notably isolation from everything but the need to survive. The best example comes in an account of an early battle, where the unit is cut off and outflanked, and coming under heavy attack. The author feels lost and you can feel the fear grow, as the young soldiers do not know if the position has been saved or lost to the German forces.

Throughout the book, there are many unique experiences that the author had and they are not all combat related. There are periods when the author spends large amounts of time away from the front and these simply add to an extraordinary tale of the war. Some experiences seem worlds away from the fighting units but one can always feel the urge of the author to return to his unit. What one does see in this book is the transformation of the author from a tentative and unsure recruit to when he becomes one of the 'old guys'. Promoted and decorated in the field, one sees the growth in the young Renouf throughout the war. It is truly an individual account.

The individuality of this account makes this book stand out as original. It is not a history of World War 2, nor is it a history of the Black Watch regiment. It is what the title implies—an individual's personal experience of the war. There are times when one feels that there is a slight lack of information—such as the 'catching Himmler' aspect of the book, which seems more of a side note added after the historical significance of the moment had caught up with the author—but overall this is not the case. This is definitely a worthwhile read for anyone with an interest in this period. At roughly 300 pages, this book is not an epic and is ideal for a weekend read. It is a great individual tale.

***Flawed Diplomacy:
the United Nations and the war on terrorism***

Victor D. Comras
Potomac: Washington DC, 2010
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Reviewed by Dr Noel Sproles

When the UN Charter was drawn up, no one imagined that one day terrorism would present a major threat to global peace and stability, let alone that its perpetrators would be something other than nation states. Fortunately, a broad enough mandate was given to the Security Council allowing it the flexibility to determine for itself what constituted a danger to international peace. How well the UN has exercised this mandate in the face of the growing threat of terrorism is the topic of this book.

In choosing the book's title, the author makes his views on the UN's performance to date abundantly clear. This is a tale of lofty aspirations without action plans to match; of nations pursuing their own national interests with scant regard for the ideals of the UN Charter; of a lack of coordination and cooperation between member states; and of a bureaucracy adding unnecessary friction to process. Even the definition of terrorism is in dispute, for what many nations believe is terrorism, others deem to be the legitimate pursuit of wars of national liberation.

Little reference will be found here to actual operations on the ground. Instead, the narrative is concerned with the behind-the-scenes diplomatic manoeuvres and niceties as delegates press their views in what is a highly politicised environment. The presence of blocs, and individual nations intent on pursuing their own interests or ideology, has diminished the UN's potential to combat terrorism, hence the reference in the title to flawed diplomacy. The author argues that this is manifested in a reluctance to either ensure that member nations comply with UN anti-terrorist resolutions or even to bring them to account when they do not. He illustrates his case with numerous examples of failures to share intelligence, coordinate activities, properly monitor borders or control the flow of funds to terrorist organisations.

The first half of the book is devoted to the history of the UN and the evolution of its engagement in combating terrorism, starting from the 1970s. At that time, most terrorist activity concentrated on hijacking or destroying civil passenger aircraft. It moves on through the era of regional terrorist groups to the emergence of al Qaeda and the 2001 attack on the World Trade Center in New York. All the while, the narrative explains the influence on the UN's response to terrorism exerted by factions and groupings within the UN.

The second half of the book discusses the practical and legal problems faced by member states in complying with the various resolutions; the growing risk of terrorists gaining nuclear weapons or material; problems within the General Assembly; and the influence that the various Secretaries General have had on the way the UN has addressed the issue of terrorism.

Towards the end of the book, the author makes suggestions as to how the UN can improve its performance in combating terrorism. It is based on a strategy outlined by Secretary General Kofi Annan in 2005, complemented by suggestions provided by the author. The book concludes with a postscript chapter which presents a valuable summary of the author's argument.

Comras worked with the US Department of State before serving with the UN on the Security Council's al Qaeda and Taliban Sanctions Committee. This committee was abruptly dismissed when it produced adverse reports on the UN's performance and he indicates that this disappointed him greatly. As a consequence, he was motivated to make an in-depth examination of the UN's performance in combating terrorism which, in turn, led to this book. The reader needs to bear this in mind when deciding the likely viewpoint from which the author has written his book. That being said, the material used is readily available for verification. Each mention of a date or of a UN Resolution or vote is referenced in a very complete set of notes allowing the reader to access the source data if so desired.

This is a serious work but that should not be considered a deterrent, as reading it is not heavy going. Comras is articulate in his presentation as he takes the reader through a well laid out sequence of events to explain the chequered history of the UN's confrontation with terrorism. While the emphasis is naturally on the UN's role in combating terrorism, along the way it provides a sobering insight into the diplomatic realities that govern the manner in which the UN functions. Anyone with an interest in the subject of terrorism in its various forms, especially policy formulation to combat it, will find it useful background reading on the subject. This book can readily claim a place in any military professional's library.