out for Australia to act! the consequences of climate change as Australia. Time is running short of that, no other country on the planet will be as affected by months which would pose an existential threat to humankind. The worst case, Earth may reach a climate tipping point within 18

### NEWS

President's Column – Paul Irving ........................................2
Institute News .................................................................4

### OPINION

Editorial: Australia’s defence strategic update 2020 – David Leece.................................................................3
Letters: United Service June 2020 – Andrew W. Hine; Jono Kempe .................................................................4

### INSTITUTE PROCEEDINGS

Military ethics and its application to the Australian Defence Force – Simon Longstaff........................................5

Ethics in the ADF is more than general principles around ‘just war’ theory. It is strategically vital that we build the capacity of our people to manage the ethical dimension so that they are never put in a position where they do things which bring shame upon themselves or their nation. We never want to lose the war because we lost our moral authority.

Defence Science and Technology’s research goals, workforce and infrastructure plans for the next decade – Tanya Monro .................................................................9

Australia’s Chief Defence Scientist outlines the Defence Science and Technology Group’s strategic plan for the decade ahead, covering its eight research goals, STEM workforce needs, and infrastructure provisions. The goals will prepare Defence for the ‘fourth industrial revolution’; workforce development will be dependent on enhanced STEM education in the community; and the infrastructure plan will establish Defence S&T precincts with industry and academia.

Climate change as an important component of national security – Chris Barrie .........................................................13

A 2017 Senate inquiry urged urgent action on climate change, but the Government is yet respond other than by acknowledging the issue in a 2020 strategic update. Research indicates that, in the worst case, Earth may reach a climate tipping point within 18 months which would pose an existential threat to humankind. Short of that, no other country on the planet will be affected by the consequences of climate change as Australia. Time is running out for Australia to act!

### BACKGROUND BRIEFING

Training army officers in tactics – David Leece .................17

The training of staff and regimental officers in common tactical doctrine (the ‘drills’) is essential to developing teamwork within formations, headquarters and units. But developing tactical thinking (the ‘skills’) is more difficult. A range of tools presented in this paper have been formulated by Western armies over two centuries to develop the skills and the drills separately and then merge them to create combat-ready formations.

### BOOK REVIEWS

The last 100 days – the Australian road to victory in the First World War by Will Davies – reviewed by Marcus Fielding .........................................................12

This book recounts the Australian Corps’ contribution to the final allied offensive of the Great War on the Western Front in 1918.

Horrir the war dog: the story of Australia’s most famous dog by Roland Perry – reviewed by David Leece .................................................................21

This is a re-telling of the story of an Egyptian Terrier puppy, befriended in Libya by signallers of 6th Division A.I.F. in 1941, who became an exceptional war dog in Greece and Crete.

In that rich earth by Brad Manera with Craig Wilcox and Chris Clark – reviewed by Bob Treloar .................................22

Sydney’s Anzac Memorial now contains a Hall of Service. On the floor are soil samples collected globally from 100 Australian battlefields. The book describes each of the battles.

Legends of War: the AIF in France 1918 by Pat Beale – reviewed by Marcus Fielding .................................................................23

Beale critically examines seven ‘legends’ relating to the AIF through the lens of seven battles in which the Australian Corps fought during 1918.

Right man, right place, worst time: Commander Eric Feldt, his life and his coastwatchers by Betty Lee – reviewed by Ken Broadhead .........................................................24

This is a biography Commander Eric A. Feldt, OBE, RAN, who set up and maintained a coast watch service in New Guinea and the Solomons in the critical early period of the Pacific War.

---

Front Cover: Corporal Natalie Ekonomopoulos, a cyberspace systems network technician, in a communications cabinet for cyber research and development systems at No. 462 Squadron, Royal Australian Air Force, on 1 June 2020. Professor Tanya Monro, Chief Defence Scientist, outlines the Defence Science and Technology strategic plan on pp. 9-12. [Photo: Corporal Brenton Kwaterski, Department of Defence].
United Service
Journal of the Royal United Services Institute for Defence and Security Studies
New South Wales, Incorporated
Informing the defence and national security debate since 1947

Editor: Dr David Leece, AM, PSM, RFD, ED
Business Manager: Mr Graham Brown, BEd (Sydney), MBus (UTS), FFin
Editorial Advisory Committee:
Dr David Leece, AM, PSM, RFD, ED – chair
Mr Ken Broadhead, OAM, RFD
Air Vice-Marshal Bob Treloar, AO, RAAFAR
Dr Ian Pfennigwerth

United Service is published quarterly. It seeks to inform the defence and national security debate in Australia and to bring an Australian perspective to that debate internationally. To this end, the journal publishes papers presented at meetings and seminars organised by the Institute. Contributed papers dealing with defence and national security issues or military history also will be published, together with relevant opinion pieces, letters to the editor, biographies, obituaries and book reviews. Before acceptance, contributions are refereed and edited.

Contributions, which conform to the journal’s style, should be addressed to the Editor at office@rusinsw.org.au. Papers normally should not exceed 3500 words and may include one or two illustrations, and a brief biography and photo of the author. Opinion pieces, biographies, obituaries and book reviews should not exceed 850 words, guest editorials 400 words and letters 200 words. Submission of an article implies that the article has not been published elsewhere and also implies transfer of the copyright from the author to the publisher. Notes for contributors are at www.rusinsw.org.au.

Copyright: This work is copyright. The Copyright Act 1968 permits fair dealing for study, research, news, reporting, criticism and review. Selected passages may be reproduced for such purposes, provided acknowledgement of the source is included. Otherwise, articles published in this journal may not be reproduced, stored in a retrieval system, or transmitted in any form by electronic or mechanical means, photocopying or recording, either in whole or in part, without the written permission of the Editor.

Publishers: United Service is published by the Royal United Services Institute for Defence and Security Studies, New South Wales, Incorporated, ABN 80 724 654 162, PO Box A778, Sydney South NSW 1235.

Typesetter: Mrs Marilou Carceller; Email: maloucita@gmail.com.

Subscriptions: United Service is published online on the Institute’s website at www.rusinsw.org.au. Members also receive the journal via email at no additional charge. The subscription for non-members to receive the journal by email is $40 per year and can be arranged through the Business Manager at the Institute’s office. E-copies of papers and e-subscriptions may be obtained through RMIT Informit Collections at www.informit.com.au. Papers published in United Service also are published globally on various EBSCO Publishing Inc. electronic platforms.

Opinions expressed in United Service are those of the authors and are not necessarily those of the Institute.

Royal United Services Institute for Defence and Security Studies, New South Wales, Incorporated
Anzac Memorial, Hyde Park South, Sydney NSW 2000
Postal Address: PO Box A778
Sydney South NSW 1235, Australia
Telephone: +61 2 8262 2922
Email: office@rusinsw.org.au
Website: http://www.rusinsw.org.au
ABN: 80 724 654 162

Royal United Services Institute for Defence and Security Studies
New South Wales

Promoting understanding of defence and national security since 1888

Patron: Her Excellency, The Honourable Margaret Beasley, AC, QC, Governor of New South Wales
President: Mr Paul Irving, AM, PSM, RFD
Secretary: Mr Steve Bell
Treasurer: Mr Graham Brown, BEd (Sydney), MBus (UTS), FFin

President’s Column

Welcome to the Spring 2020 issue of United Service, a highly professional journal that is now in its 73rd year of continuous publication. This issue contains a very diverse range of topics including: ethics in the Australian Defence Force; the strategic plan for the Defence Science and Technology Group; the impact of climate change on national security; and the tactical training of military officers.

Whilst the Board of RUSI NSW was aiming to resume normal operations, including our programme of lunch-time lectures by June 2020, after reviewing the restrictions associated with the COVID-19 pandemic and the health of members and guest lecturers, we determined not to proceed with holding any lunch-time lectures during the remainder of 2020.

We have, however, continued to record the presentations of our guest lecturers and these are accessible on the RUSI NSW YouTube channel – http://www.rusinsw.org.au/YouTube.

I am aware that, for many of our members, the COVID-19 restrictions have been quite difficult but, hopefully, we will be able to resume our normal services in 2021.

In accordance with the RUSI NSW Constitution, I will be standing down as President at our Annual General Meeting on Tuesday, 24 November 2020. This will be a virtual meeting and details will be provided to all members shortly.

The last four years have been an exciting time for RUSI NSW as we implemented a detailed plan to move the Ursula Davidson Library and RUSI office from Defence Plaza Sydney to our new home in the Centenary Extension of the Anzac Memorial. Having a permanent home in a new purpose-built facility in such a prestigious building in the centre of the Sydney CBD is a wonderful opportunity for RUSI NSW. We also consider that the Ursula Davidson Library enhances the educational role of the Anzac Memorial and is a wonderful gift to the people of New South Wales to mark the centenary of the end of the Great War.

Sadly, we recently lost, quite suddenly, a stalwart of RUSI NSW, Colonel John M.utcheson MC (Ret’d). John was a life member, our current Vice President, a Board member for many years, a member of the Library Committee and custodian of the sale of surplus library books. John worked in the RUSI NSW library until the day before his death. There will be an obituary for John published in the Summer 2020 issue of United Service.

Paul Irving
Australia’s Defence Strategic Update 2020

On 1 July 2020, the government released an update (Defence 2020a) of the 2016 defence white paper (Defence 2016). The update notes that Australia’s strategic environment and confidence in the rules-based global order have deteriorated more rapidly than anticipated in 2016; and the Indo-Pacific region is in the midst of the most consequential strategic realignment since World War II.

Of particular concern is the conduct of ‘grey-zone’ activities – military and non-military forms of assertiveness and coercion to achieve strategic goals without provoking conflict. In the Indo-Pacific, these have ranged from the militarisation of the South China Sea, to active interference, disinformation campaigns, economic coercion and cyber warfare. Further, military modernisation in our region has accelerated; and, while its long-term economic and social impacts are not yet clear, the COVID-19 pandemic has disrupted globalised supply chains.

The government has directed Defence to implement a new strategic policy framework that signals Australia’s ability – and willingness – to project military power and deter actions against us. Defence’s strategic objectives now are to deploy military power to: shape Australia’s strategic environment; deter actions against our interests; and, when required, respond with credible military force.

Defence planning is to focus on our immediate region ranging from the north-eastern Indian Ocean, through maritime and mainland South-East Asia, to Papua New Guinea and the South-West Pacific. This will be aligned with broader initiatives, such as the ‘Pacific Step-up’ (Defence 2016; DFAT 2017) and strengthening of our engagement with our strategic partners and our alliance with the United States.

Consequential changes will be needed to Defence capability and force structure (Defence 2020a, b). They include re-equipping the Australian Defence Force (ADF) with new information, cyber, maritime, land, air, and space capabilities, longer-range strike weapons (potentially including hypersonic weapons), and area denial systems. These changes will be underpinned by funding certainty for Defence whose budget will grow to $73.7 billion in 2029-30 for a decade total of $575 billion.

Comment

Is the 2020 defence strategic update adequate for our circumstances and are its aspirations credible?

Humanity faces two existential threats: nuclear war; and climate change (Barrie 2020). The update acknowledges threats to human security, but does little to address them, other than continuing our reliance on the United States nuclear shield and giving disaster response a higher priority. The lack of action on climate change, despite Australia’s own extreme vulnerability, also will sit poorly with our Pacific neighbours. It should be central to any future national security strategy.

Given the ongoing centrality of the ANZUS Treaty1 to Australia’s defence strategy, is America still up to the task? America no longer enjoys military primacy in the Indo-Pacific and its capacity to uphold a favourable balance-of-power is increasingly uncertain (Townshend et al. 2019). Due to two decades of focus on counter-insurgency warfare, America has an atrophying force that is not sufficiently ready, equipped or postured for great-power competition. America, also, is racked internally by deep, partisan and racial divisions, which are being exploited by external actors and exacerbated by a badly-handled COVID-19 pandemic. These divisions are playing into the hands of America’s competitors; and its global credibility and leadership are on the line.

Townshend et al. (2019), among other observers, have recommended that Australia should pursue a strategy of collective defence in the region to offset shortfalls in America’s military power. Pleasingly, the strategic update provides for strengthening our engagement with our regional partners and America. The update’s belated focus on our immediate region also is welcome and will make Defence’s task more achievable. Further, at the AUSMIN2 talks on 28 July 2020, Australia emphasised that it would co-operate with the United States where our interests coincided, but not where they diverged. That, also, is a welcome, if overdue, diplomatic step, but, to be credible, it needs to be underpinned by an ADF capable of acting independently if required.

The issue here is whether the strategic update provides the ADF with the combat power to fulfil its new “shape, deter and respond” mission in our immediate region, without the support of our strategic partners, especially America. This is the crux of the credibility issue.

The projected increased intelligence gathering and strike capability are welcome in light of increasing capabilities in our region, especially of China and North Korea. But, given much shorter ‘strategic warning’ times, the failure to speed up acquisition of major equipments (e.g. Attack-class submarines) is a serious weakness.

The manpower provisions, an increase of some 800 personnel of whom only 50 go to Army, is quite inadequate. Army remains the ADF’s Achilles’ Heel, capable of sustaining only a brigade group on warfighting operations, a force of strategic value only as a minor contribution to a much larger allied force. This becomes an issue in our immediate region where the update states Australia needs “to be capable of leading military operations” (para. 2.7).

Repeated pleas to government that it provide the ADF with adequate strategic reserves so that it can be sustained in combat, have been heeded only partially. Adequate onshore strategic reserves of ammunition, fuel, weapons, repair and maintenance capabilities, and, most importantly because of the long lead times involved, trained personnel (Layton et al. 2020), are vital to credibility and deterrence given our geo-strategic isolation.

On the other hand, greater self-reliance is expensive and finding the money for it as we try to survive a pandemic-induced recession would involve hard choices. Yet, the Israeli...

---

1The 1951 Australia, New Zealand, United States Security Treaty, a non-binding, collective security agreement to co-operate on military matters in the Pacific Ocean.

230th Australia-United States Ministerial Consultations (between both nations’ foreign and defence ministers).
Defence Forces model shows what a middle power can do if it is sufficiently motivated.  

**References**


**LETTERS**

*United Service June 2020*

*United Service 71* (2) June 2020 was an excellent production, with some most informative articles. Two are most relevant to my work – the papers by Professor Bates Gill on reforms of the People’s Liberation Army, and by Graeme Dobell on Australia’s Pacific policy. It was a great pity that, due to COVID-19 restrictions, these papers could not be presented to a live audience as they both invite questions further exploring the respective topics.

The journal format is ideal either for on-screen reading or for downloading/printing. Sourcing high-quality, well-researched, footnoted and well-written articles is most difficult, and the Institute is to be commended for its efforts. A most enjoyable and thought-provoking read!

The journal has reinforced my intention to retain membership, and I have distributed the two articles, with attribution to the Institute and suitable encouragement to join, to my colleagues.

**Lieutenant Colonel Andrew W. Hine**

Directorate of Joint Land Collective Training, Headquarters Forces Command, Sydney, 5 June 2020*

*China and Secure Supply Chains*

I enjoyed reading the thought-provoking commentary on matters of great regional importance and national sovereignty in *United Service 71* (2) June 2020. There has been increased discussion about these topics of late. Two headline items are: the influence of China on trade and foreign policy; and the growing desire to secure supply-chains in alternate geographic areas.

With respect to the latter, I recently came across the term ‘sure-shoring’ to describe the current shift in sentiment. It is a term that extends the concepts of ‘on-shoring’, ‘near-shoring’, ‘off-shoring’ and ‘re-shoring’ by adding to them trustworthiness, resilience and sustainability. It would behove Australian policy-makers to carefully consider these matters.

**Jono Kempe**

Verifai Australia, Sydney, 5 June 2020

**INSTITUTE NEWS**

**Queen’s Birthday Day Honours 2020**

The Institute congratulates the following members who were recognised in the 2020 Queen’s Birthday Day Honours:

**Appointed an Officer (AO) in the Military Division of the Order of Australia**

Rear Admiral Jonathan Dallas Mead AM RAN. For distinguished service to the Royal Australian Navy in senior management and command roles. Admiral Mead is a Vice-Patron of the Institute.

**Awarded a Medal (OAM) in the General Division of the Order of Australia**

Kenneth James Broadhead RFD, Wahroonga NSW. For service to the community. Lieutenant Colonel Broadhead is a former Secretary and Councillor of the Institute.

Douglas John Roser, Forrester Beach NSW. For service to the community, and to engineering. Group Captain Roser is a former President and Councillor of the Institute.

John Clivenden William Rudd, Oatley NSW. For service to veterans and their families, and to accountancy. Mr Rudd is a former Secretary, Treasurer and Councillor of the Institute.

**Awarded a Conspicuous Service Cross**


**Upcoming Events**

**September Lunchtime-Lecture**

Tuesday, 29 September 2020, at 1.00 – 2.00 pm
The Auditorium, Anzac Memorial, Hyde Park South, Sydney

*Speaker:* Major General Marcus Thompson AM

*Subject:* “Cyber security”

**October Lunchtime-Lecture**

Tuesday, 27 October 2020, at 1.00 – 2.00 pm
The Auditorium, Anzac Memorial, Hyde Park South, Sydney

*Speaker:* Senator Jim Molan AO DSC

*Subject:* to be advised

**November Lunchtime-Lecture**

Tuesday, 24 November 2020, at 1.00 – 2.00 pm
The Auditorium, Anzac Memorial, Hyde Park South, Sydney

*Speaker:* Major General Kathryn Campbell AO CSC

*Subject:* “The ADF’s response to the bushfire and COVID-19 crises”

*Note:* Should the COVID-19 pandemic preclude an in-person meeting on these dates, these lectures will be made available as video presentations on the Institute’s website [www.rusinsw.org.au] shortly after the scheduled dates.

---

*Dr David Leece, editor of United Service, is a member of the Institute’s Special Interest Group on Strategy. These are his personal views.*

*These are Colonel Hine’s personal views and are not necessarily those of the Department of Defence.*
In this paper, I will discuss military ethics as it applies to the Australian Defence Force (ADF). For almost 30 years, I have worked with the ADF on pre-deployment preparation. The need to include ethics in pre-deployment preparation reflects lessons learned from the French experience in Algeria (1954-62), reinforced by the American experience in Vietnam (1955-75). These lessons now inform the United States Army/Marine Corps Counterinsurgency Field Manual FM 3-24 (Nagl 2007), Chapter 7 of which on ethics has a headline from Algeria: “Lose moral authority, lose the war”.

So, in discussing military ethics, we are not just discussing values and principles aligned with the broader Australian community. Ethics plays a very significant role in the ADF’s strategic and tactical environment, especially when deployed overseas. Once you encounter forces offshore, you are in interoperative situations with people of sometimes very different cultures, and thickening up the ‘ethical skin’ of our troops becomes an essential consideration.

Ethics in the Military Context

Strategic corporals

There was a time when generals would determine strategic outcomes. No matter what a particular corporal might do, no matter how individually heroic or cowardly their conduct, it was very unlikely to change the strategic environment. The fate of nations lay in the hands of generals.

It is completely different today. Should a corporal on deployment load up an image of them burning a Koran, it can generate strategic effects that lead ultimately to the offices of presidents, prime ministers and chiefs of defence forces. Recognizing that, creates a new environment. The ‘strategic corporal’ can be any soldier who has no high rank or depth of experience. They have not necessarily been given a significant job to perform and yet decisions they make can have strategic impacts.

Asymmetric wars

There is another dimension of the strategic environment which is worth noting. Our recent history has involved engaging in asymmetric warfare. If we think of Australian forces contending with the ilk of the Taliban or ISIS\(^2\), Australian forces will be better trained, armed and supported than their opponents. Because of the quality of our matériel, training and alliances, in any direct contest of arms, Australian forces and their allies will ultimately prevail.

Our opponents, though, are clever and deal with these issues daily. They know their strength does not lie in a direct contest of arms. Instead, they look to exploit our greatest potential weakness which, in the case of liberal democracies, is in terms of our moral authority, both as perceived within the force itself but especially at home.

Take the circumstances that arose in Vietnam. There, a military superpower, the United States, with all of the weapons it could possibly want at its disposal and its vast wealth, was nonetheless defeated by a loss of will at home. The perception began to solidify within the general public that this was an unjust war being waged by unjust means.

From events like the massacre of unarmed civilians at My Lai in March 1968, people on both sides were able to conclude that, if you could destroy the moral authority of a liberal democracy, then you would see a crumbling of resolve at home. Eventually, political pressures would lead to those forces being withdrawn.

So, in Afghanistan, when we see the Taliban or the ISIS engaging in atrocities, when we see green-on-blue attacks within our own lines perpetrated by people who appear to be our allies, we should not think that these are mindless acts of violence. Instead, they represent a

---

Email: wendy.agostino@ethics.org.au

\(^2\)Islamic State in Iraq and Syria
deliberate strategic decision to attack a liberal democracy at its weakest point, with a view to provoking a disproportionate response including ‘collateral damage’, particularly the death of innocent women and children. If you capture those images and broadcast them into the homes of the citizens of the liberal democracies, then you achieve your tactical end without necessarily having to fire a shot.

Our military planners understand this and the lessons of Vietnam. To this day, every time America deploys armed forces abroad, people ask whether this will be another ‘Vietnam’, because it has become emblematic of the phenomenon.

We also reckon with it inside the ADF which has a different temper and approach to the Americans in the way we fight wars. The Americans rely on overwhelming force, often in ways which are indiscriminate, whereas the ADF tends to be more delicate, although still effective in what it does. We understand that dynamic and we have developed our own rules of engagement.

**Thickening the ethical skin**

The Ethics Centre’s approach to preparing people for deployment was designed to ‘thicken the ethical skin’ of everyone who would deploy. Motorcyclists wear leathers because, if they come off on an abrasive surface, the leather takes the punishment rather than their own skin. Similarly, divers wear wetsuits to protect themselves from cold waters.

The same thing can be done when you are in an ethically-challenging environment. You attempt to thicken your ethical skin so that, when you are in an ethically-abrasive environment, you do not lose your skin. Rather than finding yourself prone to provocation, you maintain a consistent view, thus protecting yourself from that which your enemy seeks to impose upon you.

In summary, military ethics is not just about being comfortable with the things you do. It is not even just about having a moral foundation for the profession of arms. The practical reason is twofold: the rise of the strategic corporal, who now can generate strategic effects; and, in conditions of asymmetric warfare, your militarily weaker enemy will seek to take advantage of your potential vulnerability in terms of your moral authority. “Lose moral authority, lose the war” (Nagl 2007).

**Ethics at Work in Armed Forces**

The way Western armed forces operate is distinctly different to civilian precepts of how they function. Citizens conceive of control, orders, discipline and obedience. Of course, there is discipline within military formations and there is a hierarchy and there is respect for rank, but those things are not the most effective components of command. Rather, it is to translate command intent into common intent.

There are two distinct wedges which operate in relation to command and control. The control wedge is the plans and structures for control – the regulations, rules of engagement and operating systems. The command wedge includes all elements to do with the culture of a formation, the character of its people – the creative expression of will in the pursuit of an objective.

Von Clausewitz’s famous dictum applies – that no plan survives first contact with the enemy. So, you can do all the planning and have all your systems in place, but the more intense the engagement and the longer it lasts, the control wedge gets thinner and thinner. Then, you have to rely more on the command wedge which gets thicker and thicker – so much so that you can get to the point where command, control and the chain of command have broken down. Yet, you still have forces in the field which you still need, despite their plans having been sidelined and you are not there to exercise control. You need those people to be able to operate vide the common intent.

Thus, in warfare, systems, policies and structures, by themselves, are not going to do all the heavy lifting. Instead, far more important is the way in which one is leading and is led, and the culture of the formations that are deployed.

**New ADF definition of leadership**

Accordingly, about 1998, the ADF changed its leadership doctrine. Now, leadership is expressed as the exercise of influence (not control) over others in order to gain their willing consent (not their obedience) in the ethical pursuit of missions.

It is not just about having an alignment within the ADF with the general values and principles of Australians. As a nation, we are neither angelic nor demonic. Like most people around the world, we are basically decent people and our ADF reflects the basic decency which informs the nation as a whole.

The word ‘ethical’ is embedded in the definition because ADF personnel are well equipped to manage risk and drive performance. For them, if you do not manage risk properly, you have people who are killed or wounded. So, in managing risk, there is a relentless focus on what actually works.

Ethics also is in the definition: for the strategic corporal who is where the plans are breaking down and is now having to get a section to operate; for the asymmetry of power; and because a challenge in military ethics is the need to avoid becoming conditioned in ways that make people blind to the strategic and tactical environments in which they operate.

**Blindness to the strategic and tactical environment**

Good people can find themselves doing bad things without even realizing it; without even seeing it. When people who engaged in questionable conduct recognize in hindsight that there was something inappropriate about what they did, they often say that, at the time, they just did not see it.

Some people may assume that the perpetrator is rationalizing his/her own poor conduct – trying to find some excuse for what they did. Not so. They actually are...
telling the truth. What is so interesting about ethics in defence is how hard it can be to help people to see even significant strategic risks.

I learned this lesson while visiting Taronga Zoo, Sydney. One section of the tiger exhibit had a strip of perspex in a glass wall. When you stood in front of the perspex it showed you the world as seen by the typical prey of a tiger, like a sambar deer, which only sees in black-and-white (not colour). As perspex also filters out colour, when the tiger moved behind the perspex, it almost disappeared from human view. All you perceived was a flicker of movement, because the colour had been filtered out.

Imagine now that, through your training and experience, you have been conditioned so that all you see in the jungle is the green. If there is a tiger in the jungle, it largely will be invisible to you. If the tiger were a strategic risk, it would be waiting for you unseen. We tend to talk about ‘the elephant in the room’ – something everyone can see but will not name. The real risk is the tiger, the thing no one sees even though it is capable of having devastating effects.

Ethics is a practical skill which enables you to see the tiger. It is a terrible tragedy that good people find themselves doing bad things and do not even see themselves doing them. When asked to explain, they will say: “Well, I just didn’t see it because everybody was doing it, because that's just the way we did things around here.”

‘Just war’ theory

Within military ethics, beyond the laws of armed conflict and notions of proportionality, the underlying defining good that the profession of arms is meant to secure is peace. This goes back to ‘just war’ theory. At its highest level, it is not merely that you are defending and that you are entitled to defend yourself, but you also have to believe that, by engaging in war, the quality of the peace that you will secure at the end of the conflict will be superior to that which would have prevailed otherwise. In other words, you cannot justifiably fight a war if you think that the state of affairs at the end will be worse in terms of peacefulness than otherwise would have prevailed. Hence, the traditional understanding of the profession of arms is trying to secure peace as its overarching good.

Enemies of Ethics

Hypocrisy

There are two great enemies of ethics: hypocrisy; and custom and practice. Hypocrisy is the idea that an organisation says one thing and does something else. When people experience hypocrisy, it creates cynicism. It is like an acid that eats away at the bonds of an organisation. Typically, where you find environments where good people end up doing bad things, you find that they have been exposed to leadership which has either enabled or tolerated hypocrisy; where leaders have said one thing and done something else.

It is not necessarily a leader’s personal conduct. The hypocrisy can be signalled by the systems, the policies and the structures of the organisation. This is why, when military people are designing assistance policies and structures, they think not just about their efficacy, but also of the messages they will convey – whether they will undermine the legitimacy of the leadership.

An example is the way the churches responded to the sexual abuse of children. The churches had spent 2000 years saying that love is more important than the law, people are more important than property, and that you should face up to the truth. Yet, when they were accused of wrongdoing, they put the law before love, their property before their people, and they sought to protect their backs rather than face the truth. So, the initial wrongs, as terrible as they were, were compounded by an organisation that seemed to refute its own teachings. Many people who were committed to those churches’ beliefs said: “If you do not believe your teachings, how can we?” As a consequence, the damage was so much more than it would otherwise have been.

Unthinking custom and practice

So, do bishops, bank chiefs, prime ministers, or commanding officers decide each morning how much hypocrisy can they engage in today and so create lots of cynicism in their organisation? Of course, they don’t. They are subject to a far subtler, but significant, second enemy of ethics. While the first enemy is hypocrisy, the cause of the hypocrisy so often is not deliberate intention, but unthinking conformity with custom and practice.

As I said, when you ask good people who have done a wrong thing why they did it, they respond that they did not see it because everybody did it, that is just the way things were done. It is extraordinary how, throughout history, you can see people drifting into a situation where they do not see the strategic threats they face and where they operate in a way which has terrible effects because of the kinds of phenomena I am describing.

An Example: My Lai, Vietnam, 1968

An infamous example is the My Lai massacre. In 1968, a company of mainly middle-class Americans was deployed to Vietnam. In the first three months, they had 38 casualties (four killed, 34 wounded) to an enemy they never saw. There was no direct clash – just booby traps and sniper fire. When they walked through a village, they could not distinguish friend from foe. They became angry and frustrated. This abrasive effect started to work on their ethical skin.

Meanwhile, Colonel Aaron Henderson was tasked with clearing up an area shown on American maps as ‘Pinkville’. It included My Lai hamlet, a hotbed of Viet Cong activity. Henderson thought part of the problem had been a lack of American aggression. Learning of Captain Ernest Medina’s disaffected rifle company,
Henderson decided that they might be the kind of aggressive troops he needed.

On 16 March 1968, over a four-hour period, Charlie Company, 1st Battalion, 20th Infantry Regiment, commanded by Captain Earnest Medina, killed between 400-500 people, including old men, women and children. They did not just kill them – they cut out tongues, cut off hands and scalped people.

Riflemen 4th-Class Bernardo Simpson later described what he did. When asked whether he had been trained to do it, he said no. He said a lot of people were doing it and he just followed suit.

Not every American soldier present ‘followed suit’. Michael Bernhardt was a tunnel rat – a brave soldier willing to go underground in hand-to-hand fighting. He later explained in an ITV documentary (Sim 1989; Bilton and Sim 1992), for the men, Vietnam was their whole world; what people thought of them in America and elsewhere did not matter. He describes three mutations in the values and principles of this unit. He said courage was seen as stupidity; cowardice was seen as cunning and weariness; and cruelty and brutality was sometimes seen as heroic. With those mutations in place he said: “I’m sure they didn’t see it”.

An inquiry tried to find out if Captain Medina had ordered the massacre, which was overseen by Lieutenant William Calley. Some soldiers said they were ordered to kill everything. Others said no such order was given. While Captain Medina and Colonel Henderson put the operation together, they both swore they had not ordered this kind of killing.

From a military ethics perspective, while Ernest Medina may not have given those orders, that is not the issue. The ethical issue is that he either did not notice, or he did not care, about the mutations in values and principles. In that sense, he failed in his command, because he failed to attend to the ethics of the troops he commanded. His failure led to the deaths of those Vietnamese; and to people like Bernardo Simpson, who took part in the massacre, subsequently taking his own life. So, the damage done extended back into the troops of Charlie Company and it damaged his nation so much so that we still wonder whether every engagement will be another Vietnam, all because they failed to manage the ethics.

The Antidote: Leadership by Constructive Subversion

There is an antidote for those two enemies of military ethics: hypocrisy; and custom and practice. It is a particular kind of leadership: ‘constructive subversion’. It involves subverting the tendency not to see things because you are engaged in unthinking custom and practice. It is constructive subversion because a commander’s duty is not to impose their own view on their formation. It is to help the ADF to become more like the organisation it says it wants to be.

In other words, it is to subvert those things which give rise to the perception of hypocrisy; to help build the ethical skin around the organisation. That kind of leadership requires moral courage. The moral courage to do what is right; to preserve the distinction between the warrior and the barbarian. Anyone can be a barbarian – they can do a massacre. What makes you a warrior is ethical restraint.

The ADF has used this concept to build its model of leadership and to give it practical effect wherein command intent becomes common intent. The aim is that every soldier understands the need to exercise moral courage and to maintain his/her ethical skin. Then, in the abrasive world of warfighting, you do not see a mutation in the core values that ought to inform daily decisions. They each know that:

- each person is capable of having strategic effects;
- we all are prone to being conditioned not to see the tiger in the room; and
- this requires extraordinary moral courage.

Conclusion

The Ethics Centre has been investing in the ADF’s ethical capacity because we do not want an environment where the ethics are so thin that they scrape away at the first abrasion. We do not want ADF personnel to be subject to the terrible effects of being the good person who did the bad thing and, having done so, suffers the moral injury which ultimately gives rise to post-traumatic stress. You do not want people looking back on their decisions and saying: “How did I become that person?” You do not want them to become a Bernardo Simpson, dead because of what he did. He was not a bad man.

Ethics in the ADF is more than general principles around ‘just war’ theory. It is strategically vital that we build the capacity of our people to manage the ethical dimension so that they are never put in a position where they do things which bring shame upon themselves or their nation. We never want to lose the war because we lost our moral authority.

The Author: Dr Simon Longstaff AO FCPA, a philosopher and ethicist with a background in law, has been Executive Director of the Ethics Centre, Sydney, since 1991. For three decades, he has worked with the ADF on ethical issues, particularly on preparing personnel for deployment to Iraq and Afghanistan. In 2013, he was made an officer of the Order of Australia for distinguished service to the community through the promotion of ethical standards in governance and business, to improving corporate responsibility, and to philosophy. [Photo of Dr Longstaff: The Ethics Centre]

References


I am delighted to share with you our vision for defence science and technology in Australia over the next decade.

Australia's Defence Science and Technology Group

Australia's Defence Science and Technology Group (DST), was founded nearly 113 years ago, a century during which it has made a vital contribution to the nation's defence.

Today, DST has a delivery budget of around $580 million a year and a workforce of around 2100 staff, predominantly scientists, engineers, information technology (IT) specialists and technicians.

With the exception of the Northern Territory, we have a presence in every state and territory in Australia. Internationally, we have representatives based in embassies and consulates around the world, including in Washington DC, London, Seoul, Singapore and Tokyo.

As the principal scientific advisor to Defence, there are not many parts of this enormous military machine that DST has not touched or influenced in some way. It has been said that if a soldier wears it, eats it, uses it or thinks it, DST has done the science behind it. We have a long and proud history of providing innovative and sustainable scientific solutions to Defence; solutions which are world-leading and often world-changing.

Importantly, many of our innovations have applications beyond Defence. Take the Black Box flight recorder, for instance. This was developed by Dr David Warren, a Defence scientist at our laboratories in Melbourne in the 1950s, and is now used on every commercial aircraft around the world. Then there is JORN, the Jindalee Operational Radar Network, which provides 24-hour military surveillance of the northern and western approaches to Australia, but also is used in weather forecasting and detecting illegal entry, smuggling and unlicensed fishing.

Recently, one of our senior scientists, Dr Neil Gordon, was recognised for his ground-breaking work developing the Particle Filter algorithm, arguably the most important surveillance algorithm of the past 50 years. The Particle Filter is now used almost everywhere, from predicting weather, to epidemiology, to the extraction of missile threats from satellite data.

As an organisation, we have made – and continue to make – an important contribution to the security and prosperity of the country. Our role has always been to ensure a regionally superior Australian Defence Force (ADF) with the highest levels of military capability and technological sophistication. Today, this role is more important than ever. With our country facing an increasingly challenging and contested security environment, we at DST are positioning ourselves to deliver a strategic advantage across the full spectrum of Defence capabilities. Our success will depend on having a focused science, technology and research programme but also, and perhaps more importantly, on our ability to effectively leverage and shape the national science and technology (S&T) enterprise.

Defence Science and Technology Strategic Research Goals

In May this year we launched our Defence Science and Technology strategy, called More, together, which will provide our strategic direction over the next decade. Our strategy is headlined by the introduction of a new concept, a set of ambitious Science, Technology and Research Shots, or 'STaR Shots'. The STaR Shots will prepare the Australian Defence Force for the 'fourth industrial revolution'; workforce development will be dependent on enhanced STEM education and training in the community; and the infrastructure plan will focus on establishing Defence S&T precincts with industry and academia.

Key words: Australia; defence science and technology; fourth industrial revolution; STEM education and training; Defence S&T precincts.
clearly-defined transition pathways, they will be directed at tangible, future-focused, defence capabilities.

As you can imagine, selecting the correct STaR Shots is absolutely critical and, after extensive consultation and rigorous analysis, I am confident that the eight STaR Shots we have identified are the right ones.

The set of STaR Shots that we have arrived at support the over-arching objective of the ADF: to prevail in contested environments. And, importantly, they support capability needs across each of the warfighting domains. So let me provide you with a brief summary of each of the STaR Shots.

**STaR Shot 1: remote undersea surveillance**
The detection and localisation of submarines is a significant challenge for any nation, but particularly for Australia where we have a very large maritime domain and a limited set of crewed assets.

To address this challenge, we have a STaR Shot focused on remote undersea surveillance. This STaR Shot is aimed at enhancing our undersea surveillance capabilities by augmenting crewed assets through the use of autonomous, deployable, sensor systems. What will this mean for our Navy? It will mean the ability to create a 200-nautical-mile safe haven around Australian naval bases.

**STaR Shot 2: CBRN-contaminated environments**
Another of our STaR Shots concerns operating in environments contaminated by chemical, biological, radiological and/or nuclear hazards. Our ADF needs the ability to safely and successfully prosecute its missions in such environments.

This STaR Shot will explore the development of critical capabilities in threat detection, identification, mapping and prediction, and, importantly, will develop innovative and novel tools to assist with situational awareness and decision-making.

**STaR Shot 3: quantum-assured position, navigation and timing**
Position, navigation and timing (PNT) systems are vital for military operations to maintain constant situational awareness. Today's PNT systems are reliant on global navigation satellite systems, in particular the 'Global Positioning System' (GPS). Access to these systems, however, can all too easily be constrained, either by adversarial jamming, poor environmental conditions, or even the nature of the terrain – thereby undermining the reliability of critical PNT systems.

As the name suggests, the 'quantum-assured PNT' STaR Shot will explore quantum technologies to ensure the ADF has trusted PNT systems to support battlespace networks and ensure mission success.

**STaR Shot 4: resilient multi-mission space capability**
Our existing space capability is becoming highly vulnerable in what is becoming an increasingly contested domain. The ‘resilient multi-mission space capability’ STaR Shot will provide resilient global communications, PNT data, and geo-intelligence directly to ADF users in real time.

This critical capability will be enabled by a smart satellite constellation, an ‘intelligence cloud’ of next-generation space systems that are resilient and responsive to mission requirements. It is important to note that we will be leveraging Australian technologies, but our solution will be ‘coalition-ready’, suitable for global operations in contested battlespaces.

**STaR Shot 5: disruptive weapon effects**
The rapid development of advanced missiles and high-speed systems is challenging current missile defence capabilities due to their speed, range and manoeuvrability. For the ADF to carry out its missions in contested environments, we need to develop effective countermeasures against these types of advanced high-speed systems.

The ‘disruptive weapon effects’ STaR Shot is aimed at doing just that. It will develop, mature and demonstrate technologies to specifically counter adversary anti-access, area denial capabilities and enable joint freedom of manoeuvre. It will explore how to increase the speed and range of weapons, how to use teaming and co-ordinated effects to overwhelm enemy combat systems, and how best to employ defensive capabilities, such as directed-energy weapons, for surviving within the contested environment.

As with all our STaR Shots, this STaR Shot will draw on the best of Australia’s innovation sector; universities, small-to-medium enterprises and industry primes. It will leverage Australian research strengths in hypersonics, tactical booster design, transformative energetics, collaborative weapons teaming, advanced sensors, and directed energy technologies.

We expect this STaR Shot to deliver new, innovative and novel weapon technologies. It could also see the growth of an Australian weapons industry base. This is an example of a STaR Shot that has, in effect, already commenced through the established work on high-speed weapons.

**STaR Shot 6: information warfare**
As we are all increasingly aware, the information environment is the new theatre of war. Our military systems are reliant on it; our infrastructure is reliant on it; our economies are reliant on it. Control the information environment and you control the contest.

The information warfare STaR Shot is focused on developing autonomous ‘information warriors’ to fight the ‘information war’ through blended awareness and effects across the human, information and physical realms.

**STaR Shot 7: agile command and control**
The nature of war is changing, and the conflicts of the future will be very different to those that the ADF has contested in the past decade or two. Operating domains recently considered 'global commons' are now contested and freedom of operations cannot be assured. Our ADF needs to be technically and tactically prepared for high-end conflicts against technologically-advanced adversaries. Military success will require the ability to simultaneously generate effects with and across every operational domain, a concept termed ‘joint all-domain operations’. This is the new reality of modern warfare.
Joint all-domain command and control is fundamental to success across the continuum of conflict, turning individual capabilities into a synchronized, coherent force. The ‘agile command and control’ STaR Shot will leverage enabling technologies such as artificial intelligence, machine learning, autonomy, and human-machine interactions; and combine those technologies with emerging command and control, and situation understanding concepts. The end result will be a continuously evolving, end-to-end, joint, all-domain, command-and-control capability that will be reconfigurable and deployable.

This new capability will enable commanders to make rapid decisions based on actionable information and enhanced situation understanding of complex battle-spaces.

**STaR Shot 8: battle-ready platforms**

This STaR Shot may not be quite as sexy as our ‘space STaR Shot’, or our ‘quantum-assured PNT STaR Shot’, but it is no less important.

Maintenance of ADF platforms is a significant cost for Defence. Traditional maintenance approaches have been based on predetermined life cycles which often do not take into account the loadings placed on the platform nor the environment that the platform has been operating in. This has led to the reduced availability of platforms due to premature breakages or through maintenance on equipment that could actually have operated for longer before it is maintained.

With the advent of industry 4.0 and the emergence of digital twins, advanced data analytics, artificial intelligence, and advanced platform management systems, there is the opportunity to revolutionise the maintenance of our platforms and significantly improve fleet affordability. This STaR Shot will develop technologies that lower maintenance costs and improve the availability of platforms for operational service.

**Defence Science and Technology STEM Workforce**

The foregoing summary of the strategic plan gives you a broad understanding of each of the STaR Shots and what they will achieve. But the STaR Shots will come to nothing without a smart and innovative workforce behind them – specifically a ‘STEM’ workforce: graduates with skills in science, technology, engineering and mathematics.

This is a topic that is particularly close to my heart. Along with the STaR Shots, developing a highly-skilled, innovative, collaborative and inclusive workforce is a critical part of our strategy. You probably do not need me to tell you that STEM is where the careers of the future are. If you have a child of an influenceable age (I have three), then I would encourage you to open their eyes to the possibilities of a STEM career. Seventy-five per cent of the fastest-growing occupations in the world today require people with STEM skills.

In Australia, there is a growing dependence on the STEM workforce to drive innovation and ensure we remain competitive in a tough global economy. Unless we take action in the coming years, our demand for STEM talent will not be met.

Defence, in particular, recognises that to meet the defence and national security challenges of the future, it is critical that we build a world-leading, STEM-capable workforce. Inspiring students to choose a career in STEM, particularly in Defence and Defence industry, is a high priority.

I have the privilege of co-chairing the Defence STEM Council. The council was established in 2018 and brings together senior executives from across Defence and other government agencies to take a collective approach to progressing Defence’s STEM workforce.

In 2019, we launched our strategic vision for our STEM workforce: “Moving towards a high-tech future for Defence”. Through this vision, we hope to address some of the key challenges confronting our nation.

A critical issue is the decline in the performance of the Australian school system over the last decade, particularly in core STEM subjects of science and mathematics. We need to increase the ambition and motivation of students in STEM subjects.

There is also a need to make the vocational education and training sector more responsive to our future priorities. We need to ensure that we are accessing the best talent from all parts of a diverse Australian community to build the workforce.

Currently women represent only 16 per cent of Australia’s STEM-skilled workforce. Significantly, more indigenous students are now enrolling in STEM courses, representing an 8.34 per cent annual increase: however, indigenous Australians are still under-represented in STEM courses. An inclusive lens on STEM engagement is needed to increase the representation of women and indigenous Australians in STEM, leading to a stronger and more diverse STEM workforce.

As a major employer of STEM skills, you will see Defence taking a leading role in shaping the national STEM agenda and communicating our workforce needs for the future. DST received the Athena Swan Award at the Science in Australia Gender Equity Awards, acknowledging institutional commitment to advancing the careers of women in STEM and medicine in higher education and research. This award demonstrates the priority and value Defence places on gender and talent diversity in STEM disciplines, and our commitment to ensuring that this is what drives us as we continue to grow our impressive STEM workforce.

**Defence Science and Technology Infrastructure**

I have touched on two key elements of our S&T Strategy for Defence: the STaR Shots and our workforce. The final piece of the puzzle is ensuring that we have outstanding infrastructure to power the innovation for which we are striving.

While state-of-the-art research networks, facilities and equipment are critical, our STaR Shots will usher in a new way of working that will see increased collaboration between government, industry and academia. To accom-
modate this new way of working, we will be looking to establish Defence precincts at locations around Australia, where we can co-locate with our partners. It is a shift away from current arrangements, where collaborative arrangements are constrained by physical barriers, with our Defence scientists operating behind secure perimeters and firewalls. It is an exciting development and one that will allow us as researchers to truly embrace collaboration and all that it offers. Not surprisingly, there has been a lot of interest from our industry and academic partners in sharing infrastructure and the establishment of Defence precincts.

Conclusion
I am incredibly excited about the future of Defence science in this country. As we travelled around the country towards the end of last year, consulting on the strategy, it was clear to me that the research community is really keen to work with us. They are keen to partner on developing and growing a national STEM workforce. They are keen to work with us to develop innovative technology solutions for Defence.

There has been great interest in the STaR Shots. After many months of devising, consulting and refining our strategy, I am looking forward to putting it into practice. I am confident that it is the right strategy at the right time. It focuses our research efforts on fewer, mission-driven research priorities. Importantly, it provides the framework for transitioning ideas into capability. It will nurture, grow and develop the S&T talent pool, and permanently shape the national S&T enterprise as a key contributor to Defence capability.

History has shown that Defence-driven innovations can, and often do, have much broader applications which benefit society in general. I have no doubt that, with this strategy, we are putting in place the building blocks that will enable the transformational breakthroughs of tomorrow.

The Author: Professor Tanya Monro is a research physicist whose field is photonics, with a focus on sensing, lasers and new classes of optical fibres. She became Australia’s Chief Defence Scientist in March 2019 and is also a member of the Board of the Commonwealth Scientific and Industrial Research Organisation.

Previously, she had been Deputy Vice Chancellor (Research and Innovation) at the University of South Australia. From 2005 to 2014, she was inaugural Chair of Photonics at the University of Adelaide, and served as the inaugural Director of the Institute for Photonics and Advanced Sensing, and the inaugural Director for the Australian Research Council Centre of Excellence for Nanoscale Bio-Photonics.

She is a Fellow of the Australian Academy of Science (FAA), the Australian Academy of Technology and Engineering (FTSE), the Optical Society of America (FOSA) and the Australian Institute of Physics (FAIP). Her awards include: the Prime Minister’s Malcolm McIntosh Prize for Physical Scientist of the Year (2008); South Australian Scientist of the Year (2010); South Australia’s Australian of the Year (2011); and the Eureka Prize for Excellence in Interdisciplinary Scientific Research (2015).

[Photo of Professor Monro: Department of Defence]

BOOK REVIEW:

The last 100 days – the Australian road to victory in the First World War
by Will Davies
Penguin: North Sydney; 2018; 336 pp.; ISBN 9780143784968 (paperback); RRP $34.99
Ursula Davidson Library call number 572 DAVI 2018

When the Allies launched an offensive in the Amiens sector on 8 August 1918, the outcome was far from assured; but in the next 100 days, success begat success until Germany agreed to the Armistice on 11 November. After the fact, this period became known as the ‘Hundred Days Offensive’.

The Australian Corps was part of that offensive from 8 August until early October, participating in about 60 of the 100 days. After the capture of Montbrehain (5 October 1918) on the Hindenburg Line, it was withdrawn from the front line, although some elements of the Australian Imperial Force continued to be involved in offensive activities.

Much has been written about the battles of Villers-Bretonneux (24-25 April 1918) and le Hamel (4 July 1918) as well as the early days of the Amiens offensive, but relatively little about the period from mid-August until early October 1918.

Davies sets the scene for this period with opening chapters on the German Spring Offensives, the defence of Amiens and the capture of le Hamel. The bulk of the book then examines the preparation for and battles from 8 August onwards including Mont St Quentin, Péronne and Montbrehain. There is one chapter about the actions of the Australian Forces that were not part of the Australian Corps in those last few weeks of the war, as well as two chapters on the events of the immediate post-Armistice period.

The narrative is fast and animated with numerous quotes from the accounts of participants. Davies is unashamedly positive about the Australians’ performance and contribution and, at times, a little denigrating of other participants. The subtitle should more accurately say the ‘Australian contribution to Allied victory’. There is no mention of the pressure that Monash was put under during this period.

Davies is an historian, writer and filmmaker. His previous books include: Somme mud: the war experiences of an Australian infantryman in France, 1916-1919 (Random House, 2008); Beneath Hill 60 (Random House, 2011); and The boy colonel: Lieutenant Colonel Douglas Marks, the youngest battalion commander in the AIF (Vintage, 2013).

The Last 100 Days is a good primer for those who are first encountering this period of the Australian Imperial Force’s history, but it is not a detailed or objective account and will have limited appeal to seasoned students of military history.

Marcus Fielding
It delights me to have this opportunity to share with the RUSI NSW my views about climate change and national security. This is my second contribution on this topic. What I know now is that the only way to avoid a humanitarian calamity with serious national security consequences is to take urgent action. This involves us all.

When I spoke to the Institute in 2016 (Barrie 2016), I said that we lived in the middle of the critical decade (Climate Commission Secretariat 2011). I referred to two publications about climate change, security and the Australian Defence Force (ADF) (Barrie et al. 2015; Sturrock and Ferguson 2015). These publications addressed the inevitability of global warming through human activities, growth in global and regional populations, the potential impact of population density, threat multipliers that threaten security of all natures leading to challenges to concepts of national security, and the likelihood that we might face challenges to our security that we do not fully comprehend.

Changes Since 2016

Much has changed in the last four years. We have experienced fall-out from three-and-a-half years of Donald Trump’s presidency in the United States. In Australia, there has been a change of prime minister and the surprising return of the coalition government in 2019.

On the national security front, the 2016 Defence White Paper (Defence 2016) included climate change as a national security threat; and in 2017, there was a Senate inquiry into climate change and national security (Barrie 2018; Senate 2018).

This July, the government presented the 2020 Defence Strategic Update (Defence 2020) to respond to assessments about the greater potential for military miscalculations and state-on-state conflict. It noted that adjustments to judgements in the 2016 White Paper were necessary because of “accelerated drivers of change”. Importantly, it stated:

- “The enormous economic impact of measures to contain the spread of the [COVID-19] virus will set back development. This economic shock could undermine political and social stability.” (Defence 2020: 15)
- Threats to human security – such as pandemics, and growing water and food scarcity – are likely to result in greater political instability and friction within and between countries and reshape our security environment, including in the Indo-Pacific. These threats will be compounded by population growth, urbanisation and extreme weather events in which climate change plays a part. Within Australia, the intensity and frequency of disasters – such as the 2019-20 Black Summer bushfires – will test Australia’s resilience. Disaster response and resilience measures demand a higher priority in defence planning (Defence 2020: 16).
- State fragility, exacerbated by governance and economic challenges, has the potential to facilitate threats to the region, including the spread of terrorism and activities that undermine stability and sovereignty. Increased state fragility could also
potentially lead to the ADF being called on more often for evacuation, humanitarian assistance and disaster relief missions and potentially more demanding stabilisation operations. It may also increase threats to Australia’s domestic security including through irregular maritime arrivals (Defence 2020: 16).

The gloomy picture I painted in 2016 has not improved. Barbara Tuchman’s introductory observations about wisdom may yet be prescient! (Tuckman 1984)

National Security

Australia is a lucky country when thinking about national security. We live on an island continent. Our borders can be made intrinsically more secure than if we shared a land border.

We have a low population by global standards. In most of Australia there is a low population density except on the continent’s east coast extending from Hervey Bay around to the Great Ocean Road where density matches that in many other countries.

We, too, are lucky because most people have economic opportunities that few others enjoy. We expect high standards of behaviour from our citizens, and we possess the ability to shape the future we want. We seem luckier than most countries in our region.

But our good luck also makes Australia an attractive country to unlucky people living elsewhere in poverty, in situations of high population density, and sometimes in war zones.

Signals of complacency

Despite this rosy picture people who experienced the Black Summer bushfires and smoke, and now the consequences of a global COVID-19 pandemic, might also question how lucky we are.

I am most concerned about the high-level complacency that resulted in a lack of preparedness to deal with the bushfires and the pandemic. Complacency had an impact on the ability of our first responders fighting the bushfires and probably the extent of the fire losses nationwide. Then it affected our health systems racing to catch up to deal with the global pandemic. This complacency is a weak signal that points towards a national security concern.

If we failed manifestly to prepare adequately for these predicted contingencies what other less obvious contingencies have we failed to prepare for? Are there vulnerabilities in our national security posture, and weaknesses in our ability to respond to them, that might threaten Australia?

These questions need examination in the context of the predicted consequences of global warming.

A time of reckoning

Evidence from increasingly severe droughts, record-breaking heatwaves and new high-temperature records shows that time is running out for Australia to act on climate change, notwithstanding the sentiments in the recent Strategic Update. It is with climate action, not just the pandemic, that science matters.

Emeritus Professor Will Steffen, a global expert on the consequences of climate change on the Earth system, joined by 15 co-authors, has written an essay about the implications of the “Great Acceleration” that began in the 1950s (Steffen et al. 2018). The essay leads to the assessment that, by the end of next year, we must have taken drastic action to limit fossil fuel consumption to reduce the risk of a “hothouse Earth” or face the increasing possibility of the Earth system reaching a tipping point of no return. If this were to occur, global warming would become self-sustaining no matter what we do – a climate Armageddon. There is speculation that this tipping point might occur at a global surface temperature increase since the start of the industrial age (~1750) of just 2°C.

The findings in the essay are based on significant “accelerated drivers of change”. Yet, current patterns of human behaviour have continued largely unaltered over the last two decades. Except during the period of the COVID-19 global pandemic, greenhouse gas emissions have continued to rise inexorably, as has the average global temperature. World population also is growing sufficiently to offset meagre efforts to reduce greenhouse gas emissions.

Based on this kind of work, there have been persistent calls from eminent scientists for significant reductions in global dependence on fossil fuels. These calls for action, however, go unanswered by most of our political leaders.

The Senate Inquiry

In May 2018, the report of the Senate Foreign Affairs, Defence and Trade References Committee into the “Implications of Climate Change for Australia’s National Security” (Senate 2018) covered a range of climate change consequences and made 11 recommendations about actions to be taken to enhance Australia’s national security posture. Over two years later, the Commonwealth Government has yet to respond to it.

The report noted expert advice that climate change is “a current and existential national security risk”, one that “threatens the premature extinction of Earth-originating intelligent life or the permanent and drastic destruction of its potential for desirable future development”.

I had made a submission to the Inquiry that outlined my national security concerns in the following way (Barrie 2018):

“ There are two critical existential threats to human life on planet earth. The first threat is Armageddon created by nuclear war. The challenge of preventing nuclear war has shaped international affairs since 1945 with limited success, given current signs that we are failing in the effort to prevent the spread of nuclear weapons and manifestly failed to eliminate them. In the context of nuclear war our future will be determined by a few people; those who hold the keys to executing the launch of nuclear weapons either by accident or by intent. Most of us will play no role in this event even though it will almost certainly impact on us all. The planet will still exist, but most life on earth will be extinguished.
The second threat to human life on the planet is generated by global warming through the direct and indirect consequences for a changing earth environment. Human beings are the most predatory species that has ever existed on this planet. Furthermore, the population of the planet, which stands at about 7.5 billion people today, has yet to peak at a possible 10 billion people.

Scientists and other experts have been building scenarios about future life on earth which lay out some of the problems we may have to confront if we cannot hold down average global warming temperature increases to small increments. Scientists have also been telling us for at least the last 30 years that actions to curb the exploitation of planetary resources by human beings are critical to minimising global temperature increases because of uncertainties about our prospects, and that time to resolve the issues for the better keeps getting shorter.

There are two major differences in these existential threats. On one hand, with nuclear war the time taken to create Armageddon will be very short, and impossible to deal with once the process begins. On the other hand, with global warming, climate change, and other environmental consequences, the time taken to eliminate all human life on earth might take decades, and it will likely be very ugly, and involve indeterminate processes for all of us.

The huge volume of evidence assembled by the scientific community has given us overwhelming reasons to take decisive action to change our ways to prevent this future. These are the kinds of perspectives that laid the foundation for an important book written by Martin Rees, in the early part of this century (Rees 2004)\(^3\). In his perspectives on the enormous opportunities and risks for fundamental change now taking place, Rees has postulated that there is an estimated probability of one in two that no human beings will exist on planet Earth in the year 2100.

For this reason, and drawing on my own experience over nearly 42 years of service with the Navy, I believe urgent action is needed to head off the potentially disastrous consequences of failing to take decisive action to deal with the earth environment, if the unacceptable probability is that the legacy we will leave to our children, and their children, is their extinction.

The quote from Barbara Tuchman heading up this submission is a short reminder about the responsibilities and accountabilities of our political leaders. I believe most governments on the planet today are failing their people by not taking decisive action to mitigate climate change and environmental consequences that result from global warming, and fostering ever means of adapting to the circumstances we face using all the resources available. Even after the COP21 Paris Agreement\(^4\) I think our current posture is a manifest failure of leadership. I would like to believe that at some point in the future those who have failed to secure a bright future as a legacy for our successors will be held to account.

**Recommendations for national security agencies and government**

The Senate committee made 11 recommendations for action by national security agencies and the government (Senate 2018). They included: the development of a Climate Security White Paper and a National Climate, Health and Well-Being Plan; the release of an unclassified document by Defence outlining what is being done to identify climate risks to its estate; consideration of appointing a dedicated climate security leadership position in the Home Affairs portfolio to co-ordinate climate resilience issues; and the creation in Defence of a dedicated senior leadership position to assist in planning and managing the delivery of humanitarian assistance and disaster relief at home and abroad. In addition, Defence should establish emissions reduction targets across stationary and operational energy use and report annually on them. None of these issues were addressed in the recent Defence Strategic Update (Defence 2020).

Coalition Senators recorded concerns in the report. They drew attention to specific submissions from Defence and Foreign Affairs that attempted to show how well the government had been doing on climate change. “Coalition Senators believe the Government and stakeholder departments have sufficient strategies in place to ensure Australia’s response to the implications of climate change on national security is well understood and consistent across the whole of government\(^5\). They also did not support the recommendation on Defence emissions reduction targets because it fell outside the spirit of the inquiry.

The Senate committee also admitted to shortfalls in its report due to a lack of information. For example, it observed that “Climate change is also adversely affecting other aspects of Australia’s national security, including the economy, infrastructure, and community health and well-being”, but the “committee did not receive substantial evidence on these matters...”.

There also is no recommendation in the report about limiting the consumption of fossil fuels.

**Insufficient impact**

The findings in the inquiry report are concerning. The recommendations lack timetables for action, and a sense of urgency. They do not stack up well against recent experience. The Commonwealth Government has yet to table a response to the report. Senator Lambie could start on her “emergency services conscripts” by pushing for a Government response to a report in which she and some current government ministers participated!

I think our experience of climate change already presents us with significant challenges to governance, our institutions, and the fabric of our societies. We know over

---

\(^1\)A supporting video can be seen at... https://youtube.com/watch?v=JPMoV7J67ro

\(^2\)The 21st Conference of the Parties (COP21) to the 1992 United Nations Framework Convention on Climate Change (UNFCCC), a meeting at which world leaders negotiated an international agreement to limit greenhouse gas emissions and hold planetary warming below 2°C of preindustrial levels.

**United Service 71 (3) September 2020**
the next 30 years, as a 25 per cent growth in world population occurs, the impact of global warming on climate change and our current problems will almost certainly get worse, not better. This surely dictates significant action.

The idea of a Climate Change Security White Paper that clearly spells out where our ministers stand on climate change issues would be welcome. It could dispel the concerns of many Australians about the way ahead. At least, it would give us something to work with!

Conclusion

Professor Steffen has said that dealing with climate change is not a scientific problem. It is rather a socio-political problem; it is for communities and their governments to manage. This is where things look ugly. I agree. Perhaps we should learn lessons from the way in which science is driving our response to the COVID-19 pandemic.

Steffen’s perspective is that we have just 15 months to reduce fossil fuel consumption significantly – not just in Australia, but world-wide. We should not underestimate the magnitude of the problem. Even if we had already started reaching for acceptable reduction targets, it would still present a huge problem. My take on our federal government’s perspective is that Australia is waiting for other countries to provide a lead.

So, while this look at the implications of climate change on Australia’s national security may look all right from a government and bureaucratic perspective, in my view it presents breath-taking complacency. It smacks of reckless negligence, because no other country on the planet will be as affected by the consequences of climate change as Australia. Our national security will be imperilled by it.

By 2050, a world destabilised due to the pressures created by climate change consequences would likely have experienced mass migrations of unimaginable scale. Even if only 5 per cent of the 5 billion people in our region feel compelled to find new places to live because of serious water and commensurate food shortages, as well as weather and sea-related natural disasters, that could mean 300 million people on the move. The Government has tilted at this issue in the Defence Strategic Update (Defence 2020) but has not taken its potential security impacts seriously.

Australia, with its low population density, might be an attractive place to head for since most other countries in our region would be much more densely populated. In such a contingency, the national security effort of our 40 million people will be overwhelmed by the scale of the national security problem.

There is no place for complacency about climate change in our national security thinking.

The Author: Admiral C. A. (Chris) Barrie AC (Ret’d) is an honorary professor at the Australian National University’s Strategic and Defence and Studies Centre. A career naval officer, he retired from the Australian Defence Force in 2002 after 42 years’ service, the last four years as the Chief of the Defence Force. Since then, he has worked on strategic leadership issues as a consultant, teacher and mentor at Oxford University, the National Defense University in Washington DC, and at the Australian National University. Since 2008, he has developed expertise in the national security implications of global warming and climate change. He is a member of the United Services Institute of the Australian Capital Territory. [Photo of Professor Barrie: Australian National University]

Literature Cited and Further Reading


Barrie, Chris (2018). Submission No. 38 to the Senate inquiry into implications of climate change for Australia’s national security (Department of the Senate, Parliament House, Canberra).


Senate (2018). Implications of climate change for Australia’s national security (Department of the Senate, Parliament House, Canberra).


BACKGROUND BRIEFING

Training army officers in tactics

David Leece
Royal United Services Institute for Defence and Security Studies, New South Wales

The training of staff and regimental officers in common tactical doctrine (the ‘drills’) is essential to developing teamwork within formations, headquarters and units. But developing tactical thinking (the ‘skills’) is more difficult. A range of tools presented herein have been formulated by Western armies over two centuries to develop the skills and the drills separately and then merge them to create combat-ready formations.

Key words: tactical doctrine; battlefield tours; staff rides; tactical exercises without troops; war games; command-post exercises; tactical exercises with troops; virtual staff rides.

“The essential components of [an efficient] Army are a qualified Staff, an adequate equipment and a trained soldiery. I state them in what I believe are their order of importance, and my belief is based on the lessons that the war has taught me.” (Monash 1923: 322)

From its inception in 1888 until 1945, the Royal United Services Institute for Defence and Security Studies, New South Wales (RUSI NSW), provided higher military education for officers of Her/His Majesty’s naval and military forces in New South Wales, although this became very difficult during the two world wars.

After World War II, RUSI NSW resumed this function for army officers, providing regular lectures in tactical doctrine, military history and military law, and periodically conducting tactical exercises and war games without troops. Later, the Australian Army progressively assumed the formal aspects of this role, but RUSI NSW has continued to explore some aspects in depth via its studies and seminars in military history and tactics (e.g. Sutton 1996, 1999; Leece 2014).

This background briefing will explain the system for training army officers in land-warfare tactics and RUSI NSW’s proposed evaluation of a new training tool, the virtual staff ride.

Training Army Officers in Land-Warfare Tactics

The system for training staff and regimental officers for war is concisely described in the small British Army training manual, Training for War (British Army 1950). While now 70 years old, the principles, concepts and techniques remain largely unchanged and are summarised below.

Tactical Doctrine

For a formation of any size to be able to function effectively as a team, its officers must be trained in the principles, standard operating procedures and techniques to be employed within each phase of war – advance, attack, defence, withdrawal and their variations such as delaying defence.

This common doctrine provides the knowledge base and the tactical drills which will be employed by the formation in tactical manoeuvre. It is usually laid down and promulgated via training manuals (frequently referred to as ‘pamphlets’ or simply as ‘pams’ in the Australian Army) at army-wide level and as standing orders at formation and unit level.

But tactical doctrine must be applied in different tactical situations where the enemy’s strength, the terrain, time, logistics and space considerations will differ. So, before any engagement with the enemy, commanders need to develop plans specifically for the situation they face and then adapt those plans to the changing situation as they fight the battle. Developing tactical thinking capability (tactical skill) is much more difficult than learning doctrine (tactical drills). So, let us now consider a range of approaches that have been formulated by Western armies over the last two centuries to develop tactical skill and then merge it with tactical drills to create combat-ready formations.

Military History and Battlefield Tours

One of the earliest techniques used to develop the tactical skill of young officers was to require them to study military history, particularly military campaigns (military strategy) and battles (tactics) from which lessons could be drawn. Where possible, after studying the campaign/battle, a tour of the battlefield would be undertaken. It would be led by an experienced military historian with an intimate knowledge of the terrain. The guide would point out from various vantage points the key features of the terrain and what transpired during the battle.

Staff Rides

From the Napoleonic Wars of the early 19th century onwards, the training of his staff and his subordinate commanders became seen as an essential duty of formation commanders. One technique which became popular was called the ‘staff ride’ (from the German term stabs-reise). Essentially, this involved the commander, his subordinate commanders and his staff officers riding on horseback around historic battlefields, informally discussing the tactics employed by each side and how the outcome might have differed had either side employed different tactics or reacted differently to the enemy’s moves.

Brigadier D. R. Leece AM PSM RFDF ED (Ret’d), editor of United Service, is a member of the Institute’s Special Interest Group on Strategy. These are his personal views. Email: david.leece@bigpond.com

United Service 71 (3) September 2020

Strictly speaking, ‘tactics’ relates to a specific battle. A campaign consists of more than one battle for which the term ‘military strategy’ traditionally is preferred. Campaigns, however, frequently are referred to today as ‘the operational level of war’.
This not only enabled the commander to develop the tactical skills of his subordinate commanders and staff officers, it enabled him to expose them to his appetite for risk under different scenarios and, thus, give them an understanding of how he would wish them to make decisions on his behalf. In turn, this led to prospective or hypothetical battles based on possible future scenarios being studied in a similar manner.

From the mid-19th century onwards, staff colleges were established to more formally train the officers needed to staff the headquarters of formations from brigade to army-group level. The staff ride became an important teaching tool in such colleges. Indeed, Field Marshal Helmuth von Moltke, when chief of the Prussian General Staff from 1857 to 1887, formalised the *stabs-reise* and used it less for historic studies and increasingly for prospective ones — both to train the general staff in terrain appreciation and for contingency planning. This range of activities also allowed the students to be assessed under a range of conditions, and was used by von Moltke to ruthlessly identify the elite of each class for subsequent career advancement. His development of the technique to study potential future battlefields for the purpose of preliminary reconnaissance, terrain study and tactical preparation won recognition throughout Europe and more globally.

In the United States, in contrast, when staff rides were introduced at the Fort Leavenworth staff school in the late 19th century, they were used almost exclusively for historic studies, particularly of American Civil War battles. According to Robertson (1987), they are still used for historic studies, but the staff ride now is more formalised and consists of three phases: a preliminary study phase, to prepare the student for the visit to the battlefield; the field study phase, which is the culmination of all previous efforts to understand the historic events, to analyse their significance, and to derive relevant lessons for professional development from them; and the integration phase, where students and instructors reflect jointly upon their experience.

**Tactical Exercises without Troops**

Once horses had been retired from general use, the term ‘staff ride’ generally was replaced in British Commonwealth militaries by ‘tactical exercise without troops’ (TEWT), but the term was retained by the United States Army. While the purpose of TEWTs did not change, they became more formalised.

TEWTs in the British system may consider an historic battle or campaign, but more commonly consider a hypothetical prospective one. The four phases in the conduct of the TEWT are:

- the preliminary study phase, during which each participant studies the tactical scenario set by the directing staff and usually derives the aim of the appreciation to be undertaken in phase 3;
- the reconnaissance phase, usually involving observation of key terrain features from vantage points (with movement by foot, vehicle and helicopter), supplemented by topographic maps, air photos and satellite images;
- the planning phase, in which each participant (whether an individual or group) conducts a military appreciation and arrives at a battle plan; and
- a discussion phase, during which participants present their plans, which are debated by their peers and assessed by the directing staff.

A military appreciation, which is the central component of the planning phase, itself involves several steps:

- an assessment of relative strengths, *i.e.* a comparative assessment of the strengths and weaknesses of the enemy force and our own force;
- a terrain analysis to derive vital ground, key terrain, approaches and withdrawal routes, assembly areas, forming-up places and the like, from both an enemy and a friendly-force perspective;
- determining and assessing the courses open to the enemy and to the friendly force, considering the likelihood and effects on the friendly force of the enemy adopting each course open to him, and then the strengths and weaknesses of each course open to us, and how the enemy might respond if we adopted each course;
- deciding on a preferred course and how to mitigate its weaknesses; and, finally
- preparing a battle plan — including a mission, concept of operations, allocation of troops and resources to tasks, key co-ordinating and logistical arrangements, and key time, space, command and control considerations — in sufficient detail to enable a trained staff to formulate operation orders for the formation from it.

A TEWT is normally conducted as a one-sided exercise — that is, while the courses open to both the friendly and enemy commanders are considered, a plan is only developed for one of them, usually the friendly-force commander.

**War Games**

A TEWT teaches an officer how to plan a battle. A war game teaches him/her how to fight one. A battle plan simply launches a force into battle. The plan will rarely survive the initial encounter unscathed and will need modification and adaption as the battle proceeds. War games introduce the officer to this concept and develop her/his capacity to be flexible in the face of the enemy.

War games can be used to evaluate battle plans developed during TEWTs or in other ways; and to develop a commander’s ability to conduct and control the battle as it proceeds.

A war game is two-sided exercise without troops. Like a game of chess, it is played by two players (or two teams), one representing the friendly-force commander, the other the enemy-force commander. Traditionally, it is played on a

---

1. The ADF and all North Atlantic Treaty Organisation forces now employ the joint military appreciation process (JMAP) for joint (inter-service) planning at the operational level. JMAP is a structured process used by the staff, with injections by the commander at key points, to formulate plans for campaigns and joint operations. It is explained in detail in ADF (2019).

2. The Australian Command and Staff Course (which has replaced the single-service staff colleges) uses the JMAP during the operations phase of the course in TEWTs, command-post exercises and war games (also known as ‘operational simulations’). The Australian Army’s Land Warfare Centre has moved from individual participant to group (syndicate) appreciations.
table-top, with a topographic map or a terrain model ('cloth model') between the players, on which are indicated the positions of the opposing forces as they change throughout the game. These take the place of a chess board and chess men. With a suitable digital terrain model and overlays, however, the war game may be played on a computer.

Before the game starts, each player needs to undertake a military appreciation and make a battle plan which is represented on the topographic map/terrain model at the start of play. The players next take turns to make a move in response to their opponent's move. A set of moves is adjudicated, allocating casualties and the like, before the next set of moves is made. This adjudication can be made by fixed rules, as in chess, but usually also requires an impartial umpire to rule on the outcome. The game proceeds until one side is declared the winner.

**Command-Post Exercises**

Tactical doctrine, military history, battlefield tours, staff rides/TEWTs and war games are used for the individual training of the officer for command, staff and regimental appointments.

The next step in the training of a formation for war is the collective training of the officers and other ranks of the formation headquarters so that they can effectively and efficiently support their commander by undertaking formal appreciations, develop contingency plans, prepare operations orders, manage battles and perform the myriad of other tasks that can befall a headquarters staff during the heat of battle. This training is done via command-post exercises.

A command-post exercise in its simplest form involves the headquarters that is to be trained (say a brigade headquarters), a higher control (usually a division or force headquarters) and one or more lower controls (usually the headquarters of each of the subordinate units which constitute the brigade group). The formation's signals squadron/regiment also will be fully exercised in transmitting messages between the various headquarters.

The exercise directing staff will include an exercise director who determines the lessons to be taught and how this is to be done; and umpires at the exercised headquarters and at the higher and lower controls to assist the exercise director achieve her/his aims. To assist the umpires, the director will issue a tabulation containing a sequential series of events designed to trigger actions to bring out the lessons.

The exercise usually commences with the higher control issuing an operation order to the exercised headquarters which necessitates the exercised headquarters planning and issuing orders to its lower controls. This generally launches actions by the lower controls which are governed by serials in the exercise instruction, supplemented by instructions from umpires, in order to draw out responses from the exercised headquarters consistent with the lessons that the exercise director wishes to teach. Umpires at the exercised headquarters assess the performance of the exercised headquarters and report thereon to the exercise director who may then adjust subsequent serials in the exercise instruction to ensure that the relevant lessons are drawn out.

**One-sided Exercises with Troops**

The one-sided exercise with troops links the command-post exercise with the command, control and deployment of troops. It practises the officer in exercising the command function; and extends the officer's real-time understanding of time, space and logistics considerations. Further, it enables the lessons of the classroom, TEWT and war game to be reinforced in an actual combat setting.

The exercise normally is conducted at formation (e.g. brigade group), unit (e.g. infantry battalion group) and/or sub-unit (e.g. rifle company group) level; and focuses on a specific phase of war (e.g. advance, attack, defence or withdrawal).

The exercise is run by an exercise director who is independent of the formation being exercised. The director is supported by:

- a small staff who assists him/her write the exercise instructions and oversee the exercise;
- a 'controlled' enemy, which the exercise director uses to create realism and to bring out the lessons that s/he wishes to emphasise; and
- umpires at each headquarters, unit and sub-unit being exercised, whose role is:
  - to ensure the commander understands the battle situation ('to paint the picture'),
  - to create realism (e.g. by employing pyrotechnics to simulate artillery fire),
  - to liaise with the controlled enemy, and
  - to debrief the exercised troops at the end of each exercise phase to ensure the lessons have been brought out and are understood.

If the exercise is to achieve its aim and the lessons are to be brought out effectively, it needs to be planned very carefully. Steps involved include the following:

- A higher headquarters selects an exercise director and informs him/her of the formation to be exercised, the phase of war to be practised and the resources at his/her disposal.
- The exercise director then selects the exercise aim, the lessons to be emphasised, the ground on which to conduct the exercise so as to enable the chosen lessons to be brought out, and decides how best to bring out the lessons.
- The exercise director and his/her staff then write the exercise narratives and instructions. How skilful they are in doing this will usually determine the exercise's success or otherwise.
- The narratives 'paint the picture' for the participants and generally consist of an opening narrative, which positions the exercise within a hypothetical, but realistic, strategic situation, and subsequent tactical bridging narratives as needed to launch each new phase of the exercise. The narratives usually will be accompanied by relevant topographic maps and exercise-specific overlays.
- The exercise instructions should include a schedule of events for each phase stating where interventions by umpires and/or the enemy are to occur so as create situations designed to bring out one or more lessons. Separate event schedules are needed for the enemy and for each
headquarters, unit and sub-unit being exercised – these schedules operate concurrently.

- The exercise instructions will also include administrative and other instructions essential to its effective execution.

Once the exercise has been conducted, there will need to be a comprehensive evaluation of the performance of the formation exercised and of the conduct of the exercise.

Properly conducted, one-sided exercises with troops can be valuable training tools. They are, however, incredibly resource intensive and the temptation is to cut corners in the exercise direction and umpiring. When this occurs, the various headquarters may still benefit, but the soldiers at sub-unit level and below can spend long periods ‘twiddling their thumbs’. In my experience, nothing is worse than this for soldier retention, especially of reservists.

**Two-sided Exercises with Troops**

The two-sided exercise with troops, sometimes referred to as ‘manoeuvres’, differs from the one-sided exercise in that the enemy force is largely uncontrolled by the exercise director – the enemy commander is generally free to conduct his/her battle as s/he sees fit. Essentially, it is a war game with troops. As such, it is a valuable tool to practise commanders in adjusting their plans as necessary as they fight the battle, with troops participating on both sides to provide realism. It also tests the opposing commanders and their headquarters against a realistic and innovative opponent.

In most cases, though, the training the troops receive is usually less beneficial and, at times, they can spend long periods waiting for something to happen. If, however, the **auftragstaktik** (mission command) approach is fully adopted, it can allow the troops to innovate/adapt aggressively to a dynamic battlefield in order to achieve their commander’s intent.

The principal beneficiaries of two-sided exercises, however, are the officers, especially the opposing commanders, involved. It is generally a very expensive way to train them and should only be considered when fine-tuning highly-trained formations.

**Virtual Staff Rides**

In 2005, the United States Army began developing a new officer-training tool – a computer-based ‘virtual’ staff ride (Combat Studies Institute 2020).

As mentioned above, a United States Army staff ride is a study of an historic campaign or battle that involves a preliminary study phase, an extensive field study phase on the actual historic site, and an integration phase to capture the lessons derived therefrom. A virtual staff ride (VSR) aims to achieve the same degree of leader development and education as in a field staff ride and follows the same methodology, but, where restrictions of whatever type preclude a visit to the battlefield, the VSR replicates the terrain in a virtual environment in the classroom.

This replication of the terrain draws on satellite imagery, maps, photos, videos, sketches, first-hand accounts of participants, etc., and then constructs of a three-dimensional (3D) environment to immerse the student in the virtual terrain. The intention is to provide the most realistic vision of the battlefield possible without leaving the classroom.

The Combat Studies Institute’s currently-available VSRs are set in the American Civil War, World Wars I and II, Korea, Afghanistan and Iraq; and are based on CSI-published materials developed since 2001. The development of additional VSRs is underway. Further details may be found at https://www.armyupress.army/mil/Educational-Services/Staff-Ride-Team-Offerings/.

The Combat Studies Institute has provided RUSI NSW with a copy of one of its studies based on an action which occurred during the 2003 Allied invasion of Iraq – the ambush of the U.S. 507th Maintenance Company at Nasiriyah on 23 March 2003 during the advance towards Baghdad. The computer model enables evaluation of different scenarios and battle plans developed by the participants, allowing them to ask ‘what if’ questions and assess different outcomes. RUSI NSW will be evaluating the study in the near future.

**Conclusion**

The training of staff and regimental officers in common tactical doctrine, techniques and standing operating procedures (the ‘drills’) is an essential component of developing teamwork within formations, headquarters and units. But developing tactical thinking processes (the ‘skills’) is more difficult. A range of tools presented herein have been formulated to develop the tactical skills and the drills separately and then merge them to create a combat-ready formation.

A new tool for developing tactical thinking processes, the virtual staff ride, has been produced by the United States Army. RUSI NSW will evaluate it in the near future.

**Acknowledgements**

I am grateful to Lieutenant Colonel A. T. (“Bushy”) Pembroke MC who, 45 years ago, introduced me to *Training for War* (British Army 1950) and showed me how to train an infantry battalion for war. I thank Lieutenant Colonel I. M. C. Wolfe CSM for introducing me to the virtual staff ride and the joint military appreciation process; and for helpful comment on the manuscript. I also thank Major General R. P. Irving AM PSM RFD (Ret’d), Captain I. E. Pfennigwerth RAN (Ret’d) and Air Vice-Marshall R. B. Treloar AO for helpful comment.

**References**


Addendum – Training naval and air force officers in tactics

It is interesting to compare the foregoing to the way naval and air force officers are trained in tactics. From a naval perspective, since a ‘maritime staff ride’ is not possible, navies long ago moved first to floor exercises – like moving model ships around a gigantic chess board – but from the 1960s took the electronic path into ‘tactical trainers’. There, the directing staff act as the enemy and pose issues which the friendly force has to counter and overcome, with command teams manning replicas of ship operations rooms.

On the real ocean, real ships are deployed in tactical scenarios and manoeuvre as they would in real combat. As part of this, real weapons are usually discharged, but at targets operating on instrumented ranges where their effectiveness can be assessed and reported upon. The biggest of these exercises in Australia’s part of the world is the two-yearly RIMPAC cycle, but there are several locally organised and conducted exercise series designed with similar principles in mind. However, we do not have all the instrumented ranges that the United States operates, which is where we have to go for trials and proving of weapons systems.

Further, every ship before reaching operational readiness goes through an extensive training programme of increasing complexity, culminating in an evaluation. Not only tactical operations ability is tested, but a bunch of mean-minded experts in ships’ systems systematically move around inhibiting its propulsion, equipment and personnel by inflicting ‘damage’ and ‘casualties’ to test the ability of command and crew to respond.

The Air Force uses many of the military training regimes described in the paper in the staff environment, and, in conjunction with the other Services, it is expected that it will be required to shape the environment for joint activities. Outside the staff environment, it uses virtual and live-flying aircraft exercises to test their systems and personnel.

Ian Pfennigwerth and Bob Treloar

BOOK REVIEW:

Horrie the war dog: the story of Australia’s most famous dog

by Roland Perry

Allen & Unwin: Sydney; 2013; 338 pp.; ISBN 9781743317990 (paperback); RRP $27.99;

Ursula Davidson Library call number 580.2 PERR 2013

This book is a re-telling of the story of Horrie, a stray Egyptian Terrier puppy, who was befriended in the Libyan desert by members of the Signals Platoon of the 2/1st Machine Gun Battalion, 6th Division, Australian Imperial Force, in 1941.

Horrie turned out to be an exceptional young dog. In the Western Desert, he proved to be an excellent guard dog, protecting the section that rescued him and their possessions from thieving Arab boys. In Greece, Crete and Palestine, his acute hearing enabled him to give early warning of approaching German ground-attack aircraft – early warning that saved countless Australian lives. His high intelligence allowed him to be trained to deliver messages by night over steep and dangerous terrain far quicker than any human could deliver then.

After Japan entered World War II in December 1941 starting a new front in the Pacific, 6th Division returned to Australia in early 1942 and Private Jim Moody, aided by his colleagues, smuggled Horrie back to Australia in breach of quarantine rules. Horrie’s war had now ended, but his human colleagues went on to serve in New Guinea until the end of 1944.

Horrie’s story was first told by Ion L. Idriess in his book Horrie the wog-dog: with the A.I.F. in Egypt, Greece, Crete and Palestine: written from the diary of Private VX13091 J. B. Moody A.I.F. (Angus and Robertson: Sydney; 1945). It ended with Horrie being surrendered to the health authorities in 1945 who put him down.

Perry’s new account says that is not what happened. Rather, Jim Moody substituted a similar-looking terrier for Horrie and it was the latter dog which Commonwealth health officials killed. Horrie went on to live an idyllic life on a dairy farm in northern Victoria for another 10 years.

Roland Perry is a renowned Australian author who has written several military books, including The Australian Light Horse and Monash: The Outsider Who Won a War. His style is somewhat akin to that of Peter FitzSimons – military history which can verge at the detailed level on historic fiction. In his ‘Acknowledgements’, he warns that the book “includes dramatisations and re-creations based on information from [his cited] sources” (p. 338). That limitation notwithstanding, the historic framework, if not always the detail, is accurate and it is a good, relaxing read.

David Leece
BOOK REVIEW:

In that rich earth

by Brad Manera with Craig Wilcox and Chris Clark
The Trustees of the Anzac Memorial Building: Hyde Park South, Sydney; 2020; 256 pp; ISBN 970646812663 (soft cover); RRP $39.55

Opened on 24 November 1934, the Anzac Memorial stands proudly as one of New South Wales’ most significant cultural and commemorative institutions, continuing in its original purpose as a war memorial and as a place of commemoration, remembrance, education and reflection.

The effects of the Great Depression limited the extent of the building. Notwithstanding, as part of the Commemoration of the Centenary of World War I, a federal grant enabled a major refurbishment of and extension to the Memorial in 2018. The extension included a Hall of Service, the walls of which contain soil samples gathered from the towns around New South Wales from which Australians enlisted to serve in the Great War. On the floor of the Hall are samples of soil collected from 100 battlefields around the world over which Australians have walked, driven, or flown, sailed past, or dug in.

In the foreword, Australia’s Governor-General notes: “To lose Australian lives on foreign soil creates a special bond with that soil. And given that most of our servicemen and women who died on operations are buried in foreign soil, that bond can take on a spiritual sense”.

The book describes each of the battles from which the soil has been gathered in a double-page presentation. On one side, the battle is outlined, with linkages to participants from New South Wales; and a map shows the battle’s location. The opposite page carries three or four photographs of the battle. Where a campaign comprised several battles, a larger-scale map places each battle in a temporal and geographic context.

The book has five major sections: colonial wars; the Great War; World War II; Australia in Asian wars; and peacekeeping and recent conflicts. Each section commences with a contextualisation of the social, political and military attitudes of the day.

The colonial wars section is written by Craig Wilcox; the Great War, World War II and Australia in Asia’s wars by Brad Manera; and peacekeeping and recent conflicts by Chris Clark. The detail is absorbing without presenting the reader with a disjointed kaleidoscope of history.

The book opens with a description of the battle at Orakau, a decisive Maori defeat during the British invasion of the Waikato district in 1864. Before addressing the Boer War, Craig Wilcox describes the little-known participation by the New South Wales contingent in the disastrous Sudan War in 1885.

While Gallipoli and the Western Front battles of the Great War are quite well known, Brad Manera provides a personal dimension, including the less well-known battles in which Australians participated across the Sinai and Palestine. He handles the Second World War in the same expert manner. In similar fashion, Brad presents Asia’s wars, starting with the British Commonwealth Occupation Forces in Japan, through the Korean War and the state of emergency in Malaya, to Vietnam.

In the peacekeeping and recent conflicts section, Chris Clark covers the wars in Iraq, peacekeeping operations in Rwanda and Cambodia, and the war in Afghanistan.

Understandably, given the nature of our history, the focus of the book is on land battles. The authors, however, have taken great care to ensure that air and naval forces are appropriately recognised for their own battles and for their contribution to and effect on the outcomes of the land battles in which they were involved.

The authors are eminently qualified to address their respective topics. Brad Manera is the Senior Historian/ Curator of the Anzac Memorial and has held similar positions at the West Australian Museum, the National Museum of Australia and the Australian War Memorial. He is the author of Your friend the enemy (nextmedia, 2015); and co-author of New South Wales and the Great War (Longueville Media, 2016).

Craig Wilcox, former historian at the Australian War Memorial, is a fellow at the Menzies Centre for Australian Studies in London, and an honorary associate of the Centre for Historical Research at the National Museum of Australia. His books include: Australia’s Boer War: the war in South Africa, 1899-1902 (Oxford University Press, 2002); Red coat dreaming: how colonial Australia embraced the British army (Cambridge University Press, 2009); and Badge, Boot, Button: the story of Australian uniforms (National Library of Australia, 2017).

Chris Clark graduated from the Royal Military College, Duntroon, in 1972, and gained his PhD from the Australian Defence Force Academy, Canberra, in 1991. He is the Royal Australian Air Force Historian and was formerly historian for post-1945 conflicts at the Australian War Memorial. He is the author of numerous books on military history.

The book is produced by the Anzac Memorial and the proceeds from sales are returned to the Memorial. The book, however, only covers the 100 battlefields which are represented on the floor of the Hall of Service, a representative sub-set only of the battlefields upon which New South Welshmen have fought over the last 160 years.

In That Rich Earth is beautifully presented with a wonderful collection of photographs, maps and posters. It will appeal to any reader interested in Australia’s military history, regardless of their state of origin.

Bob Treloar
This short book is the product of Pat Beale’s interest in the Australian Imperial Force’s (AIF’s) performance in the First World War in Europe. Beale critically examines seven ‘legends’, or shibboleths, relating to the AIF through the lens of seven battles in which the Australian Corps fought during 1918. The seven legends he examines are shortened into the following popular terms: ‘sheep to the slaughter’; ‘a pointless struggle’; ‘Aussies, the born soldiers’; ‘stabbed in the back’; ‘fighters, not soldiers’; ‘lions led by donkeys’; and ‘loveable larrikin’. He notes that four are of Australian origin and three are foreign constructs.

Beale argues that the public, not the soldiers themselves, largely led the process of creating these legends. Because soldiers tend not to speak or write of their experiences, the public imagines and fills the space – sometimes simplistically. He additionally argues that the public filled this space with notions of soldiers needlessly suffering and dying amid horrifying circumstances. My sense is that, while there is some merit in this argument, it is in itself overly simplistic and many factors inform, shape and evolve the historical record and perceptions over time.

Surprisingly, in making this argument, Beale ignores the Official History of Australia in the War of 1914-1918 which is arguably one of the most detailed first-hand accounts of wartime events ever produced. As Peter Stanley once wrote: “It was written by men who had lived through the Great War .... They wrote from first-hand knowledge of those who had fought, in many cases having shared the experience of war. Bean himself ... had been present at practically every battle in which Australians participated on the Western Front. He wrote the ... four Western Front volumes.” The fact that the twelve volumes of the Official History were published between 1921 and 1942 and tens of thousands of individual volumes have been printed, suggests that these have been a very significant contributor (notwithstanding some acknowledged limitations, flaws and omissions) to the public’s knowledge and understanding of the war – as they were also to the soldiers who participated in the war and only had a personal perspective.

Beale’s book is a little reminiscent Anzac’s Dirty Dozen: 12 Myths of Australian Military History edited by Craig Stockings and published in 2012. While Stockings – a noted historian who now leads the production of the next tranche of official histories – and his contributing writers critique over-simplification, jingoism and exaggeration with facts, Beale moves in the other direction and contends that the Australian Corps’ successes are underappreciated and that its “achievements have been trivialised”.

The correlation and causation between Beale’s seven legends and his main contention regarding the performance of the Australian Corps in 1918 is tenuous and thin. That the Australian Corps in 1918 was a capable and experienced fighting formation is, based on the available evidence, probably a fact. John Monash and other Australian chroniclers have not unsurprisingly praised the performance of the formation (Monash arguably a little too vigorously), but a completely objective assessment remains elusive. Like most wars, the participants can similarly feel both elated at their perceived tactical successes and saddened by the death or wounding of comrades – these are simply two sides of the same old coin and Beale has not discovered anything new here.

Beale’s publisher asserts that “an ex-soldier [he] uses his military background to help re-discover why and how the [Australian] Corps was so successful and also the reasons their triumph has been ignored”. Notwithstanding Beale’s distinguished service, his arguments in support of his main contention are not sufficiently robust; he does not, for example, critically assess the Australian Corps’ performance in 1918 relative to other British Expeditionary Force formations, or how much the German Army’s collapse from August contributed to the Allied ‘triumph’; nor does he address how perceptions – Australian and foreign – of the Australian Corps’ performance may have changed over time.

Legends of War includes a number of black and white images throughout the book, three maps, end notes, a bibliography and an index.

Beale served as an officer in the Australian Regular Army for 30 years during which he saw active service in the Malayan Emergency, the Confrontation in Borneo where he was awarded a Military Cross, and as a member of the Australian Army Training Team Vietnam where he was awarded a Distinguished Service Order for gallantry and a United States Silver Star for his role in the battle of Dak Seang. Beale retired to the Adelaide Hills and this is his second published book.

It is perhaps not surprising that after 100 years the performance of the Australian Corps in 1918 has become a topic of diminishing interest and subject to the vagaries of shifting perceptions over time; but, as a vehicle to raise public awareness of that performance on the occasion of the centenary, my sense is that Beale has missed the mark. Nevertheless, Legends of War is an atypical approach which will be of interest to some military historians.

Marcus Fielding
This is a biography of an Australian hero of the Pacific War, Commander Eric Augustus Feldt, OBE, RAN. Feldt's diverse experiences qualified him superbly for the challenge of setting up and maintaining a coast watch service in the critical early period of the Pacific War.

The author is a retired medical practitioner and great niece of her subject. She is well qualified to make observations about the effects of health on human performance under pressure. The tragic early loss of Royal Australian Naval College (RANC) classmates from accidents and illness affected Feldt, who suffered indifferent health for most of his life.

Lee’s account makes clear why Feldt was the ‘right man’ when required to step up. He was able to work productively with each Australian military service, government officials, civilian expatriates, locals and United States (U.S.) forces. He used his invaluable contacts with his former RANC classmates and could draw on his skills in small-boat handling at crucial times. The author chronicles Feldt’s useful life before and after World War II, completing the story of a great Australian. I feel this volume is comparable to Albert Facey’s autobiography. Both men endured the same critical events in Australia’s journey.

Feldt was a remarkable man who made his own choices. This biography provides compelling accounts of late 19th century life in tropical Queensland, the involvement of labour from the Pacific Islands in the canefields (blackbirding), the sequel to its abolition (land grants and sugar-cane farms which were too small for economic viability), the excitement of Federation in 1901, the first Officer Cadet class of the new RANC, the life of young midshipmen in Australian and British vessels in the Great War, and the relatively quiet nature the Royal Navy’s activity during its latter part. Feldt left the Royal Australian Navy after World War I, tried a trading venture between Norfolk Island and Australia, and joined the administration of Australia’s protectorate in New Guinea. Feldt confronted the multiple challenges facing Australian administrators in New Guinea between the wars, in the lead-up to World War II, and in the creation and work of the Coastwatcher organisation. There were some 90 coastwatcher posts spread through Australian New Guinea and the Solomons manned by 398 Caucasians and a similar number of local natives, of whom 37 died on operations.

The coastwatchers gave warning of Japanese naval movements and offensive air activity. The warnings allowed the successful defence of Guadalcanal and elsewhere. This highlights the tragedy of the failure of the U.S. radar station on north Oahu to provide warning of the Japanese air attack on Pearl Harbour. Reg Evans, an Australian coastwatcher, arranged the rescue of future U.S. president, John F Kennedy, and the surviving crew of his patrol boat, PT109.

U.S. historian, Walter Lord, says that the coastwatchers were invaluable in warning of enemy activity, rescuing downed airmen and stranded sailors and in helping plan the advance of the allies in the Solomons. Their only common but essential requirement was to know the South Pacific and “the intricate relationships and loyalties that governed life in the islands”. Senior U.S. Naval officers were fulsome in their praise of Feldt and his team.

The timing of Feldt’s book, The coastwatchers, in 1946, no doubt helped ensure official historians had a credible and comprehensive record of a small force that could easily have been overlooked. Feldt was a master of detail as well as the big picture. The coastwatchers are featured in the official Australian Navy, Army and Air Force histories of the Pacific War – partly because all three services provided members – and in serious studies of Australian military history. For example, Jeffrey Grey refers to “the dedicated and clandestine organisation of Coastwatchers …. set up by Naval Intelligence in the 1920s and which drew upon planters, missionaries and patrol officers”. The entry on Coastwatchers in the Oxford companion to Australian military history is attributed to Feldt’s book.

Dr Lee draws comprehensively on Feldt’s book, but that book is focused on the war years and contains nothing of his life before or after World War II. So, her new contributions fill an important gap in the record. Feldt was an austere and modest man who acknowledges his wife for nursing him back to health and putting up with him while he wrote. But he does not mention her name nor any other family. He was appointed an Officer of the Order of the British Empire (OBE) but, arguably, deserved greater recognition. There is a memorial Lighthouse to the coastwatchers at Madang, Papua New Guinea, but nothing in this country. Lee’s call for a memorial in Australia is well justified.

Lee’s book contains many well-captioned photos, useful maps, a bibliography, endnotes and a very helpful index. It is an invaluable record of Feldt’s unique life and the environments he was shaped by and that he helped reshape.

Ken Broadhead

---