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Editorial

Agility, adaptability and resilience are words often spoken in defence circles to describe the qualities required for strong national security. Having these virtues allows a nation to rapidly respond to, or even shape, change. Australia has always stood ready to respond to the needs of our friends and neighbours, and has shown its resolve and resilience when called upon. Arguably, however, Australia faces challenges now and in coming decades that will deeply test our character and global citizenship. Already, 2021 has tested us as we continue to navigate the social, political and economic consequences of the global COVID-19 pandemic; adapt to the changing power dynamics in our region; and reflect on twenty years supporting US and coalition efforts to establish stability and peace in Afghanistan.

It is against this backdrop that we release the fourth edition of the *Australian Journal of Defence and Strategic Studies* (AJDSS). Our suite of articles and commentaries bring to the fore several notable issues that Australia must consider. We begin with Eve Massingham examining the laws, both domestic and international, that need to be taken into consideration as Australia increases its research and investment in autonomous systems and devices. In particular, she considers the potential legal issues that could arise from using uncrewed aerial vehicles and systems in close proximity to civilian populations such as privacy, noise and safety concerns. Next, Alexey Muraviev brings our attention to the dynamics of Russia and China's military cooperation and interoperability as well as their historic competition and wariness of each other. He argues it is a relationship that should be examined by Australian strategists because of its potential to influence calculations in the Indo-Pacific geostrategic landscape over coming decades. Climate change is by no means a new topic of discussion, and many have argued that it will led to conflict around the world. However, even as

greater attention is drawn to its implications for Australian and regional national security, Mike Evans asks whether it fits within our Clausewitzean understanding of traditional threats that could lead to conflict.

As always, our commentaries spark conversation and thought-provoking responses and this issue does not disappoint. In our commentary section, Matthew Sussex considers what an Australian integrated review of security, defence and development might look like. Next, Jennifer Hunt asks whether Australia is ready for cyber attacks and cyber-enabled disinformation tactics that target our democratic functions and capacity to collectively respond to threats. Finally, David Cave weaves a rich tapestry for discussion as he examines the language of the *2020 Defence Strategic Update* and the term deterrence.

The AJDSS has always aimed to stimulate and encourage debate and discussion so we are delighted to have Peter Layton take pen to paper and respond to Jason Thomson's commentary (AJDSS vol 2. no 2.) and further discussion on what is grand strategy?

Of course, we could not go into the southern hemisphere winter without adding to your reading list. In this issue we have reviews of *Niche Wars: Australia in Afghanistan and Iraq, 2001–2014* edited by John Blaxland, Marcus Fielding and Thea Gellerfry and reviewed by Chief of Army Fellow, Andrew Maher; On Obedience by Pauline Shanks Kaurin, reviewed by Deane-Peter Baker; *Quagmire in Civil War* by Jonah Schulhofer-Wohl and reviewed by Sascha Dov Bachmann; *China's Grand Strategy and Australia's Future in the New Global Order* by Geoff Raby; *The Storm Before the Calm: America's Discord, the Coming Crisis of the 2020s and Triumph Beyond* by George Friedman; and *The Craft of Wargaming: A Detailed Planning Guide for Defence Planners and Analysts* by retired US Colonels Jeff Appleget and Robert Burks along with Fred Cameron.

So, with that, I leave you and hope you will read, write and enjoy!

Dr Cathy Moloney
Editor

Navigating to autonomy: legal questions in the use of autonomous aerial vehicles by the Australian military

Eve Massingham

Introduction

The technological developments that have been the focus of military research and spending over the last 15 years have been continuously moving towards more autonomy in military devices.[1] Investment has been increasing in remotely piloted, pre-programmed and autonomous systems to assist militaries with a wide range of activities, including tasks such as surveillance and logistics as well as the application of use of force.[2] The Strategic Outlook detailed in the *2016 Australian Defence White Paper* notes that 'the [Indo-Pacific] region will see more autonomous systems, such as unmanned combat vehicles, in operation in the

2   Autonomous technology that can engage in the use of lethal force remains particularly contentious. Some countries have specifically indicated this is not something they are pursuing. See e.g., United Kingdom Ministry of Defence (MOD), *Joint Doctrine Publication 0-30.2 Unmanned Aircraft Systems*, MOD, last modified 15 January 2018, p 42, https://www.gov.uk/government/publications/unmanned-aircraft-systems-jdp-0-302. For some commentary see Michael Savage, 'Humans Will Always Control Killer Drones, Says Ministry of Defence', *The Guardian,* 10 September 2017, https://www.theguardian.com/politics/2017/sep/09/drone-robot-military-human-control-uk-ministry-defence-policy; James Vincent, 'UK Government Says Humans Will Always be in Charge of Its Robot Weapons Systems: But Critics Say the Commitment is Still Limited', *The Verge,* 12 September 2017, https://www.theverge.com/2017/9/12/16286580/uk-government-killer-robots-drones-weapons.

sub-surface, surface and air-environments' over the period to 2035.[3] In response, Australia has identified the development of 'trusted autonomous systems' as a priority area of work for Defence's strategic research.[4] The Australian Defence Force (ADF) is exploring a range of innovative autonomous technologies through programs such as the Trusted Autonomous Systems Defence Cooperative Research Centre. Currently funded projects include those exploring 'trusted scalable search with expendable drones', 'autonomous live reconnaissance effects assessment using AI [artificial intelligence] and machine vision' and 'cognitive [AI] algorithms to enable sensing under anti-access conditions and to navigate and conduct enhanced tactics in denied environments'.[5] Perhaps the highest profile project is the stealth uncrewed Boeing *Loyal Wingman* aircraft. This craft is designed to support existing crewed aircraft capabilities, as well as operate in autonomous teams, by providing surveillance and reconnaissance support, and potentially also firepower support.[6]

These developments raise important legal questions that must be considered in order to ensure the safety of the civilian population, especially where the devices in question can be used to apply force.[7] In anticipation of their further development and technological reality, this paper seeks to provide an answer to the question: what legal considerations might arise in Australia from the use of autonomous aircraft by the military?

ADF personnel, by virtue of the unique role that they play, are often specifically exempt from the application of particular laws that otherwise bind the Commonwealth of Australia and therefore the Department of Defence and its employees. This is designed to ensure that the defence of Australia is not compromised by a legal framework not designed with ADF operations in mind.[8]

3   Department of Defence, *2016 Defence White Paper*, Australian Government, Canberra, 25 February 2016, p 50, accessed 16 July 2020, https://www.defence.gov.au/WhitePaper/Docs/2016-Defence-White-Paper. pdf. The *2020 Defence Strategic Update* restates this view about the significant role of emerging and disruptive technologies such as autonomous systems: Department of Defence, *2020 Defence Strategic Update,* Australian Government, Canberra, 1 July 2020, p 13, p 38, accessed 30 July 2020, https://www. defence.gov.au/StrategicUpdate-2020/docs/2020_Defence_Strategic_Update.pdf.

4   Department of Defence, *2016 Defence Industry Policy Statement*, Australian Government, Canberra, 25 February 2016, pp 31–32, accessed 16 July 2020, https://www.defence.gov.au/WhitePaper/Docs/2016-Defence-Industry-Policy-Statement.pdf.

5   'Projects', Trusted Autonomous Systems Defence CRC, accessed 16 July 2020, https://tasdcrc.com.au/ projects-activities/.

6   Malcolm Davis, '"Loyal Wingman" to Take Australia's Airpower into the Next Era', *The Strategist,* Australian Strategic Policy Institute, 7 March 2019, https://www.aspistrategist.org.au/loyal-wingman-to-take-australias-airpower-into-the-next-era/.

7   See, for example, Carrie McDougall, 'Autonomous Weapon Systems and Accountability: Putting the Cart before the Horse', *Melbourne Journal of International Law*, 2019, 20(1):58; Tim McFarland, 'Factors Shaping the Legal Implications of Increasingly Autonomous Military Systems', *International Review of the Red Cross,* 2015, 97(900):1313.

8   See for example, Section 12D of the *Work Health and Safety Act 2011* (Cth).

However, ADF personnel are clearly not immune from all Australian laws and, indeed, a number of laws are specific to them and their work. Of particular relevance for autonomous military aerial vehicles are the Defence Aviation Safety Regulations (DASR) and Division 268 of the *Criminal Code Act 1995* (Cth) (Code) concerning international crimes occurring in times of armed conflict.

This paper looks in more detail at the DASR and the Code, before turning to flag a range of civilian-focused legal frameworks (including workplace health and safety and privacy laws) which, insofar as they do apply to Defence, require consideration to ensure that the use of autonomous military aerial vehicles would not result in a violation of Australia law. The paper ultimately argues that, in the design and deployment of any new means or methods of warfare or, indeed, in any aerial craft that the ADF seeks to deploy into the future, it is imperative that these legal considerations be taken into account to ensure that the interplay between law and technology can best enhance ADF capabilities going forward.

In this paper, the Australian domestic legal framework applicable to Australian Service personnel will be discussed. This includes Australian laws applicable in Australia and, where relevant, with extraterritorial (outside of Australia) effect – including those provisions of Australian law which apply to Service personal deployed on military operations. It also includes where Australian domestic laws have incorporated international law (specifically where the Code imports international laws concerning international crimes). These are laws that have been passed by the Australian Government and are enforceable by Australian authorities. This is distinct from international law. International law – namely the product of agreement between nations as to conduct of relations between nations and the rights and duties of actors that are the concern of the international community[9] – has particular relevance when Australian Service personnel cross international borders and/or engage in situations of armed conflict. While there is no specific rule regulating autonomy in airborne military operations in international law, a number of international law frameworks are particularly relevant, including The Hague Rules of Aerial Warfare and international civil aviation law.[10] The international law implications of the use of autonomous systems is beyond the scope of this paper.[11]

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9   See further, Alina Kaczorowska-Ireland, *Public International Law,* 5th ed., Routledge, 2015, chapter 1.

10 Hague Rules of Aerial Warfare, 1923; Convention on International Civil Aviation, 15 UNTS 295, 7 December 1944 (entered into force 4 April 1947).

11 For a discussion of this see, Eve Massingham, 'Radio Silence: Autonomous Military Aircraft and the Importance of Communication for Their Use in Peace Time and in Times of Armed Conflict Under International Law', *Asia-Pacific Journal of International Humanitarian Law,* 2020, 1, pp 184–208.

Defining and regulating autonomy

Autonomy is a functionality that allows a device to operate without real-time human intervention. This is not, itself, problematic. The use of autonomous technology has long been a part of military warfare tactics and strategy.[12] Indeed, autonomy can clearly enhance safety – as is the case with the automation of some aircraft systems thereby allowing the pilot to focus on other tasks.[13] However, the impacts of autonomy may need to be addressed by some combination of law, policy and doctrine to ensure that autonomy is limited by what humans allow.[14] Notwithstanding various debates about the precise definition of the concept,[15] autonomy clearly exists on a spectrum. The systems where key functions are capable of 'deciding a course of action, from a number of alternatives, without depending on human oversight and control' raise the most significant legal questions.[16]

The intersection of law and autonomy is being examined across a range of applications of technology. As a general matter, autonomy is not specifically regulated by either domestic or international law. That is, there are no rules of law specifically dealing with autonomy as a concept,[17] there is no Autonomy Convention or Act. This lack of specific regulation is because the legal responses to autonomy must be concerned with the impacts of using the technology on the system as a whole, not the technology itself.[18] This is particularly apparent in the automotive industry. A 2017 report looking at the use of automated vehicles

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12 For a more detailed look at the long history of the use of autonomy by the military and the 'catalysts for the UV revolution' see Brendan Gogarty and Meredith Hagger, 'The laws of man over vehicles unmanned: the legal response to robotic revolution on sea, land and air', *Journal of Law, Information and Science,* 2020, 19, pp 76–82; See also, Ian Henderson and Bryan Cavanagh, 'Unmanned Aerial Vehicles: Do They Pose Legal Challenges?' in Nasu Hitoshi and Robert McLaughlin (eds), *New Technologies and the Law of Armed Conflict*, Asser Press, The Hague, 2013, p 195, http://hdl.handle.net/2440/108620.

13 Pablo Mendes de Leon, *Introduction to Air Law,* Wolters Kluwer, Alphen aan den Rijn, 2017, p 302; Christoph Torens, Johann C Dauer, Florian Adolf, 'Towards Autonomy and Safety for Unmanned Aircraft Systems', in Umut Durak, Jürgen Becker, Sven Hartmann, Nikolaos S Voros (eds) *Advances in Aeronautical Informatics,* Springer International Publishing, Cham, 2018, p 105.

14 See further, Catherine Easton 'Autonomous Vehicles: An Analysis of the Regulatory and Legal Landscape', in Lilian Edwards, Burkhard Schafer and Edina Harbinja (eds) *Future Law: Emerging Technology, Regulation and Ethics,* Edinburgh University Press, Edinburgh, 2020, p 314.

15 MOD, *Joint Doctrine Publication 0-30.2*, p 42.

16 MOD, '*Joint Doctrine Publication 0-30.2*, p 13; See further, Henderson and Cavanagh, 'Unmanned Aerial Vehicles; Scott Maloney, 'Legal and Practical Challenges Associated with the use of Unmanned Aerial Vehicles in the Maritime Environment', *Soundings,* 2016, 11(May):5–6.

17 Although rules dealing with specific types of autonomy date at least to the First International Peace Conference where the ban on projectiles deployed from uncrewed balloons was first agreed: Prohibiting Launching of Projectile and Explosives from Balloons (HAGUE, IV, 1) Declaration signed at The Hague 29 July 1899. The Hague Convention VIII Relative to the Laying of Automatic Submarine Contact Mines, 18 October 1907 is another early example.

18 Although, generally, policy around autonomy is clearly developing. See, for example, European Commission, *On Artificial Intelligence – A European Approach to Excellence and Trust*, White Paper, 19 February 2020, https://ec.europa.eu/info/sites/info/files/commission-white-paper-artificial-intelligence-feb2020_en.pdf.

in Australia notes that '[t]here are more than 50 federal and state/ territory pieces of legislation that are impacted in addition to the road rules' if 'high and fully automated vehicles [are] to operate seamlessly on Australian roads'.[19] This includes regulation of vehicle standards, Australian Road Rules, heavy vehicle regulation, insurance regulation and passenger transport legislation.[20]

The levels of sophistication in terms of what devices with autonomous functionality can do is increasing at a dramatic speed. This requires consideration of existing regulatory frameworks to, ultimately, ensure the safety of the population. In some fields, clarity needed to be provided to ensure that autonomous systems are not recognised as having legal personality. In copyright law, human authorship is required. The author of computer-generated literary, dramatic, musical or artistic work is the person who undertook the arrangements necessary for the creation of the work.[21] Another example is the use of autonomous systems in the legal profession: only 'natural persons' are eligible for admission to the legal profession and eligible to engage in legal practice.[22] But using technology to *support* legal processes is clearly on the rise. Computer programs may be used to make decisions under social security law in Australia;[23] and, a new system to streamline divorces is now available in Australia.[24]

More broadly, across a range of industries, work is being done to promote the development and deployment of systems utilising autonomous functionality. Gogarty and Hagger observe that 'drone technology is increasingly within the reach of public bodies, private companies and even individuals' and note the beneficial uses of the technology in areas like 'emergency and hazard management' and 'border security and customs roles'.[25] This has only

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19 NRMA, *Transforming Mobility: A Regulatory Roadmap for Connected and Automated Vehicles*, NRMA, November 2017, 4, pp 42–43, https://www.mynrma.com.au/community/corporate-information/reports-and-submissions.

20 National Transport Commission, *Automated Vehicle Program*, 10 October 2019, p 10, https://www.ntc.gov.au/sites/default/files/assets/files/NTC%20Automated%20Vehicle%20Reform%20Program%20Approach%20%28October%202019%29%20-%20Public%20version.pdf.

21 *Telstra Corporation Limited v Phone Directories*, (2010) 194 F.C.R. 142 [97] considering the *Copyright Act 1968* (Cth). See also, *Copyright, Designs and Patents Act 1988* (UK), s. 9(3); *Copyright Act 1994* (NZ), s. 5(2)(a).

22 See e.g., *Legal Profession Act 2007* (Qld), s. 30(1)(a); *Legal Profession Act 2004* (NSW), s. 24(1); *Legal Profession Act 2004* (Vic), s. 2.3.2(1)(a); *Legal Profession Act 2007* (Tas), s. 25(1).

23 *Social Security (Administration) Act 1999* (Cth), s. 6A. (Note that the automated debt recovery system used by Centrelink in Australia, which resulted in a legal challenge and settlement by the Government, concerned inaccurate and inconsistent income averaging which was not lawful under the Act: Paul Karp, 'Government admits robodebt was unlawful as it settles legal challenge', *The Guardian*, 27 November 2019, https://www.theguardian.com/australia-news/2019/nov/27/government-admits-robodebt-was-unlawful-as-it-settles-legal-challenge.)

24 'About Amica', [web page], *Amica*, accessed 17 July 2020, https://www.amica.gov.au/about-amica.html.

25 Brendan Gogarty and Meredith Hagger, 'The Laws of Man over Vehicles Unmanned: The Legal Response to Robotic Revolution on Sea, Land and Air', *Journal of Law, Information and Science,* 2008, 19:105, https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1796486.

become truer in the decade since this observation was made. For example, an autonomous vehicle is being used to patrol the perimeter of a prison facility in Western Australia. The vehicle 'has a lithium battery that can support eight hours' drive time and is equipped with multi-angle, high definition cameras, night vision, a collision avoidance system, incident alert lighting and a two-way intercom'.[26]

These examples therefore provide just a few indications of the ways in which autonomy is transforming our lives. Moreover, patrolling, sorting data, navigating, making administrative decisions have various potential military applications. As such, while this paper will address legal frameworks specific to the military (noted above), it will also look at the legal frameworks challenged by technological developments in society more generally.

Australian autonomous military aircraft

The ADF is currently deploying a large number of uncrewed aerial vehicles/ systems (UAV/UASs). Using UAVs for enhanced surveillance, including maritime surveillance, is a key element of the *2016 Defence White Paper*.[27] The Australian Army, in particular, makes extensive use of remotely piloted UAVs, mainly for surveillance and reconnaissance. In May 2018, the Department of Defence confirmed that '[t]he Army operate several UA[Vs], ranging from the Nano-sized reconnaissance Black Hornet to large, nine-hour endurance surveillance systems such as the Shadow 200'.[28] The Royal Australian Air Force (RAAF) is finalising the certification of the MQ-9B 'Sky Guardian' to fly in civilian airspace. This will be 'Australia's first armed Medium Altitude Long Endurance Remotely Piloted Aircraft System'.[29]

However, all of these existing devices are remotely piloted. They have varying levels of automation, but they are far from being vehicles able to navigate and carry out tasks without human oversight. They require a remote operator on a one-operating-team-per-vehicle ratio. Australia does not currently deploy highly autonomous aircraft. This is in keeping with the Australian understanding that command is not something that can be given over to machines.[30] The ADF in

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26 Jarrod Lucas, 'Autonomous Vehicle to Patrol Perimeter at Eastern Goldfields Regional Prison', *ABC News*, last modified 1 July 2020, https://www.abc.net.au/news/2020-07-01/autonomous-vehicle-to-patrol-wa-prison-for-the-first-time/12383646.

27 DOD, *2016 Defence White Paper*, chapter 4.

28 Department of Defence, 'Army Rolls Out Unmanned Aerial Systems', [media release], Australian Government, 24 May 2018, https://news.defence.gov.au/media/media-releases/army-rolls-out-unmanned-aerial-systems.

29 Ewen Levick, 'MQ-9B Sky Guardian Chosen Over Reaper', *Australian Defence Magazine*, 28 November 2019, https://www.australiandefence.com.au/news/mq-9b-sky-guardian-chosen-over-reaper.

30 Australian Defence Force (ADF), *ADF Concept for Command and Control of the Future Force*, Version 1.0 Reference: DSN O1644248, Australian Government, 13 May 2019, p 18, https://www.defence.gov.au/VCDF/Forceexploration/adf-concept.asp. Also available at https://theforge.defence.gov.au/publications/adf-concept-command-and-control-future-force.

its doctrine defines command as 'the authority that a commander in the military Service lawfully exercises over subordinates by virtue of rank or assignment'.[31] The *ADF Concept for Command and Control of the Future Force* notes that 'command is a *fundamentally human function* that cannot be conducted by machines' (emphasis added).[32] Command functions may be assisted by decision support systems, however, such systems alone cannot, it is stated, command.[33] In the context of autonomous weaponry, Australia has reiterated the centrality of the human decision-maker, noting that Australia's approach 'provides comprehensive control over any weapon system, and how and under what circumstances it can be deployed ensuring, at its core, the weapon system is driven by human direction'.[34]

There are, as yet, unanswered questions about what will be technologically feasible. For instance, there is a question around whether any aircraft under military command (including those with highly autonomous programming) will be a military aircraft or whether the nature of military command is such that military aircraft can never have a high level of autonomous functionality because the inherent nature of command requires a human decision-maker.[35] In any event, as Australia is clearly interested in, and is pursuing, this technology, it is useful to consider the legal implications, should advances in technology and political will take Australia further down the autonomy path.

There is no specific Act of Parliament in Australia dealing with defence aviation or State aircraft, which includes military aircraft.[36] Further, State aircraft (and therefore military aircraft as a subset of State aircraft) are excluded from much of the Civil Aviation framework.[37] Reference is made in the *Defence Act 1903* (Cth) to defence aviation and aircraft but not in any way that would impact on

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31 Australian Defence Force (ADF), *Australian Defence Force Doctrine Publication 00.1: Command and Control*, Australian Government, 27 May 2009, para 1.4, https://www.defence.gov.au/adfwc/Documents/ DoctrineLibrary/ADDP/ADDP_00_1_Command_and_Control.pdf.

32 ADF, *Concept for Command and Control*, p 18.

33 ADF, *Concept for Command and Control*, p 18.

34 Australia's System of Control and Applications for Autonomous Weapon Systems' (UN Doc No CCW/ GGE.1/2019/WP.2/Rev.1, 26 March 2019, p 8.

35 See further Eve Massingham, Simon McKenzie and Rain Liivoja, 'AI and Machine Learning Symposium: Command in the Age of Autonomy – Unanswered Questions for Military Operations', *Opinio Juris*, 1 May 2020, http://opiniojuris.org/2020/05/01/ai-and-machine-learning-symposium-command-in-the-age-of- autonomy-unanswered-questions-for-military-operations/.

36 *Civil Aviation Act 1988* (Cth), section 3: '[S]tate aircraft means (a) aircraft of any part of the Defence Force (including any aircraft that is commanded by a member of that Force in the course of duties as such a member); and (b) aircraft used in the military, customs or police services of a foreign country.'

37 *Civil Aviation Act 1988* (Cth), section 4; For example, the *Civil Aviation Regulations 1988* (Cth), section 3(5) notes '[s]ubject to these Regulations, these Regulations do not apply to or in relation to state aircraft or to military aerodromes'.

autonomous aerial vehicles. Defence Aviation Areas are provided for.[38] These areas can be designated by the Minister where necessary for the defence of Australia and for 'preventing or reducing hazards' to aircraft and 'aviation-related communications, navigation or surveillance'.[39] There is, therefore, a possibility that a prevalence of non-military autonomous aerial vehicles in the future may mean that these provisions are more likely to be enacted in order to reduce hazards to military aerial vehicles.

Reference is also made in the *Defence Act 1903* (Cth) to the special measures that Defence Force personnel can take against aircraft when called out to protect Commonwealth interests or to protect a State or Territory from domestic violence.[40] These measures include the use of force, whether the aircraft is airborne or not, that results in the destruction of the aircraft.[41] The provisions were initially proposed with the hosting of the Commonwealth Games in mind, passed in 2006 in the lead-up to Australia hosting the 2007 APEC Summit and amended in 2018, in light of a range of terror incidents around the world.[42] An increasing prevalence of non-military autonomous aerial vehicles in the future could also see these provisions replied on.

In recent times, Australians have seen Defence Force personnel supporting Australian State authorities with tasks in response to the COVID-19 pandemic and the Black Summer bushfires.[43] ADF support in times of domestic crisis

38 See further *Defence Act 1903* (Cth), Part IXD.

39 *Defence Act 1903* (Cth), s. 117AC.

40 *Defence Act 1903* (Cth), Part IIIAAA, Division 2. Note that 'domestic violence' is defined in the same way as s 199 of the Constitution of Australia, although it is not actually defined therein. In a proposed 2018 amendment to the Act, it was said to include 'conduct that is marked by great physical force and would include a terrorist attack, hostage situation, and widespread or significant violence': Addendum to the Explanatory Memorandum, *Defence Amendment (Call out of the Australian Defence Force) Bill 2018,* item 2 [165A].

41 *Defence Act 1903* (Cth), s. 46(5). See also s 46(1) and (6) requiring that the actions be in response to a sudden and extraordinary emergency or that they be a reasonable and necessary execution of a written authorisation.

42 Commonwealth, Parliamentary Debate, Senate, 8 February 2006, 1 (Senator Mark Bishop) https://parlinfo. aph.gov.au/parlInfo/search/display/display.w3p;query=Id%3A%22chamber%2Fhansards%2F2006-02-08%2F0006%22; Simon Bronitt and Stephen Dale, '"Flying Under the Radar" – The Use of Lethal Force Against Hijacked Aircraft: Recent Australian Developments' 7(3) *Oxford University Commonwealth Law Journal,* 265, 270. Other jurisdictions, including the UK, US, France, Norway and the Netherlands, arrangements similar to section 46 in place: See Michael Bohlander, 'In Extremis – Hijacked Airplanes, "Collateral Damage" and the Limits of Criminal Law', *Criminal Law Review,* 2006, 579, 589. Although note that similar provisions have been struck down in Germany and Canada: See Oliver Lepsius, 'Human Dignity and the Downing of Aircraft: The German Federal Constitutional Court Strikes Down a Prominent Anti-terrorism Provision in the New Air-transport Security Act', *German Law Journal*, 2006, 7(9): 761, 762; Commonwealth, *Parliamentary Debate*, Senate, 26 November 2018, 8607 (Senator Kimberley Kitching).

43 RMIT ABC Fact Check, 'How is the Australian Defence Force assisting states during COVID-19?, *ABC News,* 12 August 2020, https://www.abc.net.au/news/2020-08-12/fact-check-defence-force-coronavirus-fact-file-hotel-quarantine/12522492?nw=0; Tom Sear, 'Bushfires are 'Australia's war' and that means we need a battle plan'*, ABC News*, 7 February 2020, https://www.abc.net.au/news/2020-02-07/australia-bushfires-adf-operation-bushfire-assist/11931704.

are well documented (and have been the subject of some discontent).[44] While these examples would not constitute domestic violence situations and would not therefore invoke Part IIIAAA of the Defence Act, the role of the ADF under Part IIIAAA of the Defence Act could well be used in response to unrest that occurs as a result of these societal challenges. Again, a prevalence of non-military autonomous aerial vehicles in the future may mean that these provisions are more likely to be enacted in order to protect Australia – particularly given mistakes made with uncrewed aircraft, should they occur, are less likely to result in the loss of human life.

The safety of military autonomous aerial vehicles – Australian DASR

The framework for defence aviation safety in Australia is as directed by Joint Directive 24/2016 (issued by the Chief of the Defence Force and the Secretary, Department of Defence) on the Defence Aviation Safety Framework.[45] The Joint Directive details the role of the Defence Aviation Safety Authority (DASA) as being responsible to the Defence Aviation Authority 'for enhancing and promoting the safety of military aviation'.[46] Regulations have been made under the remit of DASA.[47] The DASR 'establish a framework for the definition and implementation of common safety requirements and administrative procedures in the field of military aviation'.[48] They align with the European Military Airworthiness System.[49] DASA is responsible for the enforcement of ongoing compliance of Defence Aviation with the DASR,[50] but as is identified in the relevant Joint Directive 'aviation safety is a command responsibility' and 'the safe operation of aviation

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44 See e.g., Department of Defence, 'Operation Queensland Flood Assist' [media release], Australian Government, 5 February 2011, https://news.defence.gov.au/media/media-releases/operation-queensland-flood-assist; Siobhan Heanue, 'Putting troops on the frontline of pandemics, natural disasters means less time to train for war', *ABC News,* 27 August 2020, https://www.abc.net.au/news/2020-08-27/troops-on-pandemic-bushfire-frontline-cant-train-for-war/12593126.

45 Australian Department of Defence (DOD), 'Joint Directive 24/2106 by Chief of Defence Force and Secretary, Department of Defence on The Defence Aviation Safety Framework', Australian Government, (effective 30 September 2016 to 31 December 2021 as per Joint Directive 04/2018), accessed 26 October 2020, para 16. https://www.defence.gov.au/DASP/Docs/Advice/DASA/DIRECTIVE160819SECCDFJointDirective242016TheDefenceAviationSafetyFrameworkFOUO.pdf.

46 DOD, 'Joint Directive 24/2106, para 12.

47 Defence Aviation Safety Authority, '*Defence Aviation Safety Regulation'*, accessed 05 November 2020, https://www.defence.gov.au/DASP/DASR-Regulations/Default.asp.

48 Defence Aviation Safety Authority, *Defence Aviation Safety Regulations*, (1 June 2020) (DASR), Basic Regulation, Preamble para 1.

49 Defence Aviation Safety Authority, 'Defence Aviation Safety Regulation', accessed 05 November 2020, https://www.defence.gov.au/DASP/DASR-Regulations/Default.asp

50 *Defence Aviation Safety Assurance Manual*, part 2, chapter 5 https://www.defence.gov.au/DASP/Docs/Manuals/DASA-Manual/Manual/index.htm#24492.htm

systems rest with the command chain'.[51] Importantly, the DASR is a framework specifically designed with a simple and regular (six monthly) update cycle under the direction of the DASA and thus has some flexibility to allow it to be able to reflect relatively rapid technological developments.[52]

Currently autonomous aircraft are excluded from deployment by the ADF under the DASR. The regulations require that a UAV be controlled by a qualified remote pilot and that remote pilot 'intervention' be possible at 'all stages of the flight'.[53] The DASR clarifies that:

> [I]ntervention refers to an action, command or input by the [remote pilot] to dictate the UA's flight actions. In all situations (apart from when link is lost), the [remote pilot] should be able to alter the flight path of the UA or perform any other suitable actions as necessary to ensure safe flight.[54]

(The express exception that applies when the communication link is lost recognises that communications protocol challenges can arise when it comes to remotely piloted craft.)[55] The first step in allowing autonomous aerial vehicles to be operated by the ADF would require the amendment or repeal of those sections of the DASR specifically requiring remote pilot intervention.[56]

Under the system used by the ADF,[57] Uncrewed Aerial Systems (UASs) fall into three categories: certified, specific and open.[58] Certified craft are described by the European Union Aviation Safety Authority as having 'requirements comparable to those for manned aircraft'.[59] Most significantly, they must be operated by a qualified military pilot. Specific category craft require an operating permit or to

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51 DOD, 'Joint Directive 24/2106, para 16.

52 Defence Aviation Safety Authority, 'Introduction to Defence Aviation Safety' Guidebook, Edition 2.1, February 2019, p 2 ('Note to readers'), https://www.defence.gov.au/DASP/Docs/Manuals/BetterPracticeGuide/Introduction-to-Defence-Aviation-Safety-Guidebook.pdf; 'Notice of Proposed Amendments', *Defence Aviation Safety Authority*, accessed 16 July 2020, https://www.defence.gov.au/DASP/DASR-Regulations/DASRNPA/Default.asp.

53 A qualified remote pilot is '[t]he person in direct command/control of the UAS, including manipulating flight controls or programming waypoints during flight' as defined in the glossary of terms; DASR, Air Operations, UAS.35(a)(7), UAS.35(b)(10), UAS.35(c)(11), UAS.35(d)(10), UAS.34(e)(6).

54 DASR, Air Operations, GM UAS 35.A(7).

55 DASR, Air Operations, GM UAS 35.A(7).

56 The DASR are therefore the relevant regulations going to the airworthiness of the UAVs being utilised by the ADF, including military aircraft with some levels of automation. DASR, Air Operations, UAS.35(a)(7), UAS.35(b)(10), UAS.35(c)(11), UAS.35(d)(10), UAS.34(e)(6).

57 See further DASR, Air Operations, UAS.20, UAS.30, UAS.40.

58 See further DASR, Air Operations, UAS.20, UAS.30, UAS.40.

59 'Proposal to Created Common Rules for Operating Drones in Europe', *European Aviation Safety Authority*, September 2015, p 3, https://www.easa.europa.eu/sites/default/files/dfu/205933-01-EASA_Summary%20of%20the%20ANPA.pdf.

be operational under a 'Standard Scenario' which is a pre-authorised use based on there being multiple uses of a UAV 'in a similar operating environment, and where the required risk control can be clearly identified by the Authority'.[60] Open category allows 'micro', 'very small' and 'small' craft to be operated on the basis of a number of principles associated with them being low risk, for example, operated below 120m, within line of sight, not near the general public, or away from runway approach paths.[61] Regulations exist both for the weaponisation of a UAV by the ADF and for the carriage of passengers.[62] Weaponisation is 'any form of ordnance adopted/included/attached to a Defence owned or operated UAS for the purpose of applying a kinetic effect to personnel and/or equipment'.[63]

The regulations for each category of UAV, and for the weaponisation and carriage of passengers by a UAV, incorporate a range of international legal principles for aviation safety. The UAV cannot, for example, obstruct another aircraft,[64] interfere with a public safety or emergency operation,[65] create a hazard in any way, or operate in a restricted area (without permission). Further, '[t]he operator of a UAS must report any identified UAS aviation safety event'.[66] All data and access to support initial and ongoing compliance assurance of UAS operations must be made available to DASA.[67] For the carriage of passengers DASA approval is required. This approval is given on a case-by-case basis with the 'level or safety presented by manned aircraft airworthiness' being the benchmark.[68] DASR is only concerned with weaponisation from the perspective of aircraft safety, rather than the operational use of weapons, and as such 'does not aim to prescribe any limitation on a Commander's decision of when or how to employ those weapons'.[69] Amendments to existing legal frameworks would need to be made to allow for the use of autonomous military aircraft by the ADF. However, once the remote pilot requirement is removed from the legal framework, there is nothing inherent about an autonomous system that would make compliance with the other DASR provisions impossible.

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60 DASR, Air Operations, UAS.30.C.

61 DASR, Air Operations, UAS.40. Note *Civil Aviation Safety Regulations 1998* (Cth), s. 101.238.

62 The DASR uses the term UAS. As defined in the glossary of terms an Unmanned Aircraft Systems (UAS) UAS is defined as: '[t]he entire system consisting of the unmanned aircraft (UA), Remote Pilot Station (RPS), communications/data links, networks, launch and recovery systems, and personnel required to fly/control the UAS.'; DASR, Air Operations, UAS.50(a); DASR, Air Operations, UAS.50(b).

63 DASR, Air Operations, GM UAS.50.A.

64 See, for example, DASR, Air Operations, UAS.35(a)(3), UAS.35(b)(4), UAS.35(c)(6), UAS.35(d)(5).

65 See, for example, DASR, Air Operations, UAS.35(b)(3), UAS.35(c)(5), UAS.35(d)(4), UAS.40(a)(2)(iv).

66 DASR, Air Operations, UAS.50(a).

67 DASR, Air Operations, UAS.70(a).

68 DASR, Air Operations, GM UAS.50.B.

69 DASR, Air Operations, GM UAS.50.A (1).

The current version of DASR reflects Defence's current thinking about using UAS – emphasising the transport of goods and ultimately people but with weaponisation also clearly in mind. To give effect to ADF's objectives will require some balance between retaining human command of ADF operations – in particular, the use of force – and maximising the potential of autonomous systems. Given the observations made above about regularity and relative ease of amendments to the DASR, it would seem highly likely that the DASR will undergo amendments in the coming years to ensure that the ADF is best able to use the technology at its disposal.

The use of force by military autonomous aerial vehicles – applicable domestic criminal law for war crimes

The *International Criminal Court Act 2002* (Cth) and the *International Criminal Court (Consequential Amendments) Act 2002* (Cth) which amended the Code introduced the possibility of prosecutions in Australia for the commission of international crimes. This includes crimes committed by Australian Service personnel anywhere in the world during armed conflict in violation of the laws and customs of war. Chapter 8, Division 268 of the Code deals specifically with war crimes and significant penalties of up to 25 years imprisonment apply. Crimes include attacks which cause destruction and appropriation of property,[70] attacking civilians or civilian property,[71] attacking personnel or objects involved in a humanitarian assistance or peacekeeping mission,[72] and attacking undefended places.[73]

Division 268 is reflective of the international law obligations that bind Australia as a signatory to the Geneva Conventions of August 1949 and a variety of other international law treaties that prohibit the use of specific means and methods of warfare during times of armed conflict.[74] Where military autonomous aerial vehicles are weaponised, so as to allow for the possibility of the use of force in operational situations of armed conflict, the question of legal accountability under the laws of armed conflict is one that has attracted significant attention.[75] Like the Code itself, these laws do not specifically regulate autonomy. The most

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70 *Criminal Code Act 1995* (Cth), s. 268.29.

71 *Criminal Code Act* ss. 268.35 and 36.

72 *Criminal Code Act* s. 268.37.

73 *Criminal Code Act* s. 268.39.

74 For example, Australia is a party to a wide range of weapons law treaties: ICRC, *States Party to the Following International Humanitarian Law and Other Related Treaties as of 23-Oct-2020* (26 October 2020) https://ihl-databases.icrc.org/ihl.

75 Although note the caution from McDougall questioning the relevance of accountability in the debate: Carrie McDougall, 'Autonomous Weapon Systems and Accountability: Putting the Cart before the Horse', *Melbourne Journal of International Law*, 2019*,* 20(1).

quintessential example of an autonomous weapon, the landmine, is specifically prohibited by treaty.[76] Sea mines are also regulated.[77] However, autonomy as a concept or specific component of a weapon is not regulated by treaty. States are currently engaged in a series of discussions about how laws of armed conflict (LOAC) might accommodate or prohibit certain autonomous weapons systems.[78] Specific regulation in the future is a possibility, but for now it seems unlikely that states would agree to a treaty regulating autonomous weapons systems given their differing views.

Instead, the rules of international law applicable in armed conflict (international humanitarian law) concern the means and methods of warfare that can be used in armed conflict. In sum, any means and methods of warfare employed (which includes weapons) must not be indiscriminate, cause unnecessary suffering or widespread, long-term and severe environmental damage.[79] They must be capable of being used in compliance with the principles of distinction between combatants and civilians (and between military objectives and civilian objects),[80] and proportionality when deployed.[81] At all times, there is an obligation to take appropriate precautions in attack.[82]

These are legal obligations held by individuals.[83] They are not obligations that can be 'outsourced' to autonomous aerial military platforms. As such, in any decision-making by the ADF to employ military autonomous aerial vehicles in situations of armed conflict it is imperative that those operating the relevant platform can be confident that they can comply with their individual legal obligations. Specially, these legal obligations are drawn, under domestic law, from the Criminal Code Division 268. This has significant potential strategic, tactical and logistical implications for the ADF and must therefore be recalled in

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76 *Convention on the Prohibition of the Use, Stockpiling, Production and Transfer of Anti-Personnel Mines and on their Destruction,* Oslo, 18 September 1997.

77 The Hague Convention VIII Relative to the Laying of Automatic Submarine Contact Mines of October 18, 1907.

78 Group of Government Experts on Emerging Technologies in the Area of Lethal Autonomous Weapons Systems established at the 2016 Fifth Convention on the Prohibitions or Restriction on the Use of Certain Conventional Weapons Which May Be Deemed to Be Excessively Injurious or to Have Indiscriminate Effects (CCW) Review Conference.

79 Protocol Additional to the Geneva Conventions of 12 August 1949 and relating to the Protection of Victims of International Armed Conflicts, 8 June 1977 (entered into force 7 December 1978) 1125 U.N.T.S. 3 (AP1) arts. 35, 51(4)(b) and (c); Jean-Marie Henckaerts and Louise Doswald-Beck, *Customary International Humanitarian Law,* Cambridge University Press, Cambridge, 2005, 'CIHL Study', vol 1, rules 45, 70, 71.

80 API, art. 51(4); CIHL Study, rule 1.

81 API, art. 57 (2)(b); CIHL Study, rule 14.

82 API, art. 57; CIHL Study, rules 15–21.

83 Law and the Future of War, *Submission to the ADF Concept for RAS 2040',* University of Queensland, 31 July 2020, https://www.defence.gov.au/VCDF/Forceexploration/_Master/docs/Submission-to-the-RAS-2040-13August2020.pdf.

the design, commissioning and employment of any military autonomous aerial platform.

Principally civilian-focused domestic laws

Higher levels of autonomy in defence systems will require consideration of their impact on a number of principally civilian-focused legal frameworks including workplace health and safety law, privacy law, noise regulations, spectrum management, public liability and environmental laws.[84] A key concern is who is responsible when something goes wrong and results in damage or injury to the public. As Gogarty and Hagger point out, the law of negligence requires that developers, manufactures, systems engineers and operators 'take reasonable care to avoid or reduce the likelihood of foreseeable harm'.[85] However, as they also observe, in relation to autonomy, 'the ability of negligence to reach into the maze of complexity and extract a responsible party is likely to be limited'.[86] The determination of fault that is required for negligence actions would be particularly difficult where complex software is involved. There are scholars looking at this issue (particularly in relation to autonomous cars, for example),[87] but the law of negligence does not seek to provide all the answers.

This part of the paper considers a number of these issues with specific reference to the unique characteristic of autonomous aerial vehicles: the use of resources that are desired by both the military and by the civilian population (such as the radiofrequency spectrum); and the reality of a series of unknowns, and unintended consequences, that this technology may bring. In doing so, the paper looks to ascertain the legal challenges for consideration in the design and ultimate deployment of military autonomous aerial vehicles by the ADF.

Ubiquitous nature

A key value-add of military autonomous aerial vehicles will be their ability to operate around the clock, for example, to constantly scan their environment from a surveillance and intelligence gathering perspective. Being able to do this will pose regulatory challenges with respect to matters of significant interest to the public. Noise emissions, even if they are lower than those of more traditional aircraft, are likely to present problems in terms of their persistent nature. The

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84 With respect to UAVs, the same point has been made by Maloney, 'Legal and Practical Challenges Associated with the use of Unmanned Aerial Vehicles in the Maritime Environment' and Gogarty and Hagger, 'The Laws of Man over Vehicles Unmanned'.

85 Gogarty and Hagger, 'The Laws of Man over Vehicles Unmanned', p 123.

86 Gogarty and Hagger, 'The Laws of Man over Vehicles Unmanned'.

87 Jan Dr Bruyne and Jochen Tanghe, 'Liability for Damage Caused by Autonomous Vehicles: A Belgian Perspective', *JETL,* 2017. 8(3).

capacity of autonomous aircraft to collect, record and transmit images and other information about an individual's private activities without their consent is apparent.

The federal government has recently commissioned a review of remotely piloted aircraft (RPA) noise to consider the 'community noise impact of [RPA] operations, the size, frequency and nature of [RPA] operations (recreational and commercial), and existing safety regulations administered by the Civil Aviation Safety Authority (CASA)' and 'examine State and Territory regulations that commonly cover noise from equipment operating in urban environments'.[88] This review does not cover noise from military UAVs,[89] however, it is an indication that the problem of noise is recognised. Indeed, noise emissions have drawn attention in the southern suburbs of Brisbane and Canberra, where *Wing*, a drone company which is a member of the Alphabet Inc. (more commonly known by its subsidiaries' name 'Google') group of companies, has been testing delivery-drone services.[90] ABC News reports that the noise – which from 15 metres away measures 69 decibels (exceeding the daytime noise standard for residential areas of 45 decibels) – 'is equivalent to a loud television, a busy office or a leaf blower'.[91] The noise attracted complaints from throughout the neighbourhoods hosting the trial. *Wing* uses the following language to describe the autonomy of their drones:

> [O]ur unmanned traffic management (UTM) software plans a route designed to avoid obstacles and meet regulatory requirements. Once planned, the UTM software indicates to the aircraft that it is safe to fly to the customer's delivery location. The aircraft automatically monitors its systems to make sure it is safe to fly and will prevent takeoff or automatically take contingency actions if a problem is detected. Our trained pilots oversee everything to make sure the system is operating smoothly.[92]

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88 'Review of the Air Navigation (Aircraft Noise) Regulations 2018 – Remotely Piloted Aircraft: Issues Paper', Australian Government, September 2019, https://www.infrastructure.gov.au/aviation/environmental/aircraft-noise/files/Issues_Paper-Review_of_Air_Navigation-Aircraft_Noise_Regulations_2018-RPA.pdf; 'Noise Regulation for Remotely Piloted Aircraft (RPA) – Drones', Australian Government, last modified 23 March 2020, https://www.infrastructure.gov.au/aviation/environmental/aircraft-noise/noise_regulation_for_rpa_drones.aspx.

89 'Review of the Air Navigation (Aircraft Noise) Regulations', p 2.

90 Jack Snape, 'Google-Affiliated Drone Delivery Company Clashes with Government over Safety and Noise Concerns', *ABC News*, 21 November 2019, https://www.abc.net.au/news/2019-11-21/google-affiliated-drone-delivery-company-clashes-with-government/11722380; Jackson Gothe-Snape, 'Google-Affiliated Drone Delivery Service Found to be Exceeding Noise Limits', *ABC News*, 20 November 2019, https://www.abc.net.au/news/2019-09-12/canberra-delivery-drone-noise-levels-revealed/11503262

91 Gothe-Snape, 'Google-Affiliated Drone Delivery Service Found to be Exceeding Noise Limits'.

92 'About Delivery', *Wing*, accessed 17 July 2020, https://wing.com/about-delivery/.

This description seems to suggest a relatively high level of automation, although currently human oversight of the system is maintained – limiting to some extent its ubiquity. It provides a good example of some of the concerns that increasing autonomy in military aerial platforms may give rise to.

Currently, noise from military operations is not regulated. The *Air Navigation Act 1920* (Cth) and *Air Navigation (Aircraft Noise) Regulations 2018* (Cth), which require aircraft to have noise certificates, do not apply to military aircraft.[93] Similarly, Australian State and Territory regulations, which include a number of rules pertaining to noise restrictions, do not apply to 'Commonwealth jurisdiction aircraft'.[94] Rather, the management of noise from ADF bases is governed by policy which explains that Defence works 'with local communities to reduce noise impacts whilst balancing operational and training requirements'.[95] The Air Force, states its commitment to 'undertake flying operations in a manner which is considerate of local communities, whilst maintaining the safe operation of the aircraft'.[96] For example, the RAAF Base at Amberley on the outskirts of Brisbane has a Noise Management Plan, which sets out the details of the RAAF aircraft permanently based there as well as the aircraft that would result in the most 'common foreseeable variation to the regular flying schedule'.[97] The plan asserts that '[w]here possible, RAAF Base Amberley will advise the local community of non-routine flying events'.[98] 'Fly Neighbourly procedures', which are articulated in the Noise Management Plan seek to demonstrate how the community and operational and training requirements are balanced.[99] Future autonomous aerial vehicles will be significantly less noisy than the existing Super Hornets, Hercules and Orions, for example; however, their potential persistent nature will require, at least at the policy level, consideration of how the ADF will ensure this neighbourly balance. This is relevant not just for the wellbeing of the human neighbours of the ADF. Aircraft noise may also pose risks to livestock, as identified by the NSW Environmental Protection Authority.[100]

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93 *Air Navigation Act 1920* (Cth), art 2B; *Air Navigation (Aircraft Noise) Regulations 2018* (Cth), art 5.

94 *Environmental Protection Regulation 2005* (ACT), div. 2.1, p 9.

95 'RAAF Base Amberly: Noise Mitigation', Australian Department of Defence, accessed 17 July 2020, https://www.defence.gov.au/aircraftnoise/Amberley/Noise.asp.

96 'RAAF Base Amberly: Noise Mitigation', Australian Department of Defence.

97 RAAF Base Amberly: Base Aircraft Noise Management Plan', Australian Department of Defence, 2 December 2019, para. 7;.para. 14, https://www.defence.gov.au/aircraftnoise/_Master/Docs/nfpms/amberley/RAAF-Base-AMB-BANMP.pdf

98 RAAF Base Amberly: Base Aircraft Noise Management Plan, para 11.

99 RAAF Base Amberly: Base Aircraft Noise Management Plan, para 16(a).

100 'Guidelines on EPA Use of Unmanned Aircraft', NSW Environment Protection Authority, September 2018, p 10, https://www.epa.nsw.gov.au/-/media/epa/corporate-site/resources/epa/18p0775-guidelines-epa-use-unmanned-aircraft.pdf.

Privacy is a right that necessarily interacts with the potential for the enjoyment of other rights and, in particular, with security considerations. It can be a difficult right to balance effectively.[101] It is clear that in the age of autonomy this will become increasing problematic and there may well be shifts in the understanding of the right to privacy. Today, we are all carrying personal private trackers in the form of our mobile smart phones that have the capacity to store extensive information about our activities. Post-9/11 we have, as a society, mostly all accepted that we are comfortable with more surveillance of our actions in order to counter terrorist acts. Since the outbreak of COVID-19, many also appear to have accepted that we are comfortable with some surveillance on public health grounds.[102]

Maloney, examining this issue of privacy in the maritime environment, notes the obligations of the ADF under the *Privacy Act 1988* (Cth).[103] They flag that 'the possibility exists that in the future Commonwealth agencies including Defence may one day be liable to pay compensation to individuals whose privacy is breached by the use of UAV or other activities'.[104] This would arise because military surveillance operations may result in the collection of data about private organisations and individuals in violation of the legislation. Indeed, in February 2018, it became a requirement for Australian Government agencies to report eligible data breaches.[105] This means that the ADF may be involved in situations where they have to report data breaches. The Privacy Act is binding on the ADF (it is binding on the Crown,[106] and it extends to apply to acts or practices done or engaged in by the Department of Defence outside Australia and its Territories,[107] insofar as those acts are in breach of Australian Privacy Principles (APP) or a registered APP code required by foreign domestic law). The Privacy Act covers

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101 See further Des Butler, 'The Dawn of the Age of the Drones: An Australian Privacy Law Perspective', *University of New South Wales Law Journal,* 2014, 37(2): 443–48 with the examples of trespass to land and private nuisance.

102 Over 6 million Australian's have downloaded the COVIDSafe application: Sophie Meixner, 'How many people have downloaded the COVIDSafe app and how central has it been to Australia's coronavirus response?' *ABC News*, last modified 2 June 2020, https://www.abc.net.au/news/2020-06-02/coronavirus-covid19-covidsafe-app-how-many-downloads-greg-hunt/12295130.

103 Maloney, 'Legal and Practical Challenges Associated with the use of Unmanned Aerial Vehicles in the Maritime Environment'.

104 Maloney, 'Legal and Practical Challenges Associated with the use of Unmanned Aerial Vehicles in the Maritime Environment', p 11.

105 *Privacy Act 1988* (Cth), Part IIIC.

106 *Privacy Act 1988* (Cth), s. 4.

107 *Privacy Act 1988* (Cth), ss. 5B(1) and 6(1).

both incidentally and deliberately collected information. Information collected must be collected by lawful and fair means and must be stored.[108]

There are restrictions on operating UAVs too close to people. For example, the *Civil Aviation Safety Regulations 1998* (Cth) prevents the operation of UAVs (or other craft without a certificate of airworthiness) over populous areas or within 30 metres of a person unless very specific criteria are met.[109] These rules currently exist for safety reasons, not privacy. However, the reality of UAVs, and even more so with autonomous aerial vehicles if they are operating 24/7, is that there will be unintentional collection of information by intentionally deployed UAVs for legitimate purposes.[110] In any event, imagery can be collected from significant distances. The very nature of surveillance means that images and information about people and their activities will be collected. This will include both information sought by the military, for military purposes, but also information about the activities of individuals – both innocuous and also potentially problematic for them from a personal or criminal perspective. Defence will need to have policies in place to deal with personal information and engage in privacy impact assessments to ensure that in any deployment of a military autonomous aerial platform they are not acquiring private information that is not a necessary part of the remit of the deployment.[111]

Drawing on dual-use resources

Autonomous military aircraft will draw on resources used by the civilian population in order to operate. This includes airspace but also less thought of resources, such as the radiofrequency spectrum. In using airspace, as has already been discussed, autonomous military aircraft will have to share this resource consistent with law and public policy. This will require regulatory and policy decisions to be made with a strong focus on safety and privacy.

RPAs rely on a communication link between the aircraft and the pilot. While autonomous functionality may reduce the need for a link to base, it may increase the need for communication between devices. The nature of autonomous aircraft is that they may require the use of these communications services in order to

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108 See *Privacy Act 1988* (Cth), sch 1, s. 3.5 ('Australian Privacy Principles') which states that 'An APP entity must collect personal information only by lawful and fair means.'; Pursuant to the Archives Act 1983 (Cth). See also Maloney, 'Legal and Practical Challenges Associated with the use of Unmanned Aerial Vehicles in the Maritime Environment', p 12.

109 *Civil Aviation Safety Regulations 1998* (Cth), div. 101.F.2, regs 101.245, 101.280.

110 Butler, 'The Dawn of the Age of the Drones: An Australian Privacy Law Perspective', p 437, p 442.

111 See, for example, the guidance in Queensland for a Privacy Impact Assessment and the idea of designing privacy considerations into the planning process: 'Undertaking a Privacy Impact Assessment', Office of the Information Commissioner Queensland, accessed 30 July 2020, https://www.oic.qld.gov.au/guidelines/for-government/guidelines-privacy-principles/privacy-compliance/overview-privacy-impact-assessment-process/undertaking-a-privacy-impact-assessment.

operate. For example, as Wang and colleagues note, '[a]n efficient, flexible and adaptable spectrum resource sharing method is distinctly important' for swarm technology.[112]

The radiofrequency spectrum is allocated for a range of uses including broadcasting; meteorological and space research and operation; as well as aeronautical and maritime navigation.[113] The spectrum is therefore an economic resource that requires management.[114] A range of industries are globally advocating for engagement in spectrum management.[115] Demand on the spectrum is increasing.[116]

In Australia, radiofrequency spectrum is regulated by the *Radiocommunications Act 1992* (Cth). The Act imposes penalties on persons using radiocommunications when not authorised by a relevant licence under the Act.[117] The Act binds the Crown and, except where the 'contrary intention appears … applies outside Australia' to 'members of the crew of Australian aircraft, Australian vessels and Australian space objects; and … Australian aircraft, Australian space objects and Australian vessels'.[118] The Act does not apply to acts or omissions by Defence members 'the purpose of which relates to ... research for purposes connected with defence' or 'intelligence'.[119] Exempt Defence activities also include functions in relation to a facility jointly operated by the Commonwealth and other nations (such as Joint Defence Facility Pine Gap).[120] Defence is clearly exempt from a number of provisions insofar as Defence is operational.[121] Article 26 provides that the bulk of the licensing and general regulatory provisions have no application if the acts or omissions relate to military command and control,

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112 Ximing Wang et al, 'Machine Learning Empowered Spectrum Sharing in Intelligent Unmanned Swarm Communication Systems: Challenges, Requirements and Solutions' *IEEE Access,* 8, 12 May 2020, 89839–89840, https://doi.org/10.1109/ACCESS.2020.2994198.

113 'Australian Radiofrequency Spectrum Allocations Chart', Australian Communications and Media Authority, accessed 20 May 2020, https://www.acma.gov.au/sites/default/files/2019-10/Australian%20 radiofrequency%20spectrum%20allocations%20chart.pdf.

114 'Our Role to Manage Spectrum', Australian Communications and Media Authority, last modified 27 October 2019, https://www.acma.gov.au/our-role-manage-spectrum.

115 Jasmeet Judge and Elen Daganzo, 'Spectrum Management for Scientific Uses in US and Europe', Conference Paper, IGARSS 2018 – 2018 IEEE International Geoscience and Remote Sensing Symposium, 22–27 July 2018, https://ieeexplore.ieee.org/abstract/document/8518230.

116 Particularly fuelled by mobile phone usage Predicted total economic value of USD 14.5 billion for 2011–2012: 'Mobile Nation: The Economic and Social Impacts of Mobile Technology', Deloitte, February 2013, p 19, https://amta.org.au/files/Mobile.nation.The.economic.and.social.impact.of.mobile.technology.pdf,

117 *Radiocommunications Act 1992* (Cth), art. 46. Except in cases of emergency, see art. 49.

118 *Radiocommunications Act 1992* (Cth), art. 13; *Radiocommunications Act 1992* (Cth), art 16(1).

119 *Radiocommunications Act 1992* (Cth), art. 24.

120 *Radiocommunications Act 1992* (Cth), art. 25.

121 *Defence (Special Undertakings) Act 1952* (Cth), art. 26 substantially re-enacts *Radiocommunications Act 1983* (Cth), s. 8(1) of the, the explanatory memorandum of such notes that 'Clause 8 provides that Regulations may exempt certain defence, police, civil defence, etc. personnel from the operation of some of the provisions of the Bill.'

intelligence or weapons systems. However, it is clear that there are ways in which the Act would apply to the ADF. In particular, this would be the case when ADF personnel are operating in the domestic civilian environment. For example, current ADF support projects to the enforcement of coronavirus restrictions are arguably not exempt.[122] Therefore, there is a need to make better use of the spectrum and Defence should be involved in the conversation, especially as Defence has allocations across the spectrum.[123]

Unknown impacts

Technological developments – many of which are yet to be realised – will result in unknown impacts. Some legal frameworks have already responded to some unforeseen challenges of UAVs. Maloney, for example, raises the issue of the safety of the work practices of drone operators who may be operating the controls for long periods at a time.[124] As Maloney identifies, workers compensation law has developed to include references that would cover the work of drone operators. 'Drone operators viewing planned strikes' is listed in the relevant instrument as an activity that constitutes 'being exposed to repeated or extreme aversive details of traumatic events', which is a factor that can connect post-traumatic stress disorder with 'the circumstances of a person's relevant service'.[125] Negative health consequences for remotely piloted drone operators may be reduced or eliminated by autonomous craft. However, just as the post-traumatic stress disorder cases arising from drone operators was not initially foreseen, there will be implications of higher level automation requiring legal solutions that are also not foreseen.

Workplace health and safety remains one area where this is likely. Indeed, the approach to defence aviation is intrinsically linked to workplace health and safety.[126] The *Defence Work Health and Safety Strategy 2017–2022* acknowledges that '[a]t times during overseas operations there may be circumstances where our people are exempt from some provisions of the

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122 'Australian Defence Force Personnel Arrive at State Line to Assist in Coronavirus Border Control', *ABC News,* 12 July 2020, https://www.abc.net.au/news/2020-07-12/adf-arrives-at-south-australia-victoria-border-to-support-police/12447204.

123 'Australian Government Held Spectrum Report', Department of Communications and the Arts, 5 April 2019, https://www.communications.gov.au/documents/australian-government-held-spectrum-report.

124 Maloney, 'Legal and Practical Challenges Associated with the use of Unmanned Aerial Vehicles in the Maritime Environment', p 12.

125 Statement of Principles Concerning Posttraumatic Stress Disorder for the Purposes of the *Veterans' Entitlements Act 1986* and *Military Rehabilitation and Compensation Act 2004'*, Australian Repatriation Authority, Instrument No. 82 of 2014. See also Maloney, 'Legal and Practical Challenges Associated with the use of Unmanned Aerial Vehicles in the Maritime Environment', p 12.

126 DOD, 'Joint Directive 24/2106.

[Act]'.[127] Further, the Chief of the Defence Force has issued a declaration under Article 12D(2) of the *Work Health and Safety Act* (Cth)[128] exempting Defence members from provisions regarding health and safety representatives, committees and consultation obligations, as well as from the right to cease unsafe work.[129] However, the ADF clearly has obligations under both the *Work Health and Safety Act 2011* (Cth) and the *Public Governance Performance and Accountability Act 2013* (Cth). For a significant amount of the day-to-day activities for Defence it is clear that health and safety obligations are the same as for other entities of the Crown. The question is whether there is anything about the nature of an autonomous vehicle – including how the vehicles alters the system in which it has been embedded – that means that work health and safety needs further consideration. In the civilian space at least, the federal government seems to have answered this question in the affirmative. The 2014 inquiry by the Australian Government into drones and the regulation of air safety and privacy focused primary on the issue of privacy. However, recommendation 1 concerns safety in the air. The recommendation was for broader 'future consultation processes … so as to include industry and recreational users from a non-aviation background.'[130] As such, it is perhaps the interplay between defence and civil autonomous vehicles that is likely to be the most pressing concern for the ADF in terms of work health and safety.

Other possible unknown impacts could include those on the environment. Environmental and biodiversity protections may need to be considered in light of the increasing use of military autonomous aircraft. For example, the NSW Environmental Protection Agency has identified the potential for 'risks to the unmanned aircraft from on-the-ground conditions (for example when operating in proximity to mine blasting or during a bushfire, which can impair visibility)' and 'risks posed by unmanned aircraft operating in certain environments (for example ignition risk from unmanned aircraft being present at a hazardous incident)'.[131] A remotely piloted device allowing an operator to manage such risks is arguably less problematic than an autonomous device unintentionally igniting the landscape.

127 Australian Department of Defence, 'Defence Work Health and Safety Strategy 2017–2022', Australian Government, September 2017, p 2, https://www.defence.gov.au/whs/_Master/docs/policy/Final_WHS-Strategy_FAweb_Oct2017.pdf.

128 *Work Health and Safety Act 2011* (application to Defence activities and Defence members) Declaration 2012.

129 *Work Health and Safety Act 2011* (application to Defence activities and Defence members) Declaration 2012, schs. 1 and 2 referencing the *Work Health and Safety Act 2011*, ss 38, 39, 47–79, 84–89.

130 Commonwealth of Australia House of Representatives Standing Committee on Social Policy and Legal Affairs, 'Eyes in the sky: inquiry into drone and the regulation of air safety and privacy', July 2014, p 14.

131 NSW Environment Protection Authority, 'Guidelines on EPA Use of Unmanned Aircraft', p 10.

Without a specific autonomous device in mind and an in-depth understanding of its capabilities, it is difficult to determine if, and how, the law will be challenged by autonomy. As well as unknown impacts, there will also be unintended consequences. Autonomy may have significant positive outcomes to offer the military but discussions about how society should best deploy this technology will continue. Autonomous vehicles create 'an arguably novel situation, wherein artificial intelligence acts on behalf of a human with life-or-death consequences. It is unclear how courts, regulators, and the public will react'.[132] This statement was made almost a decade ago about traffic accidents involving robotic cars, and the sentiment is equally applicable to autonomous military operations still.

Finally, the legal challenges and unknowns posed by autonomy are not just about the use of autonomy itself or the interaction of autonomous devices with other autonomous devices, but rather the interaction of autonomy with more traditional human-controlled devices. In the context of the safety of UASs, Bakx and Nyce have raised the question of how to integrate crewed and uncrewed (remotely piloted) systems.[133] This query is perhaps even more pronounced in respect of autonomous systems. Recognition of the challenges of increasing levels of autonomy, not just for the platform itself but for its interaction with other platforms in the landscape, gives rise to additional legal questions. As noted elsewhere,[134] this is something recognised by International Civil Aviation Organization (ICAO) regarding the potential challenges for integrating a 'fully autonomous aircraft' (as compared with remotely piloted ones, where the remote pilot can ensure the 'safe and predictable operation of the aircraft') into the international civil aviation system.[135] Autonomous functionality may not itself be problematic in an individual aircraft; however, the autonomous functionality of an aircraft may create as yet unknown challenges for piloted aircraft and other non-autonomous users of the air and the land or water beneath it.

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132 Sven A Beiker, 'Legal Aspects of Autonomous Driving', *Santa Clara Law Review,* 2012, 52(4): 1152.

133 Gwendolyn C H Bakx and James M Nyce, 'UAS in (Inter)national Airspace: Resilience as a Lever in the Debate', Conference Paper, 5th Symposium on Resilience Engineering, 24–27 June 2013.

134 Massingham, 'Radio Silence', pp 184-208.

135 International Civil Aviation Organization, 'Unmanned Aircraft Systems' (Circular 328-AN/190, 2011), 3, para 2.2.

Conclusion

Australia is pursuing 'trusted autonomous systems' as a priority area of work for Defence's strategic research.[136] This will provide many potential opportunities for Defence to engage in operations in ways that are smarter, more efficient and safer than have been possible before, in contrast to the dull, dirty and dangerous work that autonomy seeks to overcome. These new ways will raise legal concerns. It may be that, in fact, autonomy allows the military to more easily meet legal obligations. As others have asked, 'if autonomous vehicles achieved such a degree of sophistication and safety' would the law in fact require their use.[137] Realising the full potential of the opportunities presented by autonomous military aircraft for the ADF will require consideration of the legal concerns. Without an appreciation of these legal frameworks, the Navy, Army and Air Force will not be in a position to safely and effectively get their autonomous assets to the starting line of an armed conflict. Without a proper analysis of the gaps that pose challenges to the ADF in their day-to-day operations, these gaps will not be addressed.

In this paper, the path towards greater levels of autonomy being deployed by the ADF has been canvassed from a legal perspective. In particular, the relevant domestic DASR and domestic criminal laws, as well as the implications of the non-military specific domestic legal frameworks that impact on the military's day-to-day operations have been highlighted. In the design and deployment of any new means or methods of warfare or, indeed, in any aerial craft that the ADF seeks to deploy into the future, it is imperative that these considerations be taken into account.

Aircraft with high levels of autonomy that would enable them to operate independently of human intervention are specifically excluded from deployment by the ADF under the DASR. This means that amendments will need to be made, not just to the DASR, but potentially also to other domestic laws to ensure coexistence and effective use of resources (including intangible ones) by both the military and the civilian population in Australia. However, even though some amendments may be necessary and suitable, in the end all autonomous military aircraft must be designed and relied upon with the safety of the civilian population in mind. And while the interplay between law and technology may enhance some ADF capabilities, it may also limit the ability of the ADF to make use of other technological developments of the future.

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136 Australian Department of Defence, *Defence Industry Policy Statement,* pp 31–32.

137 Chris Jenks and Rain Liivoja, 'Machine Autonomy and the Constant Care Obligation', *ICRC Blog*, 11 December 2018, https://blogs.icrc.org/law-and-policy/2018/12/11/machine-autonomy-constant-care-obligation/, noting Dan Saxon, *International Humanitarian Law and the Changing Technology of War*, International Humanitarian Law Series, vol. 41, Martinus Nijhoff, Boston, 2013.

Strategic reality check: the current state of Russia–China defence cooperation and the prospects of a deepening 'near alliance'

Alexey D Muraviev

The evolving geostrategic landscape of the Indo-Pacific geopolitical system continues to be influenced by strategic fluidity; a factor that also affected regional dynamics during the Cold War. This is a challenge for any professional specialising in the field of strategic and defence studies: who is attempting to predict trends and patterns that may affect the Indo-Pacific. The Australian Government's *2020 Defence Strategic Update* highlights the increasing complexity of the Indo-Pacific and pays, predictably, considerable attention to the People's Republic of China (PRC) and its pursuit of greater influence in the region. However, the *Update* makes no mention of Beijing's deepening defence tandem with Russia.

This article will examine the 'near alliance' between the PRC and Russia. Although these two major nuclear-armed military powers do not present an immediate threat to Australia's national security, the Sino-Russia relationship requires special recognition; just as Sino–Soviet relations during the Cold War affected consideration of the strategic balance of power.[1] Firstly, this article examines the main drivers deepening Sino–Russian military cooperation. After considering the nature and purpose of the two nation's strategic priorities, it develops three principal scenarios for the future of military and strategic relationship. This article finds that the current status quo – of a 'near alliance'– is likely to continue for the near future. However, the deepening of the Russian–PRC defence tandem may become a major factor shaping the Indo-Pacific's geopolitical and geostrategic landscape in coming decades.

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1   Rameth Thakur and Carlyle A Thayer, GJ Gill and Amin Saikal, *The Soviet Union as an Asian Pacific Power. Implications of Gorbachev's 1986 Vladivostok Initiative*, Westview Press, Boulder, 1987, p 39, see also https://doi.org/10.4324/9780429314902.

From confidence building to a deepened defence interaction in the era of a 'comprehensive strategic partnership of coordination'

The year 2021 will mark 20 years since Russia and the PRC signed the 2001 Strategic Partnership Agreement. In light of growing debates about the future of Russian–PRC relations, the question of whether the current strategic tandem will transform into a security and defence alliance is of particular concern.[2] Over the past few years, senior Russian and Chinese officials have occasionally signalled the possibility of transforming a 'comprehensive strategic partnership of coordination' into an alliance.[3] For example, on 23 October 2020, Russia's President Vladimir Putin noted, 'So far, we have not set that goal for ourselves. But, in principle, we are not going to rule it out, either.'[4]

On 1 March 2021, a senior spokesperson of the Chinese Ministry of National Defence stated, 'Completely different from the military alliances between some countries, China and Russia uphold a principle of non-alliance and non-confrontation that targets no third party.'[5]

These and other declarations fuel ongoing debates on whether Russia and the PRC are ready, and able, to form a functional security and defence alliance. An examination of the current state of military-to-military (mil-to-mil) relations (on a par with the political dialogue); their common agendas; as well as shortfalls and problems that existed or exist between the prospective allies, together form a set of determinants of their readiness for an alliance.

Achieving maximum coordination and interoperability at all three principal levels of interaction (strategic, operational, and tactical) and standardising approaches (towards planning, logistics, weapons and systems employment) between friendly militaries are the core determinants of respective militaries' readiness for either integrated coalition or longer lasting allied-type activities and operations. With respect to PRC–Russia defence cooperation, the following factors need to be taken into consideration: a) mil-to-mil systematic dialogue; b) military-technical

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2   Andrea Kendall-Taylor and David Shullman, 'Navigating the Deepening Russia-China Partnership', Center for a New American Security, 14 January 2021, https://www.cnas.org/publications/reports/navigating-the-deepening-russia-china-partnership.

3   Back in June 2019, Putin and President of the PRC Xi Zinping - declared a "new starting point" in bilateral relations, in which they will be upgraded to bring about a 'comprehensive strategic partnership of coordination for a new era'. See Liangyu, 'China, Russia Agree to Upgrade Relations for a New Era', *Xinhuanet.com*, 6 June 2019, http://www.xinhuanet.com/english/2019-06/06/c_138119879.htm

4   Jun Mai, 'Beijing Gives Cautious Welcome to Vladimir Putin's Hint over Russia-China Military Alliance', *South China Morning Post*, 26 October 2020, https://www.scmp.com/news/china/diplomacy/article/3107027/beijing-gives-cautious-welcome-vladimir-putins-hint-over.

5   'Military ties support China-Russia strategic cooperation: ministry', *People's Daily*, 2 March 2021 09:33, https://en.people.cn/n3/2021/0302/c90000-9823649.html.

compatibility; c) approaches to operational and strategic thinking, planning, education and training; d) joint exercise and operational activity.

The tensions that marred bilateral relations throughout the 1970s and 1980s were diffused by the gradual warming of bilateral relations in the second half of the 1980s and the effective removal of the Soviet strategic threat to China at the turn of the 1990s.[6] A comprehensive set of confidence building measures (CBMs), introduced throughout the 1990s and early 2000s, allowed for wide-ranging consultation and partner dialogue in the sensitive spheres of security and defence.[7] This strategic dialogue has intensified and deepened in the second decade of the twenty-first century as exemplified by the strategic leadership dialogue that has been taking place between Putin and Xi Jinping.[8]

Similarly, mil-to-mil contacts include annual high-level consultations involving defence ministers, chiefs of general staff and other senior level military personnel. In the case of the latter, between 2012 and 2020, Russia and the PRC staged eight rounds of bilateral strategic consultations involving senior defence personnel.[9]

Russia and China's core doctrinal documents highlight the importance of deepening strategic relations with each other, as does the 2019 Chinese Defence white paper, *China's National Defense in the New Era*.[10] Russia's National Security Strategy demonstrates the importance of an 'all-embracing partnership and strategic cooperation with the Chinese People's Republic'.[11] Similarly, the 2015 edition of Russia's Maritime Doctrine identified developing relations with China

6   Lieutenant-General (ret'd) Anatoliy Klimenko, 'Evoliutsya Voennoi Politiki i Voennoi Doktrniny Kitaya' [The Evolution of China's Military Policy and the Military Doctrine], *Voennaya Mysl'*, N 4, 2005, p 6.

7   Among others, a set of CBMs included nuclear retargeting; mutual force reductions in Russia–China border regions; establishing a 200 km security zone; and a set of sub-agreements linked to operational and exercise activity and training. Alexey D Muraviev, 'Comrades in Arms: The Military-Strategic Aspects of China-Russia Relations', *Journal of Asian Security and International Affairs*, 2014, 1(2):169–71.

8   Between 2013 and late 2020 Putin and Xi had 35 arranged engagements (five meetings annually on average).

9   Vladimir Vinokurov, 'Global'noe Sovmestnoe Patrulirovanie' [Global Joint Patrol], *Voenno-Promyshlenny Kurier*, 38 (801), 1–7 October 2019, p. 2; 'Konsul'tatsii RF i KNR po Voprosam StrategicheskoiStrtaegicheskoi Stabil'nosti Zavershilis' v Shangkhaye' [Consultations between the Russian Federation and the PRC on questions of strategic stability concluded in Shanghai], *TASS*, 4 December 2019, https://tass.ru/politika/7259811.

10   The *China's National Defense in the New Era* highlighted the deepening nature of bilateral defence cooperation: 'the military relationship between China and Russia continues to develop at a high level, enriching the China–Russia comprehensive strategic partnership of coordination for a new era and playing a significant role in maintaining global strategic stability. The Chinese and Russian militaries have continued the sound development of exchange mechanisms at all levels, expanded cooperation in high-level exchanges, military training, equipment, technology and counter-terrorism, and realized positive interaction and coordination on international and multilateral occasions'. See Lu Hui, 'China's National Defense in the New Era', *Xinhuanet*, 24 July 2020, http://www.xinhuanet.com/english/2019-07/24/c_138253389.htm; Further, the white paper mentions Russia 24 times, compared to just two references in its 2015 edition.

11   *The National Security Strategy of the Russian Federation* (translation), December 2015, http://www.ieee.es/Galerias/fichero/OtrasPublicaciones/Internacional/2016/Russian-National-Security-Strategy-31Dec2015.pdf.

and its People's Liberation Army Navy (PLAN) as an 'important component of the National Maritime Policy in the Pacific Ocean'.[12]

The established framework is of equal value to Russia and China. For China, this is illustrated by General Wei Fenghe, the PRC Defence Minister, travelled to Russia twice in 2020 to meet with his counterpart General Sergei Shoigu, despite COVID-19 restrictions.[13] The PRC's strong interest can be explained by Russia's ongoing impact on the PLA progression into a world-class global force.

Three principal phases of Russian–PRC security and defence cooperation during which Moscow has acted as a major, or principal contributor, to Chinese military enhancements can be identified:

• Soviet military aid to China (1937–41)[14]

• Comprehensive military assistance (1949–69)[15]

• Comprehensive defence and military-technological cooperation (MTC) since 1992.[16]

The MTC has seen the proportion of Russian military technology in the PLA's inventory reach 64 per cent in 2016.[17] This has increased even further in recent years, allowing the two militaries to achieve a level of technological compatibility not seen since the early 1950s.

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12 *The 2015 Maritime Doctrine of the Russian Federation* (English translation), US Naval War College, Russia Maritime Studies Institute Research, p 3, https://digital-commons.usnwc.edu/cgi/viewcontent.cgi?article=1002&context=rmsi_research.

13 Visits to Russia were the only confirmed foreign visits for Wei in 2020. 'China Calls for Unity, Cooperation at SCO Defense Ministers' Meeting', *CGTN*, 7 September 2020, https://news.cgtn.com/news/2020-09-06/China-calls-for-unity-cooperation-at-SCO-defense-ministers-meeting-TyxHQnSgXS/index.html; 'Shoigu Poblagodaril Kitai za Voenno-Tekhnicheskoe Sotrudnichestvo' [Shoigu thanked China for a military-technological cooperation], *EurAsia Daily*, 6 September 2020, https://eadaily.com/ru/news/2020/09/06/shoygu-poblagodaril-kitay-za-voenno-tehnicheskoe-sotrudnichestvo.

14 During that period, the USSR supplied China with 1,285 aircraft, 1,600 artillery systems, 1,850 heavy vehicles, 82 T-26 light tanks, some 14,000 machine guns. Over 5,000 Soviet personnel, including 300 military advisors, supported Chinese operations against Japan. Interview with former Chief of the Russian Air Force General of Army Pyotr Deinekin, 'Stalinskie Sokoly v Kitaiskom Nebe' [Stalin's falcons in the Chinese sky], *Voenno-Promyshlenny Kurier*, 28 (692), 26 July–1 August 2017, p 10.

15 In particular, Soviet assistance in building military infrastructure for the Chinese reached US439.3 mln (1950s prices); the USSR transferred to China some 650 licences to manufacture military hardware; over 5,300 Soviet military advisors, designers and engineers worked in China. Ruslan Polonchuk, 'Tovarishchstvo poka na Doverii' [Trusted for now Comradery], *Voenno-Promyshlenny Kurier*, N 6 (869), 16–22 February 2021, p 4.

16 In the 1990s, the PRC accounted for some 25 per cent of all Russian military sales. Moscow supplied Beijing with ready-off-the-shelf platforms and systems such as fixed-wing and rotary aircraft, major surface combatants and conventional submarines, air defence systems, airborne and ship-borne cruise missiles, aircraft radars and engines, multi-rocket launchers, spare parts and many more.

17 Artem Novikov, 'BRICS – Delo Blagorodnoe' [BRICS is an honourable business], *Voenno-Promyshlenny Kurier*, N 12 (676), 29 March – 4 April 2017, p 8; Nikolai Surkov, 'Voennoe Sotrudnichestvo RF i Kitaya Napugalo Vashington' [Military cooperation between the Russian Federation and China has scared Washington], *Izvestia* (online version), 3 April 2017, https://iz.ru/news/675362.

Despite obvious progress in becoming a world-class defence force, including reducing its dependence on the MTC with Moscow, the PLA reliance on the Russian military remains high. While Russian defence exports to China fell from 25 per cent down to 12 per cent by 2018,[18] China remains dependent on Russia in some core fields of defence research and manufacturing. For example, during Russia's ARMY-2020 international defence exposition it was revealed that Russian and Chinese specialists were cooperating on the development of the next generation (fifth) conventional attack submarine.[19] While doubts have been raised on whether this cooperation will come to actual fruition,[20] joint research and development in such a sensitive area as submarine design and construction shows not just mutual willingness to expand the MTC but also China's keen interest in accessing Russia's advanced military technologies.

Russia has retained strong influence on China's school of military thought. Since the 1940s, Chinese military thinking and defence planning has been heavily influenced by the Soviet strategic school of thought as well as Soviet operational art. Between 1949 and 1969, over 1,600 future PLA commanders and defence civilians were trained in the USSR; over 5,300 Soviet military advisers, designers and engineers assisted the maturing of the PLA.[21] The impact was so comprehensive that even Soviet military folklore left a footprint in the PLA military culture. For example, the Katiusha song became a popular and well-recognised song in China – translated into Mandarin as Ka Qiusha – and is often performed by the PLA military.[22]

In the 1990s and 2000s, Russia once again became a major source of contemporary military knowledge and expertise for the Chinese.[23] Russia's current strategic and operational thinking and planning continues to shape the

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18 Vadim Ivanov, 'Shoigu Rasskazal ob Eksporte Rossiiskogo Oruzhiya v Kitai' [Shoigu told about Russian arms exports to China], *Zvezda*, 11 July 2018, https://tvzvezda.ru/news/forces/content/201807110929-imlt.htm.

19 'Rossiya i Kitay Proektiruiut Neatomnuiu Podvodnuiu Lodku Novogo Pokoleniya' [Russia and China design a next-generation conventional submarine], *RIA Novosti*, 25 August 2020, https://ria.ru/20200825/bezopasnost-1576269235.html.

20 HI Sutton, 'China and Russia in Mysterious New Submarine Project', *Forbes*, 27 August 2020, https://www.forbes.com/sites/hisutton/2020/08/27/china-and-russia-in-mysterious-new-submarine-project/#230c61971629

21 Ruslan Polonchuk, 'TovarishchestvoTovarishchstvo poka na Doverii' [Trusted for now Comradery], *Voenno-Promyshlenny Kurier*, N 6 (869), 16–22 February 2021, p 4.

22 'Russian Song Brings Nostalgia in China', *Global Times*, 11 May 2015, http://www.globaltimes.cn/content/921001.shtml.

23 There is no up-to-date open source data that can illustrate the numbers of PLA military cadres educated and trained in Russia. According to *China's National Defense in the New Era* between 2012 and 2019 the PLA sent over 1,700 to study in over 50 countries (http://www.xinhuanet.com/english/2019-07/24/c_138253389.htm). That means that the Chinese were sending over 240 of its military cadres to study abroad each year (on average). Back in 2009 alone, it was reported that over 140 PLA personnel were studying in Russian educational military establishments, including General Staff Academy; Col-Gen Leonid Ivashov (ret'd), *Ya Gord, chto Russkiy General* [I am proud that I am a Russian general], Moskva, Knizhny Mir, 2013, p 327.

views of PLA commanders at all levels; demonstrated through the intensified joint training and operational activity.

Growing operational and tactical interoperability through exercises and operations

Over the past decade, Russian and Chinese militaries have achieved a qualitative leap in operational and tactical interoperability by regularising their joint exercise and operational activities across Eurasia, the Indo-Pacific and beyond. Between 2003 and early 2021, Russia and China staged at least 28 confirmed joint military exercises, 14 of which were bilateral (Tables 1 and 4).[24]

Since joint training began back in 2003, the two militaries have progressed from limited objective scenarios, focused on establishing basic coordination, to joint operations across a range of contingencies, ranging from low to medium level threats (regional terrorism and insurgency across Eurasia) to readying forces for high-tempo large-scale integrated combined-arms operations against a formidable conventional adversary or hostile coalition. The growing operational and tactical interaction between the two militaries has been demonstrated during Russia's largest strategic manoeuvres: *Vostok–2018* (East–2018), *Tsentr–2019* (Centre–2019), and the *Kavkaz–2020* (Caucasus–2020) (Table 2).[25] For example, during the *Kavkaz–2020*, the PLA's units were fully integrated in Russia's battle setting; PLA personnel operated Russian-supplied equipment and armaments, and staged operations in mixed tactical formations, practicing much deeper levels of tactical interoperability.[26]

From 2009, both nations' militaries intensified their exercise activity, engaging on average in two to three major exercises a year.[27] Now, more emphasis is being given to deeper coordinated operations planning; operations in mixed formations; systems integration; and the logistical enabler: all major bearings of readiness for allied-type operations.

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24 Back in August 2003, members of the Shanghai Cooperation Organisation (SCO) carried out their first joint military exercise *Souz 2003* (Union 2003), which marked the start of regular joint military training (*Peace Mission* exercises). This involved elements of the Russian armed forces, the PLA and, periodically, either SCO-member states or other select nations with which Russia and China have developed closer strategic ties.

25 It is worth noting the level of PLA command representation at the *Vostok* and *Tsentr* exercises. During both manoeuvres the PLA set up operational and command structures at brigade-division-army corps levels.

26 'Kavkaz-2020 Strategic Exercise: Chinese Troops Adapt to Russian Equipment, Highlighting Bilateral Friendship', *China Military Online*, 17 September 2020, http://eng.mod.gov.cn/news/2020-09/17/content_4871352.htm; 'Kavkaz-2020 Strategic Exercise Wraps up', *China Military Online*, 27 September 2020, http://eng.mod.gov.cn/news/2020-09/27/content_4871958.htm.

27   If special bilateral counter-terrorism exercises and joint special forces training are taken into account then the average number of annual combined exercise activities could be as high as four.

Table 1: Peace Mission Russian–PRC bilateral exercises, 2005–2013

Exercise	Exercise area	Forces involved, total	Russian forces involved	PLA forces involved
Peace Mission 2005, 18–25 August 2005	Shandun peninsula, Yellow Sea	10,000 personnel, 65 warships and auxiliaries, over 70 aircraft, over 100 armoured vehicles	1,800 personnel, 5 warships and auxiliaries, over 20 aircraft, airborne and naval infantry units	Some 8,000 personnel, 60 warships and auxiliaries, 51 aircraft, up 100 armoured vehicles
Peace Mission 2009, 22–27 June 2009	Khabarovsk, Russia Taonan Training Ground, PRC	2,600 personnel, about 300 items of heavy equipment, over 45 aircraft	1,300 personnel	1,300 personnel
Peace Mission 2013, 27 July–15 August 2013	Chebarkul' Training Ground, Russia	3,000 personnel, about 250 items of heavy equipment, including 40 aircraft	Over 900 personnel, some 200 items of heavy equipment	About 2,000 personnel, 47 items of heavy equipment

Sources: *Krasnaya Zvezda* (issues 2005 to 2014); *TASS* (issues 2005 to 2014); *RIA Novosti* (issues 2005 to 2014); *Izvestia* (issues 2005 to 2014); data was collected by the author.

Rapidly deepening bilateral naval cooperation is another sign of how mature Russian–PRC mil-to-mil relations have become over the past decade. Reported Russian Federation Navy and PLA-N operations involve increasingly globalised exercise activity. Russia and China have also demonstrated a sporadic, opportunity-driven approach to joint operations. For example, in 2009 the two navies launched joint operations as part of the international response to the rising threat of maritime piracy near the Horn of Africa.[28] And, in January and February 2014, elements of the Russian Navy and PLA-N participated in what was described as their first joint combat operation, escorting special convoys transporting Syrian chemical warfare munitions to European ports for disposal.

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28 'Ucheniya po Antipiratskoi Tematike' [Counter-piracy exercises], *Voenno-Promyshlennyi Kurier*, 23–29 September 2009, 37 (303), p 1.

Table 2: Peace Mission, *Vostok*, *Tsentr*, and *Kavkaz* multinational exercises, 2007–2020

Exercise	Countries involved	Exercise area	Forces involved, total	Russian forces involved	PLA forces involved
Peace Mission 2007, 9–17 August, 2007	PRC, Kazakhstan, Kyrgyzstan, Russia, Tajikistan, Uzbekistan	Chebarkul' Training Ground, Russia	Over 7,500 personnel, over 1,200 items of heavy equipment, 82 aircraft	About 4,700 personnel, 500 items of heavy equipment, 36 aircraft	1,700 personnel, some 500 items of heavy equipment, 46 aircraft
Peace Mission 2010, 8–14 June 2010	PRC, Kazakhstan, Kyrgyzstan, Russia, Tajikistan	Matybulak Training Ground, Kazakhstan	Over 5,000 personnel, over 300 items of heavy equipment, over 50 aircraft	Over 1,000 personnel, over 100 items of heavy equipment, 10 aircraft	1,000 personnel, 6 aircraft
Peace Mission 2012, 8–14 June 2012	PRC, Kazakhstan, Kyrgyzstan, Russia, Tajikistan	Chorukh-Dairon Training Ground, Tajikistan	2,000 personnel, over 500 items of heavy equipment, including aircraft	Over 350 personnel, over 50 items of heavy equipment	Some 5,000 personnel, 23 aircraft
Peace Mission 2014, 24–29 August 2014	PRC, Kazakhstan, Kyrgyzstan, Russia, Tajikistan	Zhurihe Training Ground, PRC	Over 7,000 personnel, over 500 items of heavy equipment, including aircraft	Over 1,000 personnel, over 140 items of heavy equipment, 14 aircraft	Some 5,000 personnel, 23 aircraft
Peace Mission 2016, 15–21 September 2016	PRC, Kazakhstan, Kyrgyzstan, Russia, Tajikistan	Edelveis Training Ground, Kyrgyzstan	About 2,000 personnel, some 300 items of heavy equipment, 40 aircraft	About 500 personnel	About 300 personnel, 50 items of heavy equipment
Peace Mission 2018, 22–28 August 2018	PRC, India, Kazakhstan, Kyrgyzstan, Pakistan, Russia, Tajikistan, Uzbekistan	Chebarkul' Training Ground, Russia	Approximately 3,000 personnel, over 500 items of heavy equipment	Over 1,300 personnel, approximately 330 items of heavy equipment, 37 aircraft	700–750 personnel, 22 aircraft
Vostok 2018, 20–25 August and 11–17 September	PRC, Mongolia, Russia	Five major training grounds in eastern Siberia and the Far East; two naval training areas in the Pacific Ocean, Russia	Over 300,000 personnel, some 37,000 items of heavy equipment, over 1,000 aircraft, about 80 warships and auxiliaries	297,000 personnel, 36 items of heavy equipment, over 1,000 aircraft, approximately 80 warships and auxiliaries	3,500 personnel, 900 armoured vehicles, 30 aircraft

Table 2 continued

Exercise	Countries involved	Exercise area	Forces involved, total	Russian forces involved	PLA forces involved
Tsentr 2019, 16–21 September 2019	PRC, India, Kazakhstan, Kyrgyzstan, Pakistan, Russia, Tajikistan, Uzbekistan	Six combined-arms training grounds in the Urals, central Russia and the Transcaucasia; naval training areas in the Caspian Sea, Russia	Over 300,000 personnel, approximately 37,000 items of heavy equipment, over 1,000 aircraft, about 80 warships and auxiliaries	128,000 personnel, 20,000 items of heavy equipment, about 600 aircraft, approximately 15 warships and auxiliaries	Over 1,600 personnel, 900 armoured vehicles, 30 aircraft
Kavkaz 2020, 21–26 September 2020	Armenia, Belarus, PRC, Iran, Myanmar, Pakistan	Eight major training grounds in southern Russia and the Transcaucasia; naval training areas in the Black and Caspian seas, Russia	Over 80,000 personnel, some 1,700 items of heavy equipment, over 170 aircraft, approximately 90 warships and auxiliaries	Approximately 79,500 personnel, some 1,700 items of heavy equipment, over 170 aircraft, approximately 90 warships and auxiliaries	Over 100 personnel, armoured vehicles, 3 aircraft

Sources: *Krasnaya Zvezda* (issues 2007 to 2020); *TASS* (issues 2007 to 2020); *RIA Novosti* (issues 2007 to 2020); *Izvestia* (issues 2007 to 2020); data is collected by the author.

When it comes to joint naval training, the two militaries demonstrate a more systematic approach, which is particularly evident when analysing the series of large-scale naval exercises *Maritime Interaction*. The first such exercise was held in late April 2012, and they have been staged annually ever since (with the exception of 2018). In 2015 and 2017, Russian and Chinese navies carried out a two-part *Maritime Interaction* exercise staged in the Mediterranean and Baltic maritime theatres, in addition to the Pacific theatre (Table 3). The status and conduct of most of the *Maritime Interaction* exercises demonstrates that the Russian and Chinese naval forces have departed from a standard non-allied foreign naval forces exercise routine involving communications and search-and-rescue. As the Russian Pacific Fleet (RUSPAC's) Commander Admiral Sergei Avakyants has noted, both navies used various *Maritime Interaction* exercises to test their capacity to operate as a joint force and assess their combined strike and amphibious potentials, as well as their capacity to engage in high-tempo, full-scale naval operations.[29]

The size of the forces committed by both sides, the composition of joint task groups, and the scenarios practiced between 2012 and 2019, suggest that the Russian Navy and PLA-N are readying themselves for coalition-type operations

29 Sergei Avakyants, 'Uchastie Sil (Voisk) Tikhookeanskogo Flota v SovmestnykhSovmestnyh Rossiisko-Kitaiskikh Voenno-Morskikh UchenyakhMorskih Uchenyah "Morskoie Vzaimodeistvie"' [The Participation of the Pacific Fleet forces in Russia-China joint naval exercises Maritime Interaction], *Morskoi Sbornik*, N 2 2018, p 48.

across all spheres of the maritime domain, with the intention of promoting common security agendas in the Indo-Pacific and beyond.

Between 2009 and late 2020, the Russian and Chinese navies took part in 12 confirmed bilateral and 2 trilateral naval exercises (Tables 1 and 3). The 2015 edition of *The Maritime Doctrine of the Russian Federation* highlighted the importance to Russia of developing ties with the PLA-N similar to those of coalition-partners. It lists such closer ties as one of its priorities for national naval power development in the Pacific maritime theatre.[30] Furthermore, Russian open defence sources have revealed some war scenarios, detailing Russian–PRC coalition-type naval operations against the US and its allies in a global conflict involving major naval powers. It presented four scenarios:

- the Russian navy engaging the United States Navy (USN) in either the Atlantic or the Pacific maritime theatres
- RUSPAC engaging the Japan Maritime Self-Defense Force (JMSDF) in the Pacific
- PLA-N engaging the USN and JMSDF in the Pacific
- joint battle groups of the Russian and Chinese navies operating against the USN, JMSDF and their regional allies.[31]

In late 2020, Russian military analyst Vladimir Karnozov suggested US-led Western naval supremacy could be strategically balanced by the combining of Russian and PLA naval forces.[32] Without a doubt, such a scenario would not just alter the global naval balance; it would cause a detrimental impact across the Indo-Pacific maritime domain, potentially comprising Australia's and other allies' ability to maintain favourable regional maritime security.

30 *Morskaya Doktrina Rossiiskoi Federatsii* ['The Maritime Doctrine of the Russian Federation'], *Kremlin.ru*, 26 July 2015, http://static.kremlin.ru/media/events/files/ru/uAFi5nvux2twaqjftS5yrlZUVTJan77L.pdf

31 Konstantin Sivkov, 'Bitvy Veka v Tikhom Okeane' [Battles of the century in the Pacific Ocean], *Voenno-Promyshlennyi Kurier*, 10–16 December 2019, 48 (811), p 4.

32 Vladimir Karnozov, 'Rossiiskie Podvodnye Lodki Usilivayut Kitai' [Russian submarines strengthen China]'China', *Nezavisimoe Voennoe Obozrenie*, 5 November 2020, https://nvo.ng.ru/armament/2020-11-05/1_1116_submarine.html.

Table 3: PRC–Russia bilateral and trilateral naval exercises, 2009–2020

Exercise	Exercise Area	Forces involved	Russian navy	PLA-N
Peace Blue Shield 2009 18 September 2009	Gulf of Aden	6 warships and auxiliaries	1 DDG, 2 auxiliaries	2 FFGs, 1 auxiliary
Maritime Interaction 2012 22–27 April 2012	Yellow Sea	25 warships and auxiliaries, 22 aircraft, naval infantry and special forces	1 CG, 3 DDGs and 3 auxiliaries, 9 helicopters, two naval infantry forces units	4 DDGs, 4 FFGs, 2 submarines, 1 auxiliary, naval aviation, special forces
Maritime Interaction 2013 5–12 July 2013	Sea of Japan	19 warships and auxiliaries, over 10 aircraft, naval infantry and special forces	11 surface units (1 CG, 2 DDGs), 1 submarine	4 DDGs, 2 FFGs, 1 auxiliary, 3 helicopters
Maritime Interaction 2014 20–26 May 2014	East China Sea	12 warships and auxiliaries	1 CG, 2 DDGs, 1 LST, 2 auxiliaries, 2 helicopters, special naval infantry unit	3 DDGs, 2 FFGs, 2 submarines, 1 auxiliary
Maritime Interaction 2015 16–20 May 2015	Mediterranean Sea	9 warships and auxiliaries	1 CG, 1 FFG, 1 FFLG, 2 LSTs, 1 auxiliary	2 FFGs, 1 auxiliary
20–28 August 2015	Sea of Japan	22 warships and auxiliaries, 23 aircraft, over 500 marines (naval infantry), over 30 items of heavy equipment	15 warships and auxiliaries (1 CG, 2 DDGs, 1 LST, 2 FFLs), 12 aircraft, 212 marines (naval infantry) and special forces, 9 items of heavy equipment	2 DDGs, 2 FFGs, 2 LSTs, 1 auxiliary, 11 aircraft, 300 marines, 21 items of heavy equipment
Maritime Interaction 2016 12–19 September 2016	South China Sea	18 warships and auxiliaries, 21 aircraft, naval infantry and special forces	2 DDGs, 1 LST, 2 auxiliaries	2 DDGs, 3 FFGs, 1 LST
Maritime Interaction 2017 21–28 July 2017	Baltic Sea		2 FFLH	1 DDG, 1 FFG, 1 auxiliary
18–25 September 2017	Sea of Japan and Okhotsk	13 warships and auxiliaries, 8 aircraft, naval infantry	1 CG, 1 DDG, 1 FFLH, 2 FFLs, 2 submarines, 1 auxiliary	1 DDG, 1 FFG, 2 auxiliaries
Maritime Interaction 2018	Yellow Sea	Cancelled		

Table 3 continued

Exercise	Exercise Area	Forces involved	Russian navy	PLA-N
Maritime Interaction 2019 29 April to 4 May 2019	Yellow Sea	15 warships and auxiliaries, 10 aircraft, naval infantry	1 CG, 2 DDGs, 1 FFLH, 1 submarine, 2 auxiliaries	2 DDGs, 2 FFGs, 1 submarine, 3 auxiliaries, 2 strategic bombers
MOSI 2019 25–30 November 2019	Horn of Africa, south Atlantic	6 warships and auxiliaries (including two units from the South African navy)	1 CG, 2 auxiliaries	1 FFG
Marine Security Belt 2019 27–30 December 2019	Gulf of Oman, Arabian Sea	Over 10 warships and auxiliaries (including at least 6 units drawn from the Islamic Republic of Iran)	1 FFG, 2 auxiliaries	1 DDG

DDG: guided-missile destroyer | FFG: guided-missile frigate | CG: guided-missile cruiser

Sources: *Krasnaya Zvezda* (issues 2009 to 2020); *Morskoi Sbornik* (issues 2009 to 2020); *TASS* (issues 2009 to 2020); *RIA Novosti* (issues 2009 to 2020); data is collected by the author.

Another important aspect of Russian and PRC joint military activities, which could extend into the Australian security zone, is their joint aerial operations involving strategic bomber aircraft. To date, elements of the Australian Defence Force (ADF) have encountered occasional displays of Chinese (in the South China Sea area) and Russian (off the Indonesian coast in 2017) aerial activities across Southeast Asia.[33] However, in the past two years, both countries have displayed their resolve by launching regular aerial deterrent operations in proximity to their respective homelands. On 23 July 2019, two Russian Tu-95MS and two Chinese H-6K strategic bombers, supported by AWACS aircraft (airborne early warning and control), staged the first joint aerial patrol over the Sea of Japan and South China Sea, triggering alerts in the Republic of Korea and Japan. It was reported that the joint patrol was part of a coordinated plan of bilateral defence activities for 2019.[34] On 22 December 2020, two Tu-95MS and four H-6K staged a second joint patrol over the same area.[35]

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33 Christopher Knaus, 'Australian Air Force put on alert after Russian long-range bombers headed south', *The Guardian*, 30 December 2017, https://www.theguardian.com/world/2017/dec/30/australian-military-alert-russia-bombers-indonesia-exercises?

34 Evgeniy Podzorov, 'Vpervye Rossiiskie i Kitaiskie Letchiki Sovmestno PatrulirovaliPatrulirovalki nad Tikhim Okeanom' [Russian and Chinese pilots ran joint patrol over the Pacific Ocean for the first time], *Krasnaya Zvezda*, 24 July 2019, pp 1–2.

35 Christopher Woody, 'Russian and Chinese bombers conducted another joint patrol between South Korea and Japan', *Business Insider Australia*, 23 December 2020, https://www.businessinsider.com.au/russian-chinese-bombers-do-joint-patrol-between-south-korea-japan-2020-12.

For now, PRC–Russia joint strategic bomber aerial operations have been limited to this northeast Asian flank of the Indo-Pacific theatre. However, Russia's successful deployment of the bomber task group to South Africa in October 2019 suggests the such operations could be extended into the wider Indo-Pacific.[36] This presents a possibility that such operations could eventually extend to areas closer to Australia, particularly in response to the ADF's continuous investment in antiballistic missile (ABM) defence capabilities.

In addition to their willingness to support technology and information sharing, joint operational activities, and limited strategic deterrence operations, another point of concern is the deepening Sino–Russian cooperation in the sphere of strategic nuclear deterrence. Since 2013, Russia and China have consulted on questions concerning ABM defence. In May 2016 and December 2017, Russia and China ran *Aerospace Security*: computer simulations on coordinated counter-ABM operations. In October 2019, Putin revealed that Russia was assisting China in acquiring ABM early warning and detection capability.[37]

This aspect of deepening Russian–PRC defence cooperation can be seen as a response driven by US deployments in theatre-level ballistic missile defence elements (THAAD) provided to the Republic of Korea (RoK) and Japan. However, Australia's active deployment of sea-based ABM/BMD elements (the Hobart class air warfare destroyers) as well as ongoing operations of ground-based detection capability makes both Moscow and Beijing consider Australia in ways similar to the RoK and Japan.[38] It is also another indicator of much closer coordinated operational and strategic planning and of further strategic trust and confidence in each other as allied nations, not just as strategic partners.

Analysis of the current state of Russian–PRC security and defence cooperation highlights China's ongoing reliance on Russia as a leading military power. For China, Russia has maintained its role as the source of contemporary military knowledge, and operational and tactical expertise. While the Chinese military trains with various foreign counterparts, including the ADF, these engagements are limited in both scale and depth. Being a large force, which is in the midst of major qualitative modernisation, the PLA seriously lacks operational and combat

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36 Guy Martin, 'Russian Tu-160 bombers arrive in South Africa', *Defence Web*, 24 October 2019, https://www. defenceweb.co.za/aerospace/aerospace-aerospace/russian-tu-160-bombers-arrive-in-south-africa/.

37 'Russia is helping China build a missile defence system, Putin says', *The Guardian*, 4 October 2019, https:// www.theguardian.com/world/2019/oct/04/russia-is-helping-china-build-a-missile-defence-system-putin-says.

38 For example, Australia's shipborne *Aegis* capability was identified as one of risks factors by one of Russia's leading defence publications closely linked to Russia's Ministry of Defence and the defence industrial complex. Vladimir Kozin, '"Idzhis" – Prymaya Ugroza Rossii' [Aegis is the director threat to Russia], *Natsional'naya Oborona*, N 11, November 2020, https://oborona.ru/includes/periodics/maintheme/2012/0416/18358201/detail.shtml (oborona.ru).

experience as well as the ability to plan and execute large-scale joint force operations against a technologically advanced adversary.

To be upskilled by the Russian military, a battle-hardened experienced force, which has made considerable advances in planning and executing high-tempo joint force operations, represents invaluable experience for the PLA; both its personnel, and C4I2 structures (communications, command, control, computers, intelligence and interoperability structures). Therefore, it is no surprise that for the most part, during these activities, PLA command structures and field units either operate under Russian command, as either integrated force element, or as an allied force element under close guidance of Russian military advisers. The fact that Russian has often been chosen as the principal language supports the claim Russia is taking the leading role in joint exercise and training activities.

The Russian military also sees value in having close interaction with their Chinese counterparts. Russia views joint operational training with the PRC as another form of CBMs at tactical, operational and strategic levels. It also allows Russia to see and test China's latest military hardware in action. In addition to improving interoperability with a partner army, joint exercises with China allow Russia to promote its own capabilities, as well as showcase new weapons systems to a lucrative client. Finally, training with the PLA provides the Russian military with insights into PLA operations, ranging from contingency planning and composition of tactical combat formations to logistical enablers and the overall efficiency of the Chinese military machine.[39]

In 2021, Russian–PRC mil-to-mil cooperation has matured to the point when their military forces demonstrate high levels of professional competence and integration to operate and fight alongside each other. Over the years, joint exercise activity and training has grown in its complexity, scale and reach. Regularising joint combined-arms training of ground, air and naval forces, alongside various special force elements, represents an important step forward in preparing for possible future joint operations. Joint operational activities have extended well beyond continental Eurasia and across maritime and aerospace domains, stretching into the highly sensitive sphere of strategic nuclear deterrence, thus reaching a point when a military alliance may be the next logical step.

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39 For example, Russian military observers who took part in joint exercises noted that PLAAF pilot training resembled Soviet pilot training methodologies. 'Mirnaya Missiya 2013' [Peace Mission 2013], *Aviatsiya i Kosmonavtika*, 11, 2013 (online), https://military.wikireading.ru/56752.

Russian–PRC alliance: scenario planning

When trying to predict future patterns of the Russian–PRC security and defence relationship, Australian and allied strategic and defence planners could entertain the following scenarios:

- hostility re-emerges between Russia and the PRC
- Russia and the PRC move towards forming an alliance
- the current status quo of a near alliance remains for a foreseeable future.

Hostility re-emerges between Russia and the PRC

Given a mix of dramatic history and a certain lack of trust, this scenario must form part of such strategic forecasting analysis. The history of Russia and China's interactions, which dates back to 1618, has seen a number of dramatic developments, including open conflicts.[40] At first glance, such a scenario may be viewed as a pressure diffusor with respect to Australia's national security and defence as well as the security and defence of its major allies and partners in the Indo-Pacific and Europe. For the PRC another confrontation with Russia would restrain its ability to exercise power across the Indo-Pacific; and, the Taiwan issue would have to be placed on hold. The PLA would have to reorient its ongoing capability upgrade by investing more in conventional ground and air power components, plus rapidly developing its nuclear deterrent. The PLA's northern and western theatre commands would also have to be bolstered and positioned much closer to the border with Russia. Forward operations across the Indo-Pacific could be curtailed, as the PLA-N could be forced to bolster its North Sea Fleet and result in Chinese naval and aerial operations in the seas of Japan and Okhotsk intensifying.[41] China's national strategic nuclear deterrent in such a scenario would also have to be considerably recalibrated and focus on more strategic targets in Russia.

Similarly, Russia would find itself reliving the Soviet nightmare scenario of balancing against a hostile PRC, NATO and the US simultaneously. It would be compelled to effectively halt its forward activities in the Mediterranean and

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40 Perhaps, the most serious episodes of confrontation in the history of Russia and China were military-strategic standoffs in 1969 and 1979, which also saw heighted risks of a nuclear conflict. A Bogaturov A, *Velikie Derzhavy na Tikhom Okeane* [Great Powers in the Pacific], Moskva: Institut SShA i Kanady RAN., 1997, pp 141–42; During the 1979 standoff some 25 Soviet divisions supported by air power (250,000 strong force) were massed along the Sino-Soviet border and all combat and support units were placed on full alert. The Soviet naval task groups were also deployed to the South China Sea. Adding to that, the Soviets staged a series of large-scale manoeuvres involving over 200,000 personnel, some 900 aircraft and 80 warships. These coercive measures placed considerable pressure on the PLA, forcing Beijing to eventually suspend offensive operations against Vietnam. Anatoliy Zaitsev, '40 Let Nazad Nachalas' Pervaya Sotsialisticheskaya Voina' [The first socialist war began 40 years ago], *Voenno-Promyshlenny Kurier*, February 2019, 5 (768):12–18, p 11.

41 A considerable portion of the PLA-N's amphibious element would have to be reoriented towards possible offensive operations against Russia's Maritime Province, the Kuril and Sakhalin islands.

the Middle East, make concessions with Ukraine and limit its influence across Eurasia. Should there be a rapid deterioration in relations with China, Russia would be compelled to, once again, heavily militarise its border with the PRC and rapidly form new mechanised and armoured divisions.[42] Russia could accelerate the development of additional strategic nuclear capabilities, such as railway-based systems, specifically as a deterrent against Beijing. The accelerated expansion of Russian naval power in the Pacific, along with the redeployment of some assets from the Russian Northern Fleet, would also be likely.

Moscow would also be likely to intensify its existing strategic and defence relations with India and Vietnam, as well as offer support to other countries that are wary of Chinese expansionism; thus, attempting to revive the Soviet anti-Chinese containment network.

Any confrontation between Moscow and Beijing would fracture Western Pacific and Eurasian security environments. It could trigger a massive build-up of conventional and unconventional military capabilities on both sides of the Russian–PRC border, significantly increasing the risk of a nuclear exchange should tensions transform into open clashes along the border. Even if open large-scale conventional conflict could be avoided, hostile coexistence of two nuclear-armed states and their aggressive hedging against each other, as well as other major rivals, could fuel strategic anxieties across the region. Moscow and Beijing would once again find themselves completely encircled by a fragile security environment.

Both Russia and the PRC understand too well the risks associated with this scenario, as well as the potentially disastrous consequences for either of them should a bilateral confrontation unfold again. Ruling elites in both countries are mindful of existing shortfalls as well as their dramatic past, and they are determined to avoid this. Adding to that, the history of Russian–PRC relations demonstrates the ability of both powers to defuse open conflict, even against the background of ideological and political confrontation.[43] Thus, this scenario seems unlikely in the foreseeable future.

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42 In response to China's threat the Russian military might form an additional operational-strategic command by splitting the Eastern Military District (MD) in the Far Eastern and the Siberian or the Transbaikal MDs.

43 For example, the high intensity border conflict of 1929 between the USSR and the Chinese nationalist forces under the command of Chiang Kai-Shek lasted only 10 days and was quickly deescalated by follow on political talks. Anatoliy Ivan'ko, 'Doroga, ne Privedshaya k Voine' [The road, which did not lead to war], *Voennoe-Promyshlenny Kurier*, December 2019, N 47 (810):3–9, p 8.

A formal Russia–China alliance

If Russia and the PRC are unlikely to allow potential points of concern to escalate into an open confrontation, could the two powers once again become formal allies, particularly since they have a history of being formally allied (during the Second World War and the 1950 Treaty), as well as fighting alongside each other against common enemies.[44]

There are grounds for this to happen. The two share a common strategic and defence agenda, including: mutual denial of unipolarity and hegemony in international relations, and rejection of the US-led rules-based order; active defence, including strategic pre-emption as a form of active defence; and, common approaches towards understanding the problem of contemporary and future wars and national responses to conflicts – or contemporary military art.[45]

Since the 1990s, Russia and the PRC have expanded their security and defence cooperation from comprehensive CBM and extensive MTC to close coordination at operational and strategic levels. Conducting joint operational training, regular exercise activities, and limited joint operations has allowed the two militaries to reach high interoperability levels, including on the logistical enabler.

Recently, both countries have begun prioritising joint capability development, thus manifesting an intent to deepen MTC to levels normally seen among trusted allies. Intelligence cooperation and information sharing are further markers of allied-type relations. In early November 2020, the chief of Russia's Foreign Intelligence Service (SVR), Sergei Naryshkin, admitted high levels of existing cooperation and 'trusted' information sharing with Chinese counterparts, ranging from counterterrorism to strategic forecasting.[46]

This is the most radical scenario, which may cause the most detrimental impact on the Indo-Pacific geostrategic landscape, including Australian national security and defence. From a military–strategic viewpoint, a Russian–PRC alliance would become the second political-military union of more than one nuclear power. The combined military potential (nearly 3.5 million standing force) would allow a Russian–PRC alliance to form robust and mobile combined-arms formations that could operate across the Eurasian and Indo-Pacific strategic theatres and beyond.

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44 Examples include Soviet strategic offensive in Manchuria in 1945; the Sino-Soviet military intervention in the Korean War (1950–53). Both of these cases of allied operations are still being remembered as highlights of Sino-Soviet/Russian relations.

45 Aleksandr Bartosh, 'Treugol'nik Strategicheskikh Kul'tur' [A triangle of strategic cultures], *Nezavisimoe Voennoe Obozrenie* (online version), 28 June 2019, http://nvo.ng.ru/concepts/2019-06-28/1_1050_strategy.html

46 'Glava SVR Rasskazal ob Obmene Informatsiey c Kitaiskimi Spetssluzhbami'Spetsluzhbami' [Chief of the SVR told about information sharing with the Chinese special services], *RIA Novosti*, 3 November 2020, https://ria.ru/20201103/obmen-1582825259.html

The strategic balance of power in the Western Pacific could be tilted towards a new alliance. Further, security and defence of some of Australia's core allied partners in East Asia – Japan and the RoK – would likely be seriously challenged.

Southeast Asian security would also be affected as Russia would probably accept China's stance on the South China Sea, even at the expense of damaging its relations with ASEAN, India and other countries.[47] The PRC may also be granted preferential access to Russia-controlled Arctic territory.

Both nations would be likely to engage in enforcing favourable maritime security regimes across the Indo-Pacific and other maritime theatres. The Russian and Chinese navies could establish a permanent operational presence in the South China Sea and the Indian Ocean. Joint Russian–PRC naval operations – including carrier and amphibious battle groups, and strategic bomber deployments – could represent high risks to the ADF and allied forces operating in the region.

There may be some scepticism that economic disparities would prevent the two from forming a security and defence alliance; however, this is unlikely to be the stopping point. History, including that of Russian–PRC relations, has demonstrated working alliances comprising members with unequal economic potentials before.[48] China brings to the table its massive economic might, enormous human power base and a massive standing force. Russia, in turn, offers political, diplomatic and military influence, and a smaller but skilled human power base. Russia's modern military force as well as its advanced strategic nuclear arsenal, which is vastly superior to the Chinese strategic nuclear deterrent, appeals to Beijing. Finally, Russia brings to the table some core technological capability and operational expertise desired by China.

However, given the lack of political will and embedded differences discussed earlier, such a scenario is still unlikely to unfold in the near future, but it cannot be ruled out completely. The main push factor, which could draw Russia and China into a formal alliance, would be a dramatic escalation of strategic tensions with the US, particularly with respect to Sino-US relations.

Retaining a near allied status

This is the most likely scenario for the foreseeable future. There is an obvious lack of appetite to pledge full mutual commitment to more complete political and, if necessary, military support. When it comes to the pursuit of their national

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47 In return, Beijing will probably recognise Russia's annexation of Crimea as a justification of its claims in the South China Sea and on Taiwan.

48 It is worth noting that when the Soviet Union and communist China formed the alliance in 1950, Soviet economic and technological might was far more superior to that of Beijing. Yet, it was a mix of ideological and geostrategic convergence that pushed the two powers into forming an alliance.

agendas, Moscow and Beijing are keen to remain independent, or fall short of providing each other with much needed political clout and overt support. Being a steady supporter of the non-alignment movement, China rejects in principle any formal alliance frameworks.[49] Adding to that, Russia and China's previous alliances have not passed the test of time.[50]

There is no consensus in Moscow on whether Russia should form an alliance with China. Russia's principal security and defence doctrinal documents clearly advocate for an Asia–Pacific free of any alliance or military blocks.[51] Some of Russia's respected strategic and defence analysts continue to question the value of near allied ties with China, referring to Cold War confrontation with Beijing.[52] Russians are also suspicious that China has not revoked ambitions to reclaim Russian territories in the Far East, which the PRC considers theirs. Furthermore, there are areas where Russia and China find themselves competing with one another for geopolitical and economic influence, such as in former Soviet Central Asia.[53]

Russia has stopped short of supporting the PRC's unilateralism vis a vis the South China Sea dispute, nor it is likely to support their possible plans to take control of Taiwan by force. This is potentially because Russia also pursues close security and defence ties with a number of Indo-Pacific countries as an alternative to formal alliance building, including ones that have deeply embedded concerns about the PRC, among them Vietnam and India.

A recent example of Russia's lack of appetite to back China unconditionally occurred in June 2020, during the most serious escalation of tensions between New Delhi and Beijing in years. Following tense border clashes and rapid military build-up in Galwan Valley, India requested emergency acquisitions of

49 Mai, 'Beijing Gives Cautious Welcome to Vladimir Putin's Hint over Russia-China Military Alliance'; Ma Shikun, 'Abandoning the Nonalignment Stance? It's not a Policy Option for China', *China US Focus*, 30 January 2014, https://www.chinausfocus.com/foreign-policy/abandoning-the-nonalignment-stance-its-not-a-policy-option-for-china.

50 Liu Wing, 'Sino-Russian Relations: an alliance or Partnership?', *Contemporary International Relations*, 4 (2016):1–11.

51 The National Security Strategy of the Russian Federation; The Military Doctrine of the Russian Federation (translation), 2014, Russia's 2014 Military Doctrine 26-12-2014 (offiziere.ch). N.B. Russia's reference to Asia-Pacific is based on the rejection of the concept of the Indo-Pacific.

52 Aleksandr Khramchikhin, 'Etapy Rossiisko-Kitaiskikh Vzaimootnosheniy' [Stages of Russia-China Relationship], *Nezavisimoe Voennoe Obozrenie* (online version), 27 February 2020, http://nvo.ng.ru/gpolit/2020-02-27/1_1083_china.html.

53 Dmitry Gorenburg, 'An Emerging Strategic Partnership: Trends in Russia-China Military Cooperation', *George C. Marshall European Center for Security Studies*, N 054, April 2020, https://www.marshallcenter.org/en/publications/security-insights/emerging-strategic-partnership-trends-russia-china-military-cooperation-0#toc-scenarios-for-future-russia-china-military-cooperation-

Russian combat systems.[54] Despite pressure from Beijing, Moscow agreed to provide India with urgent military-technological assistance, as well as to act as a political mediator. Furthermore, Moscow delayed the delivery of advanced S-400 *Triumf* (SA-21 *Growler*) air defence system to China, fuelling speculations of the India factor.[55]

In contrast, the PRC has no interest in supporting Russia's balancing game against the NATO or in its geopolitical and military stand-off with Ukraine. The fact that the PRC has not recognised Russia's annexation of Crimea or Georgia's breakaway provinces is telling of the existing political shortfalls.[56] China also shows no interest in being part of Russia-US strategic arms limitations deliberations.[57] Finally, the PRC points to inherited differences in national identities, which could cause problems for alliance building.[58]

Cooperation in cyberspace is another important indicator of strategic trust; or rather, the lack of it. The 2015 information security agreement between Moscow and Beijing has not resulted in the development of any decisive joint operations strategy in regard to cyberspace. Russian cyber security experts have also expressed concerns about Chinese hacking operations against Russian targets, including military espionage.[59]

Similarly, despite declared trusted cooperation between the two intelligence communities, there is evidence of ongoing operations against each other. Russian media repeatedly reports of spy scandals involving Russian nationals accused of transferred sensitive data to the PRC. In 2020 alone, at least

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54 In particular, India's Defence Minister Rajnath Singh travelled to Moscow to request accelerated delivery of S-400 *Triumf* advanced air defence systems. Also, an emphasis was placed on acquisitions of 21 MiG-29 *Fulcrum* and 12 Su-30MKI *Flanker* aircrafts, ammunitions and spare parts to various Russian-made systems to bolster India's operational capability: Vivek Raghuvanshi, 'India Accelerates Weapons Purchases in Wake of Border Clash with China', *Defense News*, 6 July 2020, https://tinyurl.com/y4gr9s2z; Sergei Strokan, 'Rossiiskoe Oruzhie Speshit v Indiu' [Russian weapons hurry to India], *Kommersant*, 26 June 2020, p 2.

55 Mark Episkopos, 'Russia halted S-400 air defence sales to China. Why?', *The National Interest*, 30 July 2020, https://nationalinterest.org/blog/buzz/russia-halted-s-400-air-defense-sales-china-why-165876.

56 Marcin Kaczmarski, 'The Sino-Russian Relationship and the West', December 2020–January 2021, *Survival*, 62(6): 203–204.

57 *The New START Treaty: Central Limits and Key Provisions*, Congressional Research Service, R41219, 23 October 2020, https://fas.org/sgp/crs/nuke/R41219.pdf; Leanne Quinn, 'China's Stance on Unclear Arms Control and New Start', *Arms Control Association*, 23 August 2019, https://www.armscontrol.org/blog/2019-08-23/chinas-stance-nuclear-arms-control-new-start.

58 Ying Liu, 'Strategic partnership or alliance? Sino-Russian relations from a constructivist perspective', *Asian Perspectives*, N 42, July 2018, pp 343–50.

59 Adam Seal, Peering into the Future of Sino-Russian Cyber Security Cooperation', *War on the Rocks*, 10 August 2020, https://warontherocks.com/2020/08/peering-into-the-future-of-sino-russian-cyber-security-cooperation/; Kelly Jackson Higgins, 'Chinese Cyberspies Pivot to Russia in Wake of Obama-Xi Pact', *DARKReading*, 2 September 2016, https://www.darkreading.com/endpoint/chinese-cyberspies-pivot-to-russia-in-wake-of-obama-xi-pact/d/d-id/1324242.

two cases of Chinese industrial espionage were made public.[60] The problem
of Chinese industrial espionage and intellectual theft (on a par with reverse
engineering) is often linked to bilateral MTC. For example, in December 2019, a
senior representative of Russia's major defence conglomerate *Rostekh* openly
accused China of 500 confirmed cases of 'unauthorised copying over the past
17 years'.[61] It is also plausible to assume that Russia has never suspended
intelligence operations against its 'partner'. It is no surprise therefore that neither
are ready to sign an agreement, similar to the Five Eyes agreement, pledging not
to engage in any hostile intelligence operations against one another.

For now, both countries find the current status quo of a near alliance practical
and convenient. It is a basis from which they can support each other politically
and economically; launching joint technological projects (such as in the defence
space) or forming sporadic coalitions and joining military forces in response to
mutual threats (for instance to support either individual or joint strategic hedging
against the west). Such scenarios of Russia and China partnering as *occasional
de facto allies* should be considered a reality rather than a possibility.

Conclusion

Russian–PRC strategic and defence affairs have matured over the past thirty
years, reaching their highest point since the early 1950s. The current state of the
near alliance is based on the convergence of geopolitical and military–strategic
interests. But neither country is ready to engage beyond this near alliance level.
Nonetheless, despite embedded problems and complexities, Moscow and Beijing
recognise strategic interdependence, and the subsequent need to support each
other in order to mitigate risks and also explore strategic opportunities elsewhere.

For Beijing, expanding and deepening security and defence relations with Moscow
remains pivotal. The significance of Russia as a near allied military partner to China
was highlighted by the 2019 edition of the Chinese defence white paper.[62] This is
particularly evident when it comes to considering the impact of Russian defence
technologies on the evolving Chinese defence capability; operational and training
activities. The extent and depth of the two major nuclear-armed neighbours'

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60 In June 2020, Russian media reported on the trial of a retired senior naval officer, Valery Mit'ko, who was
     accused of sharing sensitive data with the Chinese concerning submarine detection technologies: Ivan
     Petrov, 'Severnoe Slivanie: Uchenogo Obvinili v Peredache Kitaiu Gostainy' [Northern dumping: a scientist
     was accused of transferring state secrets to China], *Izvestia*, 16 June 2020, https://iz.ru/1023903/ivan-
     petrov/severnoe-slivanie-uchenogo-obvinili-v-peredache-kitaiu-gostainy. Also, in February 2020, a director of
     the Russian Marine Co. Ltd. company, which is based in northeast China, was charged with treason: Aleksei
     Chernyshov, 'Maslo Shpionazhem ne Isportish' [Oil cannot be affected by espionage], *Kommersant* (online
     version), 7 February 2020, https://www.kommersant.ru/doc/4249441?from=main_7.

61 Dimitri Simes, 'Russia up in Arms over Chinese Theft of Military Technology', *Nikkei Asia*, 20 December 2019,
     https://asia.nikkei.com/Politics/International-relations/Russia-up-in-arms-over-Chinese-theft-of-military-
     technology.

62 Lu Hui, 'China's National Defense in the New Era'.

cooperation in the sphere of security and defence, and its subsequent impact on the state of the PLA and the PLA-N, is a point of growing strategic concern.[63] Similarly, Moscow considers its special relationship with the PRC pivotal to its interests.

Although the Russian–PRC defence tandem has not caused a strategic impact on Australia's security and defence, its importance cannot be underestimated. Moscow and Beijing are viewing Australia through the same adversarial prisms with which they assess the US's close allies. The ABM factor alone would push the two nuclear powers to consider response options. Additionally, attention needs to be paid to the deepening of Russian–PRC naval cooperation, and the expansion of joint operations across the Indo-Pacific and beyond; advancements in joint capability development (submarines, aircraft, hypersonics, space-based assets), which would pose a military-technological challenge; and the possible intensification of intelligence gathering and influence operations against Australia, which do not require a coordinated approach but the sharing of acquired sensitive information.[64]

Russian–PRC joint operational activity across the Indo-Pacific could create pressure points on Australia and its allies. It is therefore essential that risks posed by this Russian–PRC defence tandem are carefully assessed and regularly reviewed.

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63 The 2020 edition of Defense of Japan noted that Russia-China strategic convergence needs to be closely observed. *2020 Defence Strategic Update*, Department of Defence, 2020, https://www.defence.gov.au/StrategicUpdate-2020/docs/2020_Defence_Strategic_Update.pdf.

64 Daniel Hurst, 'ASIO Chief says foreign spies trying to 'deceptively cultivate; Australian politicians at every level', *The Guardian*, 21 October 2020, https://www.theguardian.com/australia-news/2020/oct/21/asio-chief-says-foreign-spies-trying-to-deceptively-cultivate-australian-politicians-at-every-level; Sarah O'Connor with Fergus Hanson, Emilia Currey and Tracy Beattie, 'Cyber-enabled foreign interference in elections and referendums., *ASPI International Cyber Security Centre Policy Brief Report*, N 41, 2020.

Crutzen versus Clausewitz: the debate on climate change and the future of war

Michael Evans

At the start of the twenty-first century, Nobel Laureate and Dutch atmospheric chemist, the late Paul J Crutzen, proposed the existence of a new human-dominated era of planetary warming, the Anthropocene, which he dated as beginning with the Industrial Revolution. In the future, Crutzen believed humanity's capacity for historical agency would be supplemented by a geological agency capable of accelerating or reducing the impact of climate change on the world. For the Dutch scientist, the ability of humanity to regulate anthropogenic emissions of carbon dioxide in the Earth's atmosphere would be the main determinate of the long-term sustainability or collapse of modern civilisation.[1] Crutzen's formulation of humans as geological agents has since been used by climate-change pessimists to suggest the coming of a fundamental alteration in the character of war. For climate pessimists, future military struggles will not reflect Carl von Clausewitz's concept of war as an extension of politics; but rather, war driven by climate change, as conflict becomes an extension of deepening environmental stress and dwindling natural resources.[2]

What is variously known as the 'climate wars thesis' or the 'climate–conflict nexus' has developed rapidly since Crutzen's formulation of the Anthropocene and has received much publicity. The notion of climate-driven conflict has been highlighted by prominent public figures such as former United Nations (UN) Secretary-General Ban Ki-moon; former US President Barack Obama; the

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1 Paul J Crutzen 'Geology of Mankind', *Nature*, 415, 23 (2002), https://doi.org/10.1038/415023a and Paul J Crutzen and Eugene F Stoermer, 'The "Anthropocene"', *Global Change Newsletter*, 41, May 2000, pp 17–18.

2 See David D Zhang and Qing Pei; Christiane Fröhlich and Tobias Ide, 'Does climate change drive violence, conflict and human migration?' in Mike Hulme (ed), *Contemporary Climate Change Debates: A Student Primer*, Routledge, New York, 2019; Carl von Clausewitz, *On War*, (Michael Howard and Peter Paret eds and trans.), Princeton University Press, Princeton NJ, 1976, pp 605–10.

British economist Lord Stern; and Prince Charles, the heir to the British throne. In June 2007, Ban Ki-moon said the war in Sudan's Darfur region on the Horn of Africa was the result of an 'ecological crisis' arising from climate change. In December 2009, in his Nobel Peace Prize acceptance speech, then President Obama stated, 'There is little scientific dispute that if we do nothing [on climate change] we will face more drought, famine, more mass displacement – all of which will fuel more [armed] conflict for decades.'[3] Similarly, Lord Stern, author of the 2006 *Stern Review on the Economics of Climate Change*, warned of humanity in the Anthropocene stumbling into 'a position where extended conflict for the world is unavoidable'.[4] In November 2015, Prince Charles attributed both the cause and course of the Syrian civil war to 'the cumulative effect of global warming'.[5] Such views on climate change and war have since made their way into mainstream Western culture through a combination of mass media narratives and the popularity of climate fiction or 'cli-fi.[6]

This article examines the implications for defence and security practitioners of the debate on climate change and the future of war as they face the 2020s and beyond. While there is some overlap with issues of geopolitics, the focus here is firmly on the way climate change has been securitised by various scholars and analysts over the past two decades. It is argued that the securitisation of climate change is an unwelcome development for Western governments as much of the research is one-dimensional in focus and seldom situated in the type of whole-of-government approaches that will be essential to deal with climate issues in coming decades. Three areas are covered. First, to provide a context for analysis, the scientific, ideological and cultural complexities of climate change are summarised and three broad schools of thought on the subject are briefly outlined. Second, the manner in which thinking about climate change has

3   Ban Ki-moon, 'A Climate Culprit in Darfur', United Nations Secretary-General, 16 June 2007, https://www.un.org/sg/en/content/sg/articles/2007-06-16/climate-culprit-darfur; President Obama, 'Remarks by the President at the Acceptance of the Nobel Peace Prize', Office of the Press Secretary, The White House, 10 December 2009, https://obamawhitehouse.archives.gov/the-press-office/remarks-president-acceptance-nobel-peace-prize

4   Julian Brookes, 'Nicholas Stern: We Need a Global Deal on Climate Change' *HuffPost,* 30 May 2009 05:12 ET, updated 25 May 2011, accessed 27 April 2021, https://www.huffpost.com/entry/nicholas-stern-we-need-a_b_192544

5   Nicholas Stern, in *The Huffington Post*, 21 February 2009 at http://www.huffington post.com/2009/02/21/lord-nicholas-stern-paint_n168865 and *The Economics of Climate Change: The Stern Review*, Cambridge University Press, Cambridge, 2007, https://doi.org/10.1017/CBO9780511817434; 'Prince Charles: Climate change may have helped cause Syrian civil war', *The Guardian*, 23 November 2015, https://www.theguardian.com/uk-news/2015/nov/23/prince-charles-climate-change-may-have-helped-cause-syrian-civil-war

6   See for example Omar El-Akkad's apocalyptic novel, *American War,* Picador, London, 2017. For an overview of climate change fiction, see Axel Goodbody and Adeline Johns-Putra (eds), *Cli-Fi: A Companion*, Peter Lang Publishing, Oxford, 2019, https://doi.org/10.3726/b12457 or JK Ullrich, 'Can Books Save the Planet?', *The Atlantic* (Culture), 14 August 2015, https://www.theatlantic.com/entertainment/archive/2015/08/climate-fiction-margaret-atwood-literature/400112/.

been securitised over the past two decades is examined. Finally, the literature on whether the climate wars thesis and the climate–conflict nexus represent the likely future of armed conflict is considered, employing insights from strategic studies and environmental studies.

Schools of thought on climate change

The science of climate change presents a major challenge to national and international public policymaking. The scientific community is virtually unanimous on the reality of human-induced global warming. In 2014, of 69,406 authors of peer-reviewed articles on the subject, only five rejected anthropogenic global warming. Similarly, only two per cent of the membership of the American Association for the Advancement of Science – the world's largest multidisciplinary scientific professional society – contest the reality of a warming world.[7] The global scientific community has coalesced around the 2005 eleven-nation Joint Science Academies Statement of the Group of Eight (G8) countries – alongside Brazil, China and India – to the effect that Earth's warming in recent decades has been caused primarily by human activities that have increased the amount of greenhouse gases in the atmosphere.[8]

Yet, scientific consensus on the phenomenon of global warming is not enough to prevent disagreement on the policy implications required to respond to the phenomenon. As American economist William Nordhaus notes, a collective judgement by science does not imply unanimity on policy action nor rule out the potential for new scientific evidence.[9] Nordhaus's view is echoed by two prominent British writers, the climatologist Mike Hulme and the sociologist Anthony Giddens. Hulme warns that climate science can only advance by a relentless questioning of orthodoxy. Similarly, Giddens writes, 'scepticism is the life-blood of science and just as important in policymaking. It is right that whatever claims are made about climate change and its consequences are

7 American Association for the Advancement of Science, AAS Board Statement on Climate Science, 9 December 2006, https://www.aaas.org/resources/aaas-reaffirms-statement-climate-change#:~:text=The%20 AAAS%20Board%20of%20Directors,from%20across%20the%20globe%E2%80%9D%20that. PDF version available at https://www.aaas.org/sites/default/files/aaas_climate_statement1.pdf.

8 Institut de France Académie des science, *Joint science academies' statement: Global response to climate change*, https://www.academie-sciences.fr/archivage_site/activite/rapport/avis0605a_gb.pdf; James Lawrence Powell, 'Climate Scientists Virtually Unanimous: Anthropogenic Global Warming is True', Bulletin of Science, Technology and Society, published online 28 March 2016, 35(5–6):121–24, https://doi. org/10.1177/0270467616634958; Charles Fletcher, *Climate Change: What the Science Tells Us,* John Wiley & Sons Inc., NJ, 2013, pp 44–71.

9 William Nordhaus, *The Climate Casino: Risk, Uncertainty and Economics for a Warming World*, Yale University Press, New Haven, 2013, pp 294–302, https://www.jstor.org/stable/j.ctt5vkrpp

examined with a critical, even hostile eye and in a continuing fashion'.[10] The works of Nordhaus, Hulme and Giddens are reminders of the existence of major gaps in our knowledge about the progression of global warming. Climate science continues to evolve and embraces complex atmospheric and oceanographic systems involving feedback loops, accumulations and nonlinearities, all of which are difficult to understand as interactive physical processes. The innate unpredictability of the dynamics of global warming – combined with any number of unforeseen human activities in the future – means that uncertainty will pervade all attempts at climate change prediction.[11]

The scientific complexities of global warming are further complicated by what the late Oxford scholar, Steve Rayner, once called 'the plasticity of climate change' – that is the subject's ability to be many things to many people.[12] There are long-held cultural beliefs and competing ideological worldviews within society about the subject of climate change, and they cannot be reduced to the simplicities of 'believers' versus 'deniers'. For example, anthropogenic explanations of climate change strike at the long-held humanist distinction in Western philosophy between natural history and human history and elicits responses ranging from denial, disconnect and indifference through confusion to engagement, activism and zealotry.[13] Indeed, the West's climate change debate is often less about the truth of science than it is about 'value-laden disagreements' – an impassioned competition between different sets of political, social and philosophical values – that arise from the challenge of dealing with global warming. A good example is balancing the need for coal-fuelled electrification – to improve the living standards of millions of lower income citizens in countries such as India – with concerns in advanced Western countries over the long-term impact of accelerated emissions for future global stability.[14] The ideological vortex that surrounds Crutzen's new anthropogenic age has created three identifiable schools of thought on how to respond to climate change. They are described by the British sociologist, John Urry, as the gradualist, the sceptical and the catastrophic schools of thought. They explain much of the bitter controversy that currently surrounds the subject

10 Mike Hulme (ed), Contemporary Climate Debates: A Student Primer and Mike Hulme, *Why We Disagree About Climate Change: Understanding controversy, inaction and opportunity*, Cambridge University Press, Cambridge, 2009. Kindle edition, chapter 3; Anthony Giddens, *The Politics of Climate Change*, Polity Press, Cambridge, 2011, Kindle edition, p 20.

11 For a discussion see John Urry, *What is the Future?* Polity Press, London, 2016, chapter 9.

12 Steve Raymer, 'Foreword' in Mike Hulme, *Why We Disagree About Climate Change* and Mike Hulme, 'Introduction: Why and how to debate climate change', in Hulme (ed), *Contemporary Climate Change Debates*, pp 2–3.

13 Dipesh Chakrabarty, 'The Climate of History: Four Theses', *Critical Inquiry,* Winter 2009, 35(2):197–222, https://doi.org/10.1086/596640.

14 See Andrew J Hoffman, *How Culture Shapes the Climate Change Debate*, Stanford University Press, Stanford CA, 2015, Kindle edition, especially chapters 1–2.

of global warming.[15] An understanding of these three contending schools is particularly important because, as we shall see, parts of their narratives are often reflected in discussions of the linkages between climate alteration, global security and the future of war.

Members of the gradualist school view global warming as a challenge best met by applying new post-combustion technologies of carbon capture and sequestration developed over time. For gradualists there is no silver bullet solution to a warming world and their catchphrase is 'mitigate where you can, adapt where you cannot'.[16] Adherents note that the oft-derided system of hydraulic fracturing (fracking) for natural gas has done more to reduce emissions in the United States than all the renewable energy investment combined. Anthony J McMichael summarises the philosophy of many gradualists when he writes that, the task ahead is 'to ensure operating space on the planet for future generations, the global population must reduce its excessive pressures on the global environment. Yet sufficient resource and energy "space" must be available to low-income countries to achieve satisfactory material and social development'.[17]

The sceptical school on climate change focuses strongly on the complex interplay between science and public policy and strongly resists what adherents view as climate alarmism. Much of this school's thinking is reflected in the works of the Danish political scientist, Bjørn Lomborg. Lomborg accepts the science of global warming but suggests that the huge political effort and financial costs involved in cutting greenhouse gas emissions is misguided public policy, driven as much by alarmism as analysis. He argues that the vast sums of money projected to alleviate global warming are better invested in a concerted strategy to address global poverty.[18] Lomborg promotes such measures as a uniform 'smart' carbon tax across the globe, the increased use of natural gas and nuclear power over coal, and a vast increase in subsidised funding for green energy innovation and geoengineering research.[19] Other sceptics point to former British Chancellor of the Exchequer Lord Lawson's 2009 book, *An Appeal to Reason*, as a corrective to what they see as a zeitgeist that favours climate fear-mongering and sensationalism. An interesting book in this regard is Michael Shellenberger's

15 Urry, *What is the Future?,* pp 159–70.

16 Urry, *What is the Future?*; Hulme, *Why We Disagree about Climate Change*, 115–26; 138–41.

17 Anthony J McMichael, *Climate Change and the Health of Nations: Famines, Fevers and the Fate of Populations*, Oxford University Press, New York, 2017, p 18.

18 Bjørn Lomborg, *The Skeptical Enviromentalist: Measuring the Real State of the World*, Cambridge University Press, Cambridge, 2001; Bjørn Lomborg, *False Alarm: How Climate Change Panic Costs Us Trillions, Hurts the Poor, and Fails to Fix the Planet*, Basic Books, New York, 2020.

19 Lomborg, False Alarm, chapters 11–15.

Apocalypse Never, a study which makes a strong case for adopting a philosophy of 'environmental humanism' over 'apocalyptic environmentalism' on the basis that most people across the globe seek both prosperity and nature, not nature without prosperity.[20] Finally, sceptics draw on historical studies of the world's climate, such as Wolfgang Behringer's *A Cultural History of Climate*, to highlight the argument that the climate change challenge can, and will be, mastered by human ingenuity because it is not a new phenomenon.[21]

Urry's final school is that of catastrophism. Catastrophists argue that the very existence of human civilisation is threatened by carbon emissions and only large-scale global action can reverse a cataclysm akin to the effects of a nuclear war. They range from neo-Malthusians theorists of overpopulation and growing resource scarcity through Green radicals who embrace the Gaia hypothesis of a self-regulating biosphere to respected establishment figures such as the astrophysicist Martin Rees, former President of the Royal Society.[22] In 2003 in his book, *Our Final Century*, Rees gloomily writes: 'The odds are no better than fifty-fifty that our present civilization on Earth will survive to the end of the present century'. Catastrophists adhere to pessimistic texts on ecocide such as Elizabeth Kolbert's *The Sixth Extinction*, Roy Scranton's *Learning to Die in the Anthropocene* and David Wallace-Wells's, *The Uninhabitable Earth*.[23]

A strand of the catastrophist school is particularly evident amongst some high-profile commentators in the Western mass media, many of whom pursue an alarmist repertoire of 'believers versus deniers', imminent human peril and inevitable species extinction. As Mark Maslin puts it, 'climate change is perfect for the media: a dramatic story about the end of the world as we know it'.[24] As a media focus, global warming offers an endless stream of sensationalist television coverage that serves to deliver 'the comfort of opinion without the discomfort of

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20 Michael Shellenberger, *Apocalypse Never: Why Environmental Alarmism Hurts Us All,* HarperCollins Publishers, New York, 2020, p 285.

21 See Nigel Lawson*, An Appeal to Reason: A Cool Look at Global Warming*, Duckworth Overlook, London, 2009; Wolfgang Behringer, *A Cultural History of Climate,* Polity Press, Cambridge, 2010 and John L. Brooke, *Climate Change and the Course of Human History: A Rough Journey,* Cambridge University Press, Cambridge, 2014.

22 Urry, *What is the Future?* pp 159–70. For an analysis of neo-Malthusian thinking see Betsy Hartmann, 'Converging on Disaster: Climate Security and the Malthusian Anticipatory Regime for Africa', *Geopolitics*, 2014, 19(4): 757–783, https://doi.org/10.1080/14650045.2013.847433; Lucas Bretschger, 'Malthus in the light of climate change', Center of Economic Research at ETH Working Paper 19/30, May 2019, 1–36.

23 Martin Rees, *Our Final Century: Will the Human Race Survive the Twenty-First Century?* Gardners Books, London, 2003, p 12 and Martin Rees, *On the Future: Prospects for Humanity,* Princeton University Press, Princeton NJ, 2018, chapter 1; Elizabeth Kolbert, *The Sixth Extinction: An Unnatural History*, Bloomsbury, London, 2014; Roy Scranton, *Learning to Die in the Anthropocene: Reflections on the End of a Civilization*, City Light Books, San Francisco CA, 2015, http://royscranton.net/books/learning-to-die-in-the-anthropocene/; David Wallace-Wells, *The Uninhabitable Earth: A Story of the Future*, Penguin, New York, 2017.

24 Mark Maslin, *Climate Change: A Very Short Introduction*, 3rd ed, Oxford University Press, New York, 2014, p 20.

thought'.[25] Yet thought, rather than opinion, is precisely what we need on global warming – not least when it comes to linking the subject of climate change to the important area of global security and the future of war – and it is to this relationship that this article now turns its attention.

Climate change and its implications for global security

As climate change has gained prominence in public policy discussions, attention has turned to examining the place of global warming in international and national security. While most Western defence and strategic analysts accept the reality of the Intergovernmental Panel on Climate Change's climate change scientific consensus, there is disagreement on its significance for global security affairs. In philosophical outlook, strategic analysts tend to reflect variations of each of the gradualist, sceptical and catastrophist schools of thought on global warming. Views on climate change and international security range from Australian analyst Alan Dupont's view that climate change challenges are a 'stress multiplier' for states and need to be included in defence planning to Canadian scholar Simon Dalby's conviction that the intersection of Earth system science and human security will dramatically remodel the parameters of strategic planning in the Anthropocene era.[26]

An example of gradualist thinking is expressed in the US CNA (Center for Naval Analyses) Corporation's 2007 and 2014 reports on American national security and climate change. The 2007 report, entitled *National Security and the Threat of Climate Change* and authored by a military advisory board composed of 11 retired generals and admirals, described climate change as 'a threat multiplier for instability' but did not view the phenomenon as a discrete cause of armed conflict.[27] The CNA Corporation's second military advisory board report in 2014, entitled *National Security and the Accelerating Risk of Climate Change*, bewails the state of the climate change debate in the United States expressing dismay that 'discussions of climate change have become so polarising and have receded from the arena of public discourse and debate'.[28] While the report speculated that the effects of global warming might accelerate in the future from

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25 McMichael, *Climate Change and the Health of Nations*, p 260.

26 Alan Dupont, 'Climate Catastrophe? Climate the Strategic Implications of Climate Change', *Survival,* 50(3):29–54 http://dx.doi.org/10.1080/00396330802173107; Simon Dalby, 'Climate Change: New Dimensions of Environmental Security', *RUSI Journal*, June/July 2013, 158(3):34–43, http://dx.doi.org/10.1080/03071847.2013.807583.

27 The CNA Corporation (Center for Naval Analyses)*, National Security and the Threat of Climate Change,* Alexandria VA, 2007, p 44, https://www.cna.org/cna_files/pdf/national%20security%20and%20the%20threat%20of%20climate%20change.pdf.

28 The CNA Corporation (Center for Naval Analyses)*, National Security and the Accelerating Risk of Climate Change*, Alexandria, VA, May 2014, p iii, https://www.cna.org/cna_files/pdf/MAB_5-8-14.pdf.

being 'threat multipliers' to 'catalysts for instability and conflict' – particularly in vulnerable parts of Africa and the Middle East – it was careful not to assign a direct causal relationship between environmental stressors and war.[29]

In many ways, the CNA reports have served as intellectual templates for other and more recent gradualist approaches to climate change as a security concern from the US Department of Defence. Gradualism was inherent in the views of Secretaries of Defence such as Dr Ashton Carter and General James Mattis who came to view climate change as an 'instability accelerant' in underdeveloped countries that required a 'whole-of-government' response to national security.[30] However, in 2019, a US Army War College report entitled *Implications of Climate Change for the U.S. Army* called for less gradualism and more activism in recognising potential changes to the future operating environment arising from global warming. The document claimed that the official defence community 'does not currently possess an environmentally conscious mindset'.[31] The report went on to highlight future climatic infrastructural challenges to military installations encompassing hydration, electricity, fuel resources and infectious disease control. It also noted an absence of 'climate-change related intelligence' and a 'lack of climate change – oriented campaign planning and preparation' – singling out a large-scale population dislocation in Bangladesh as a likely future humanitarian and disaster relief (HADR) scenario. Ultimately, however, the document avoided discussing any causal relationship between a changing climate and the character of future war. Indeed, the 2019 War College assessment described the US Army as possessing 'a culture of environmental oblivion' and justified this by explaining:

> The Army is not an environmentally friendly organisation. Frankly, it is not designed to be [such]. For good reasons, the Army focuses on the most effective means to dominate an enemy on the battlefield.[32]

The 2019 US Army War College report was not a great advance on a far more comprehensive report from the same institution published over a decade earlier

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29 CNA Corporation, *National Security and the Accelerating Risk of Climate Change*, 2014, p 2.

30 For remarks by Carter, Mattis and other American defence officials see Caitlin Werrell and Franscesco Femia, 'On the Record: Climate as a Security Risk According to U. S. Administration Officials', *Climate and Security*, The Center for Climate and Security, The Council on Strategic Risks, Washington DC, 11 April 2017, https://climateandsecurity.org/2017/04/on-the-record-climate-change-as-a-national-security-risk-according-to-u-s-administration-officials-3/.

31 United States Army War College, *Implications of Climate Change for the U.S. Army*, United States Army War College, Carlisle Barracks, PA, 2019, p 2.

32 United States Army War College, *Implications of Climate Change for the U.S. Army*, pp 1–4; 25.

in 2008, entitled *Global Climate Change: National Security Perspectives*.[33] Contributors to this earlier publication expressed scepticism about viewing the linkage between the natural environment and national security as anything more than an extension of traditional HADR missions undertaken by the military. Moreover, most of the 2008 writers insisted that military involvement was an instrument of interagency cooperation in a 'whole-of-government' approach to policy.[34] One scholar, Kent Hughes Butts, argued that in order to achieve clarity of thought, defence analysts needed to treat global climate change not as a military problem but as a 'subset of environmental security'.[35]

Despite the caution inherent in the gradualist and sceptical approaches to the linkage between climate change and traditional security concerns, other analysts have been inclined to adopt a more urgent approach. Research conducted by pioneering environmental scholars, such as Thomas F Homer-Dixon, investigating links between climate stress and violent conflict appear to have been influential in this regard. Writing in the *New York Times* in April 2007, Homer-Dixon predicted that climate stress would breed 'insurgencies, genocide, guerrilla attacks, gang warfare and global terrorism'. Moreover, he warned that climate crisis may well 'represent a challenge to international security just as dangerous – and more intractable – than the arms race between the United States and the Soviet Union during the Cold War or the proliferation of nuclear weapons among rogue states today'.[36]

In 2008, the Brookings Institution published *Climatic Cataclysm: The Foreign Policy and National Security Implications of Climate Change*, edited by a leading national security specialist, Kurt M Campbell.[37] The study explored the intersection of climate change and national security and sought to 'provide a primer on how climate change can undermine the security of the planet'. The

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33 Carolyn Pumphrey (ed), *Global Climate Change: National Security Implications*, Strategic Studies Institute, US Army War College, Carlisle Barracks, PA, May 2008, Accession No. ADA480984, https://apps.dtic.mil/sti/pdfs/ADA480984.pdf.

34 See sections by Timothy McKeown, 'Climate Change, Population Movements, and Conflict', Joshua Busby, 'Under What Conditions Could Climate Change Pose a Threat to US National Security?', and Richard Weitz, 'Synopsis and Concluding Remarks', in Pumphrey (ed), *Global Climate Change: National Security Implications*, pp 99–118, pp 142–150, pp 408–418.

35 Kent Hughes Butts, 'Climate Change: Complicating the Struggle against Extremist Ideology', in Pumphrey, *Global Climate Change: National Security Implications*, p 128–29.

36 Thomas Homer-Dixon, 'Terror in the Weather Forecast', *The New York Times*, 24 April 2007, https://www.nytimes.com/2007/04/24/opinion/24homer-dixon.html. See also Thomas F, Homer Dixon, 'Environmental Scarcities and Violent Conflict, *International Security*, Summer 1994, 19(1):5–40, https://doi.org/10.2307/2539147; and 'On the Threshold: Environmental Changes as Causes of Acute Conflict', *International Security*, Fall 1991, 16(2):76–116, https://doi.org/10.2307/2539061.

37 Kurt M. Campbell (ed), *Climatic Cataclysm: The Foreign Policy and National Security Implications of Climate Change*, Brookings Institution Press, Washington DC, 2009. Kindle edition, https://www.jstor.org/stable/10.7864/j.ctt1262fp.

Brookings study outlined three scenarios based on expected (over the next 30 years), severe (unpredictable effects over a generation or more) and catastrophic (out to the end of the century) climate cases.[38] The catastrophic scenario posited a devastating 'tipping point' in the climate system that produces a world in which the land-based polar ice sheets have disappeared, global sea levels have rapidly risen, and the existing natural order has been destroyed beyond hope of repair.[39] In an echo of Homer-Dixon, the study warned 'the United States must confront the harsh reality that unchecked climate change will come to represent perhaps the single greatest risk to our national security, even greater than terrorists, rogue states, the rise of China or the proliferation of weapons of mass destruction'.[40]

Over a decade later, in 2020, the private think tank, the Center for Climate and Security presented another pessimistic report compiled by its National Security, Military and Intelligence Panel on Climate Change (NSMIP) entitled *A Security Threat Assessment of Global Climate Change*.[41] While conceding that anticipating possible climate futures was difficult, the panel believed that unchecked higher levels of warming would create 'new hotspots of political instability, violence and conflict' and 'pose catastrophic and likely irreversible, security risks across the entire world'.[42] The document notes that: 'Without concerted efforts at both climate change mitigation and adaptation, we [the world] risk high impact and catastrophic threats to our collective and national security.'[43] Ultimately, however, the NSMIP panel were unable to produce compelling evidence of climate as a cause of war.[44]

In a conceptual sense, the NSMIP report was not a major advance on the findings of earlier CNA, US Army War College and Brookings Institution reports defining climate change as a 'threat multiplier' in armed conflict. Nonetheless, despite

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38 Kurt M. Campbell and Christine Parthemore, 'National Security and Climate Change in Perspective', in Campbell (ed), *Climatic Cataclysm*, Kindle edition, loc 42; 280–294, https://www.jstor.org/stable/10.7864/j.ctt1262fp.

39 Campbell and Parthemore, National Security and Climate Change in Perspective', loc 263-266; and Sharon Burke, 'Security Implications of Climate Scenario 3: Catastrophic Climate Change over the Next One Hundred Years', in Campbell (ed), *Climatic Cataclysm,* pp155–168, https://www.jstor.org/stable/10.7864/j.ctt1262fp.

40 Campbell and Parthemore, 'National Security and Climate Change in Perspective', in Campbell (ed), *Climatic Cataclysm,* loc 298–301.

41 Kate Guy et al., *A Security Threat Assessment of Global Climate Change: How Likely Warming Scenarios Indicate a Catastrophic Security Future*, The National Security, Military and Intelligence Panel on Climate Change (NSMIP), The Center for Climate and Security, Council on Strategic Risks (Caitlin Werrell and Femia Francesco eds), Washington DC, February 2020, https://climateandsecurity.org/a-security-threat-assessment-of-global-climate-change/.

42 Guy et al., *A Security Threat Assessment of Global Climate Change*, p 14, p 72.

43 Guy et al., *A Security Threat Assessment of Global Climate Change*, p 6.

44 Guy et al., *A Security Threat Assessment of Global Climate Change*, p 23.

their limitations, the above documents have been successful in achieving one distinct outcome: the securitisation of the climate change debate.[45] Securitisation has in turn been the catalyst for the rise of a literature that views 'climate wars' and a 'climate–conflict' nexus as representing the long-term future of war.

The dangers of securitisation: climate wars and the climate–conflict nexus

There are two strands of thinking on the connections between climate, war and security. For the sake of clarity, it is important to distinguish between them. The first strand emphasises the coming reality of 'climate wars' and highlights a distinct climate–conflict nexus. This strand tends to be dominated by strategic analysts and security specialists as well as writers who seek to directly link climate change with war and armed conflict but whose methodologies are often speculative and dependent on futuristic scenarios rather than weight of available research data. The second strand is often composed of analysts from the interdisciplinary world of environmental studies – embracing geographers, economists and political scientists – who are strongly evidence-based in method and who disagree on whether there is direct causation inherent in the climate change and armed conflict nexus. Understanding these two strands of thinking is important if we are to evaluate the process by which the climate change debate has become securitised over the past two decades.

The security analysts: climate wars and climate–conflict proponents

Much of the writing on climate wars and a climate–conflict nexus assumes a model of future conflict between the natural and the social worlds as representing the wars of the future. An important milestone in the evolution of this literature was a scenario report commissioned by the legendary Director of the Pentagon's Office of Net Assessment (ONA), Andrew Marshall, at the beginning of the new millennium. The report published in 2003 and entitled, *An Abrupt Climate Change Scenario and its Implications for United States National Security* was written by two leading American futurists, Peter Schwartz and Doug Randall.[46] The ONA document sought to 'imagine the unthinkable' and 'to push the boundaries of current research on climate change' out to the year 2020. The document

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45 Anatol Lieven, 'Climate Change and the State: A Case for Environmental Realism', *Survival,* April-May 2020, 62(2):7–26, https://doi.org/10.1080/00396338.2020.1739945 and Anatol Lieven, *Climate Change and the Nation State: The Realist Case*, Oxford University Press, Oxford, 2020, Kindle edition, pp 6–25.

46 Peter Schwartz and Doug Randall, *An Abrupt Climate Change Scenario and Its Implications for United States National Security*, Office of Net Assessment, US Department of Defense, Washington DC, 2003, available in PDF format via https://australiainstitute.org.au/report/an-abrupt-climate-change-scenario-and-its-implications-for-united-states-national-security/. See also Mark Townsend and Paul Harris, 'Now the Pentagon tells Bush: climate change will destroy us'*, The Observer* (London), 22 February 2004 12.33 AEDT at https://www.theguardian.com/environment/2004/feb/22/usnews.theobserver

postulated a near future of melting polar glaciers, the coming of a European climate resembling that of Siberia, and a drought and famine-ridden Asia and Africa. Underpinning the authors' vision of a dystopian world lay a Hobbesian-Malthusian style vision of endemic armed conflict with humanity increasingly plagued by 'constant battles for diminishing resources'.[47]

Although the ONA study was more of a futuristic 'think piece' for contemplation than a realistic and accurate forecast with policy value, the imprimatur of the Pentagon's leading military strategist influenced the trajectory of subsequent literature on climate war. In spirit, much of the published work came to echo the statements of politicians such as President Ali Bongo Ondimba of Gabon who, in 2012, asserted that climate change in Africa would be the 'cause [of] armed conflicts in 23 countries, and political unrest in another 13'.[48] Examples of the climate war and conflict literature include the work of Michael Klare, Harald Welzer, Gwynne Dyer, Christian Parenti, Jeffrey Mazo and James R Lee. Collectively, these studies argue that both climate-change war and climate-change conflict will proliferate and dominate in the years ahead as droughts, floods and melting polar ice flows affect humanity creating dwindling resources, desertification, shrinking water supplies, state failure, rising sea levels threaten South Pacific and Asian lowlands and cause mass human migrations.[49]

In *Resource Wars*, Michael Klare predicts a new geography of conflict in which wars over shrinking water supplies and energy become 'the most distinctive feature of the global security environment'.[50] These conflicts include projected water wars in the Nile valley and the Tigris-Euphrates basins through to energy wars in the Caspian Sea and oil wars in the South China Sea. Harald Welzer and Jeffrey Mazo come to similar conclusions in their respective books. Welzer's *Climate Wars* foresees a future of 'never-ending wars' arising from ecological

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47 Schwartz and Randall, *An Abrupt Climate Change Scenario,* pp 16–17, 22–23; Nils Gilman, Peter Schwartz and Doug Randall, 'Climate Change and "Security"', in John S Dryzek, Richard B Norgaard and David Scholsberg (eds), *The Oxford Handbook of Climate Change and Society*, Oxford University Press, New York, 2011, passim https://doi.org/10.1093/oxfordhb/9780199566600.003.0017.

48 Jan Selby and Clemens Hoffmann, 'Rethinking Climate Change, Conflict, and Security', *Geopolitics*, 2014, 19(4):747–48, https://www.tandfonline.com/doi/pdf/10.1080/14650045.2014.964866.

49 See Michael T Klare, *All Hell Breaking Loose: The Pentagon Perspective on Climate Change*, Metropolitan Books, Henry Holt and Company, 2019 and Michael T Klare, *Resource Wars*: *The New Landscape of Global Conflict,* Metropolitan Books, New York, 2001; Harald Welzer*, Climate Wars: What People will be Killed for in the 21st Century* (Patrick Camiller trans), Polity Press, London, 2017; Christian Parenti, *Tropic of Chaos: Climate Change and the New Geography of Violence*, Bold Type Books, New York, Kindle edition, 2011; Gwynne Dyer, *Climate Wars: The Fight for* Survival as the World Overheats, OneWorld Publishers, Oxford, 2011; Jeffrey Mazo, *Climate Conflict: How global warming threatens security and what to do about it*, International Institute for Strategic Studies, London, 2010, Kindle edition, https://doi.org/10.4324/9780203824108; and James R Lee, *Climate Change and Armed Conflict: Hot and Cold Wars*, Routledge, London, 2009, https://doi.org/10.4324/9780203872208.

50 Klare, *Resource Wars*, Introduction and passim.

disaster, claiming the conflict in Darfur between African farmers and Arab nomadic herders represented the 'first climate war'. In *Climate Conflict*, Mazo notes that, in terms of causation, a greenhouse-induced drought in the Horn of Africa was the most critical factor underlying the Darfur conflict. He concludes that, despite contributing political issues of communal violence and weak governance, 'the fighting in Darfur can accurately be labelled the first modern climate-change conflict'.[51]

Christian Parenti's *Tropic of Chaos* investigates what the author styles as 'climate war forensics' in the Global South's fragile states. His book seeks to reveal a pattern of anthropogenic climatic factors at play in a 'tropic of chaos' involving wars and rebellions ranging from the Horn of Africa through Kyrgyzstan and Afghanistan to various Latin American countries.[52] Parenti believes that climate-change wars and climate-induced conflicts will supersede traditional Western concerns about conventional inter-state war. Instead, there is a 'geography of climatologically driven civil war' emerging, which, because of its threat to planetary order, will require 'open-ended counterinsurgency on a global scale' and come to dominate military affairs in the twenty-first century.[53]

A similar planetary crisis emerges in probably the most baroque book in the climate–conflict literature, *Climate Change and Armed Conflict* by James R Lee. The author speculates that the globe faces a protracted 'Climate Change War'. The latter involves what Lee calls an 'Equatorial tension belt' across Africa and Central Asia of *hot* wars emanating from warming and a 'Polar tension belt' in the Western hemisphere of *cold* wars, stemming from melting Arctic ice.[54] He predicts:

> The Cold War lasted nearly half a century. The Climate Change War will be a global period of instability that will last centuries. The period of the greatest instability will be the twenty-first century.[55]

Drawing inspiration from HG Wells's 1895 science-fiction novel, *The Time Machine*, Lee speculates that the coming hot and cold global climate wars may result in developed societies resembling the Eloi, as the prey of the Morlocks of underdeveloped societies. Lee writes, 'it is possible, but not perfect to substitute

51 Welzer, *Climate Wars*, pp 61, 62–65 and chapter 7; Mazo, *Climate Conflict*, chapter 3 and pp 79–85, 74.

52 Parenti, *Tropic of Chaos*, p 4, pp 10–11 and chapters 2–3, 7, 10 and 16.

53 Parenti, *Tropic of Chaos*, pp 9–10.

54 Lee, *Climate Change and Armed Conflict*, pp 5–16.

55 Lee, *Climate Change and Armed Conflict*, p 2.

developed countries (Eloi) and underdeveloped countries (Morlocks) into the lexicon of Wells'.[56]

Some climate wars theorists, such as Klare and Dyer, have called upon Western militaries to transition from planning for traditional warfighting functions to preparing to manage 'environmental-related conflicts' with an emphasis on civil defence, migration issues and refugee protection.[57] The British environmentalist, John Elkington, has called for Western military establishments to consider the challenges posed by ecocide and the changing biosphere as '[the] new core business of the armed services'.[58] More recently, the American scholar, Anatol Lieven, has demanded that 'Western military establishments and military chiefs must declare much more strongly and consistently that climate change poses a potentially existential threat to the nations they are sworn to defend'.[59]

There are two major problems with the work of climate wars and climate-related-conflict writers. The first problem is their climatic determinism caused largely by a lack of historical perspective of the interaction between the geography of the natural world and humanity's conduct of war. The second problem is their almost complete lack of knowledge of military affairs and of defence and security analysis.

In terms of the first problem, throughout the history of arms, there has always been an important relationship between climate and the waging of wars. It was Russia's continental climate with its severe winter which played the key role in thwarting the invasions of Napoleon and Hitler. As Napoleon's aide, General Philippe-Paul de Segur, observed of the French survivors of 1812: 'It was the ghost of the *Grande Armée*. They felt they had been defeated only by Nature'.[60] Similarly, in the First World War, the damp maritime climate of lowland Flanders helped shape a protracted trench deadlock. In more recent wars, Vietnam's tropical monsoon climate, Iraq's arid deserts and Afghanistan's subarctic mountain climate all affected the efficacy of American-led military operations.[61] Yet conceding that climate has always played a *role* in warfare is very different from

56 Lee, *Climate Change and Armed Conflict*, pp 17, 24–25.

57 Michael T Klare, 'Global Warming Battlefields: How Climate Change Threatens Security', *Current History*, November 2007, 106(703):355–361, p 361, https://doi.org/10.1525/curh.2007.106.703.355; Dyer, *Climate Wars,* p 10.

58 John Elkington, 'Military for Sustainability', in Jorgen Randers (ed), *2052: A Global Forecast for the Next Forty Years. A Report to the Club of Rome Commemorating the Fortieth Anniversary of The Limits to Growth*, Chelsea Green, White River, VT, 2012, Kindle edition, loc 3859-3867, https://www.clubofrome.org/publication/2052/ see also http://www.2052.info/glimpse7-4/.

59 Lieven, 'Climate Change and the State: A Case for Environmental Realism', p 11.

60 See for example Harold A Winters with Gerald E Galloway Jr, William J Reynolds and David W Rhyne, *Battling the Elements: Weather and Terrain in the Conduct of War,* The Johns Hopkins Press, Baltimore, 1998, p 86.

61 See David R Petriello, *Tide of War: The Impact of Weather on Warfare*, Skyhorse Publishing, New York, 2018.

the proposition that the phenomenon of global warming will, in future decades, become a predominant cause of war – so forcing defence establishments to reconfigure themselves for the peculiarities of the Anthropocene.

A historical perspective reveals much of value about the relationship between climate variation and war from our pre-industrial past. For example, a reading of Geoffrey Parker's magisterial study, *Global Crisis: War, Climate Change and Catastrophe in the Seventeenth Century* demonstrates that when it comes to climate and war correlation is not the same as causation.[62] Parker's scholarship demonstrates how the pre-Westphalian and pre-industrial world of the seventeenth century endured the most pronounced global climate anomaly of the past 8,000 years, namely the global cooling of the Little Ice Age – an event that coincided with revolutions, wars and famines – that killed a third of humanity. In linking the Little Ice Age with the global political upheavals of the seventeenth century, Parker firmly rejects 'climatic determinism' and the proposition that 'global cooling must have somehow caused recession and revolution around the world simply because climate change is the only plausible denominator'.[63]

The Thirty Years War, the English Civil War and the Glorious Revolution, the Ottoman threat to Eastern Europe; the rise of France under the Sun King, Louis XIV – as well as the long wars that plagued China, India and Japan – were not caused by the climatic conditions of the Little Ice Age. They were historical events in which, 'natural and human factors combined to create a comprehensive demographic, social, economic, and political catastrophe that lasted for two generations'.[64] Yet, the world survived the crisis of global cooling. The struggles and turmoil of the seventeenth century were accompanied by an era of European intellectual progress and discovery in what has been called 'the age of genius' – the epoch in which Galileo, Newton, Descartes, Bacon, Kepler and Copernicus transformed human understanding of the natural world. Society in Europe adapted to the Little Ice Age. It emerged economically reconstructed and more politically powerful than before through post-Westphalian state building and a scientific revolution that led to the Enlightenment and on to modernity.[65] If there is a lesson from the seventeenth century's experience of global cooling for the twenty-first century's era of global warming it is that, despite a potential for endemic strife and turmoil, with a combination of political adaptation, human ingenuity and technological innovation humanity remains capable of overcoming

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62 Geoffrey Parker, *Global Crisis: War, Climate Change and Catastrophe in the Seventeenth Century*, Abridged and Revised Edition, Yale University Press, New Haven, 2017. https://www.jstor.org/stable/j.ctt32bksk

63 Parker, *Global Crisis*, p xvii; chapters 1–2.

64 Parker, *Global Crisis*, p xx.

65 AC Grayling, *The Age of Genius: The Seventeenth Century and the Birth of the Modern Mind*, Bloomsbury, London, 2016, especially chapters 16–18.

a global crisis. Too much of today's environmental scholarship underestimates humanity's potential to undertake sociopolitical adaptation to, and mitigation of, global warming.[66]

The second problem in the work of many climate wars advocates is, ironically, their weak grasp of military affairs and defence analysis. This deficiency has left their work open to criticism by several professional security analysts. As James Woolsey, the former head of the Central Intelligence Agency observed in 2008, linking climate change to warfare is especially daunting. This is because not only do environmental and security issues involve radically different worldviews, but there is also the challenge of mastering knowledge of multiple disciplines ranging from atmospheric science and agricultural hydrology to energy economics and strategic studies. Woolsey cautioned that climate change represented a 'malignant', as distinct from a 'malevolent', problem. Using a formulation derived from Albert Einstein, Woolsey characterised a malignant problem as a *raffiniert*, or threat derived from nature, as opposed to a malevolent problem, a *boshaft*, emanating from a human adversary intent on inflicting intentional harm'.[67]

The case of Arctic climate change and its potential for armed conflict is a useful example of Woolsey's 'malignancy' proposition. A superficial reading of the effects of polar warming might suggest a future of great power maritime war over the Arctic's large and valuable oil and gas resources. Yet most Arctic security analysts view war in the region as highly improbable and emphasise the reality of geopolitical cooperation over speculations on military conflict.[68] As the German security specialist, Helga Haftendorn, notes, the Arctic presents itself today as 'an area of peaceful cooperation devoid of acute military threats'. She goes on to write:

> There are two explanations for the dichotomy between an expectation of violent conflict due to competition for scarce resources and the existence of a basically peaceful situation in the

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66 Ed Atkins, 'Environmental Conflict: A Misnomer?', in Gustavo Sosa-Nunez and Ed Atkins (eds), *Environment, Climate Change and International Relations*, E-International Relations Publishing, Bristol, 2016, pp 100–108, https://www.e-ir.info/2016/05/12/environmental-conflict-a-misnomer/; Harry F Lee. 'Measuring the effect of climate change on wars in history', *Asian Geographer,* 2018, 35(2):123–142, https://doi.org/10.1080/102257 06.2018.1504807.

67 James Woolsey, 'A Partnership Deal: Malevolent and Malignant Threats', in Campbell (ed)*, Climatic Cataclysm: The Foreign Policy and National Security Implications of Climate Change*, loc 22111-2216, *n35*.

68 See Heather Exner-Pirot, 'Between Militarization and Disarmament: Challenges for Arctic Security in the Twenty-First Century', in Lassi Heininen and Heather Exner-Pirot (eds), *Climate Change and Arctic Security: Searching for a Paradigm Shift,* Palgrave Macmillan, London, 2020, Kindle edition, pp 91–106, loc 2075-2390. Other studies that highlight cooperation over conflict include Joachim Weber (ed)*, Handbook on Geopolitics and Security in the Arctic: The High North Between Cooperation and Confrontation,* Springer, Switzerland AG, 2020; Christian Le Mière and Jeffrey Mazo, *Arctic Opening: Insecurity and Opportunity,* Routledge for the IISS, London, 2013; and James Kraska (ed), *Arctic Security in an Age of Climate Change*, Cambridge University Press, Cambridge, 2011.

Arctic region. One is that the Arctic states are realizing that they have more to gain from cooperation than confrontation. The other answer refers to the tremendous pressure of the impact of climate change that forces them to close ranks to fight the emanating risks.[69]

A directly military-oriented critique of the climate wars proponents was made in 2016 by retired American general and leading soldier-scholar Robert Scales. He took the climate wars writers to task for their inability, or unwillingness, to distinguish between intra-state wars and inter-state wars. He noted that the last war over water resources was between two Sumerian cities in the middle of the third millennium BC over the Tigris and Euphrates rivers.[70] Scales went on to observe:

> Environmental activism aside, the three-thousand-year historical record of human conflict argues conclusively against any causal relationship between war and temperature. Let me be more specific. Never in the written history of warfare, from Megiddo in 1,500 BC to the Syrian civil war today, is there any evidence that wars are caused by warmer air.[71]

Scales was not alone in his scepticism. Earlier in 2011, the French defence specialist, Bruno Tertrais criticised the climate wars advocates for their lack of understanding of the history of warfare. Tertrais pointed out that historically, warmer eras have meant fewer wars since colder climates yield reduced harvests, more famines and increased predation by humans – as in the Thirty Years War of the seventeenth century.[72] He employed statistical evidence to suggest that, if there was any significant link between warfare and warming, then, the number of conflicts should have risen since the 1990s. In 1989, there were 35 wars occurring around the globe; yet in 2009, the number dropped to 17. In particular, and despite incidences of prolonged drought and desertification, there has been a decrease in the number of civil wars. Tertrais concluded his critique by observing:

> In the modern era, the evolution of the climate is not an essential factor to explain collective violence. Nothing indicates that 'water

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69 Helga Haftendorf, 'Arctic security: new challenges in a diverse region', in Joachim Krause and Sebastian Bruns, *Routledge Handbook of Naval Strategy and Security*, Routledge, New York, 2016, pp 133-34.

70 Robert Scales, *Scales on War: The Future of America's Military at Risk,* Naval Institute Press, Annapolis MD, 2016, p 35–40.

71 Scales, *Scales on War*, p 41.

72 Bruno Tetrais, 'The Climate Wars Myth', *The Washington Quarterly*, Summer 2011, 34(3):17–29, https://doi.org/10.1080/0163660X.2011.587951.

wars' or floods of 'climate refugees' are on the horizon. And to claim that climate change may have an impact on security is to state the obvious – but it does not make it meaningful for defense planning.[73]

The dual problems of a lack of historical perspective and a weak grasp of military affairs by the security strand in thinking on climate wars is further compounded by disagreements inside the academic environmental studies community on the climate–conflict nexus. It is to an analysis of this important community that this article now turns.

The environmental studies community: evidentiary division over war and warming

The academic environmental studies community tend to be much more aware of climate-change scholarship than many of the analysts and writers in the security strand of thinking on the subject. In general, environmental scholars are wary of both the climate wars thesis and the climate–conflict nexus because they recognise the reality that interdisciplinary complexities have raised disagreements over the evidentiary basis of warfare and warming within their ranks. Indeed, many scholars are inclined to dismiss the climate wars thesis while often viewing the climate–conflict nexus as a form of neo-Malthusian thinking on resource scarcity and drought whose trends are taken out of context.[74] As Swiss scholar, Benedict Korf writes, the climate–conflict narrative is deeply flawed because it is based on a Malthusian interpretation of the scientific literature relating mainly to Africa, leading to what he calls the adoption of 'imaginative geographies of climate wars'.[75]

Similarly, in 2011, a major study by a group of leading Norwegian researchers from the Centre for Civil War at the Peace Research Institute in Oslo, found little evidence of 'water wars' and drought-induced military conflicts in Africa. The study concluded that the 'climate wars thesis', based on a systematic covariance of drought and armed conflict, was not evident and that there was 'no direct short-term relationship between drought and civil war onset, even

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73 Tetrais, 'The Climate Wars Myth', p 17, pp 18–28.

74 Selby and Hoffmann, 'Rethinking Climate Change, Conflict and Security', 754, 748–51; Jan Selby et al., 'Climate Change and the Syrian Civil War Revisited', *Political Geography*, 2017, 60:232–44, https://doi.org/10.1016/j.polgeo.2017.05.007; Idean Salehyan, 'From Climate Change to Conflict: No Consensus Yet', *Journal of Peace Research*, 2008, 45(3):315–326, https://doi.org/10.1177%2F0022343308088812.

75 Benedikt Korf, 'The Imaginative Geographies of Climate Wars', *Procedia: Social and Behavioural Sciences*, 2011, 14:315–326, 36, https://doi.org/10.1016/j.sbspro.2011.03.017.

within contexts presumed most conducive to violence'.[76] In July 2019, the journal *Nature* published a synoptic assessment of the relationship between climate and armed conflict based on 'the structured judgments of [14] experts from diverse disciplines' including environmental science, geography, sociology, economics, political science and international relations.[77] Using a research design that drew on probabilistic analysis, crosscutting reviews and meta-analyses of data to reconcile diverse data, the researchers found that climate variability and/or change ranked low as a cause of armed conflict. The experts reported:

> We conclude that there is agreement that climate variability and change shape the risk of organized armed conflict within countries. In conflicts to date, however, the role of climate is judged to be small compared to other drivers of conflict, and the mechanisms by which climate affects conflict are uncertain.[78]

The *Nature* assessment reinforced another 2019 review of the evidence for the nexus between climate change, armed conflict and human security undertaken by American scholar, Joshua Busby.[79] Busby criticised the narrow focus on intra-state wars by researchers and highlighted the existence of significant interdisciplinary differences in the environmental studies field. He found little convincing evidence that revealed a justification to classify either Darfur or Syria as climate wars. Moreover, he concluded that most climate models were too focused on far-off time horizons – such as the year 2100 – in a manner that could only be unrealistic for today's policy audiences concerned with developing climate and security strategies.[80]

Other scholars have highlighted how research into the climate–conflict nexus is prone to a form of sampling and selection bias that confuses short-term climatic *variability* (extreme weather, floods and bushfires) with long-term climatic *change* (widespread patterns of change over decades). Scholars such as the Norwegian political scientist Halvard Buhaug, the Swiss economist, Vally Koubi and the British environmentalist Corinne Schoch have all noted that the evidence from conflicts in Darfur and Syria, represents specific and localised wars that cannot

76 Ole Magnus Theisen, Helge Holtermann and Halvard Buhaug, '"Climate Wars?": Assessing the Claim that Drought Breeds Conflict', *International Security*, Winter 2011/12, 36(3):79–106, 104, www.jstor.org/stable/41428110.

77 Katharine J. Mach, et al., 'Climate as a Risk Factor for Armed Conflict'*, Nature*, 11 July 2019, 571:193–97, https://doi.org/10.1038/s41586-019-1300-6. The study involved leading figures in climate change studies such as Halvard Buhaug, Marshall Burke and Philip Roessler.

78 Mach, Climate as a Risk Factor for Armed Conflict, p 196.

79 Joshua Busby, *The Field of Climate and Security: A Scan of the Literature,* Social Science Research Council, New York, April 2019, pp 1–18, https://www.ssrc.org/publications/view/the-field-of-climate-and-security-a-scan-of-the-literature/

80 Busby, *The Field of Climate and Security*, p 4, p 9.

possibly yield what Buhaug calls a 'comparative, generalized analytical design' representative of a widespread pattern of climate change and war. Indeed, he advises that for the sake of scholarly credibility, the very term climate wars should be avoided by researchers 'at all costs'.[81] For his part, Koubi notes a fundamental confusion between correlation and causation of climate change and violent conflict; while Schoch concludes, 'the climate-war/conflict nexus [is] characterised by conjecture, extrapolations and a limited set of facts'.[82]

Such conjecture, extrapolation and the use of limited evidence by some proponents of the climate wars-conflict proposition – whether from the security or environmental studies strands of thought – also serves to obscure grave legal and moral dangers about the subject of climate and armed conflict. The idea of wars being caused by climatic issues, as opposed to political factors, may serve to act as an alibi for military dictators who use adverse environmental conditions to conceal the pursuit of repression and genocide. An illustration of this situation is the case of Colonel Mengistu Hailie Mariam – the Marxist dictator of Ethiopia who in the mid-1980s – who exploited drought and famine conditions in the rebel provinces of Tigray and Eritrea to enforce the 'Red Terror', a pogrom masquerading as a relief program of 'villagisation'. Up to half a million people were killed. In 2007, Human Rights Watch described Mengistu's actions as 'one of the most systematic uses of mass murder by a state ever witnessed in Africa'.[83]

Alongside legal and moral questions, other authors have raised issues concerning how journalistic pressures and populism have contributed to an atmosphere in which activism is as important as analysis.[84] Indeed, given the paucity of evidence of climate and war, some researchers have questioned whether it is even 'conceptually fruitful to be talking about climate change and conflict at

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81 Halvard Buhaug, 'Climate–conflict research: some reflections on the way forward', *WIREs Climate Change,* 18 February 2015, 6:269–275, p 270, https://doi.org/10.1002/wcc.336; and Halvard Buhaug, 'Climate Change and Conflict: Taking Stock'*, Peace Economics, Peace Science and Public Policy*, 2016, 22(4):331–338, p 332, https://doi.org/10.1515/peps-2016-0034; Vally Koubi, 'Climate Change and Conflict', *Annual Review of Political Science*, 2019, 22:343–360, p 356, p 343, https://doi.org/10.1146/annurev-polisci-050317-070830; and Corinne Schoch, *Rethinking Climate Change as a Security Threat*, International Institute for Environment and Development (iied publications), London, October 2011, p 1, https://pubs.iied.org/17101iied. For the issue of sampling bias see Courtland Adams, Tobias Ide, Jon Barnett, Adrien Detges, 'Sampling bias in climate-conflict research', *Nature Climate Change*, March 2018, 8:200–203, https://doi.org/10.1038/s41558-018-0068-2; and Tim Forsyth and Meraike Schomerus, *Climate Change and Conflict: A Systematic Evidence Review, JSRP Paper 8,* The Justice and Security Research Programme, London School of Economics, London, September 2013, pp 8–33, http://eprints.lse.ac.uk/56352/.

82 Koubi, 'Climate Change and Conflict', p 343; Schoch, *Rethinking Climate Change as a Security Threat*, p 1.

83 Cited in AAP, 'Ethiopian Dictator in Exile Gets Life Term'*, The New York Times*, 12 January 2007, https://www.nytimes.com/2007/01/12/world/africa/12briefs-ethiopiadictator.html.

84 Mach, 'Climate as a Risk Factor for Armed Conflict'; Betsy Hartmann, 'Rethinking climate refugees and climate conflict: rhetoric, reality and the politics of policy discourse', *Journal of International Development*, 23 February 2010, 22(2):233–246, p 242, https://doi.org/10.1002/jid.1676.

all'.[85] The weak evidence led the environmental studies community to state in the 2014 IPCC Fifth Assessment Report that 'collectively the research does not conclude that there is a strong positive relationship between warming and armed conflict'.[86] In 2017, the UN's Office for the Coordination of Humanitarian Affairs reinforced this view stating 'independently, climate change does not lead to violence ... It is the intersection between vulnerability to climate change and broader institutional and socioeconomic fragility that drives the potential for conflict and violence'.[87]

The above evidentiary difficulties and the lack of a unitary logic at work on climate securitisation raise the question of the character of any future research agenda into climate change and armed conflict. Given regional conflict variations and significant differences in the typologies of warfare (inter-state, intra-state, conventional and unconventional and the emergence of space and cyber domains to those of land, sea and air), generalisations about a climate wars thesis or assertions of a climate–conflict nexus are of little value to the strategic policy world. Indeed, they may be seen to smack of education by zealotry in which an 'absence of evidence is not evidence of absence'. To be credible, future research into the relationship between climate and security linkages requires what historian Dipesh Chakrabarty describes as a sustained 'conversation between disciplines'. This conversation must be based on a recognition that humanity in the twenty-first century lacks a single, universalising sense of modernity but instead inhabits 'an integrated world of multiple and multiplying modernities'.[88] In a world of diverse forms of modernity, analytical discrepancies between the fields of qualitative and quantitative climate-change research – alongside questions concerning differing patterns of geopolitical, demographic and migratory change – must be recognised as ongoing and holistic research challenges by scholars interested in studying climate securitisation.[89]

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85 Ragnhild Nordäs and Nils Petter Gleditsch, *Climate Conflict: Common Sense or Nonsense?* [Conference Paper], PRIO Publication, Centre for the Study of Civil War, Peace Research Institute Oslo, 2005. p 24 available as PDF via https://css.ethz.ch/en/services/digital-library/publications/publication.html/38142.

86 IPCC, *Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*, Geneva, Switzerland, p 16, https://www.ipcc.ch/report/ar5/syr/.

87 United Nations Office for the Coordination of Humanitarian Affairs, (OCHA) *Understanding the Climate–Conflict Nexus from a Humanitarian Perspective: A New Quantitative Approach,* OCHA Policy and Studies Series, Occasional Policy Paper, New York, May 2016 | 017, p 9, https://www.unocha.org/sites/unocha/files/Understanding%20the%20climate-conflict%20nexus.pdf.

88 Chakrabarty, 'The Climate of History: Four Theses', p 219.

89 On research challenges see, for example, Kathleen Hermans and Tobias Ide, 'Advancing research on climate change, conflict and migration', *DIE ERDE: Journal of the Geographical Society of Berlin*, 2019, 150(1):40–44, https://www.die-erde.org/index.php/die-erde/article/view/411.

Accordingly, the climate wars thesis and climate–conflict nexus must become embedded in sophisticated whole-of-government research approaches in which security concerns are carefully analysed using methods that explore multiple pathways and contexts, employ rigorous data disaggregation and examine comparative environmental variables both within, and between, regions.[90] The need in coming years is for researchers to develop innovative conceptual tools of comparative risk assessment and matrix methodologies. As one study notes, improved conceptual tools are required to study different global, regional and national geographical areas 'in new ways to give insight into the world's most salient risks regarding climate change and its consequences for security'.[91] Analysts must grasp the reality that climate-change security is less about sovereign state defence and the armed forces thanit is about the promotion of a form of interagency sustainable security that, outside of large-scale disaster relief, is primarily a civil responsibility. In a conception of sustainable security, the fusion of civil emergency services, economic diplomacy, development aid and an understanding of human security are more important measures towards climate mitigation than the singular role of military establishments.[92]

Given the many flaws in contemporary research into climate wars and conflict, far more holistic methods must be applied to assess climate change mechanisms and to identify any future accelerants that may link global warming to security concerns. 'As risks grow under future climate change', the authors of the 2019 *Nature* synoptic assessment caution, 'many more potential climate–conflict linkages [may] become relevant and extend beyond historical experiences'.[93] Greater national and international use of interagency climate advisory and infrastructure watch bodies; investment in stronger civil emergency service organisations; more intense and holistic climate security dialogues; and environmental intelligence-sharing measures will be required to inform policymaking in the years ahead.[94]

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90 Marshall Burke, Solomon M Hsiang and Edward Miguel, 'Climate and Conflict', *The Annual Review of Economics,* 13 May 2015, 17:577–617, https://doi.org/10.1146/annurev-economics-080614-115430.

91 Femke Remmits, Elisabeth Dick, and Michel Rademaker, *Climate Security Assessment: A Methodology and Assessment of the Nexus between Climate Hazards and Security of Nations and Regions*, The Hague, The Hague Centre for Strategic Studies, December 2020, p 9 and chapter 1.

92 Rymn J. Parsons, *Taking Up the Security Challenge of Climate Change,* Strategic Studies Institute, US Army War College, Carlisle Barracks, PA, August 2009, pp 5-7.

93 Mach, et al., 'Climate as a Risk Factor for Armed Conflict', p 196.

94 See the suggestions by The Climate Security Advisory Group, *A Climate Security Plan for America: A Presidential Plan for Combating the Security Risks of Climate Change,* The Center for Climate Security, Washington DC, September 2019, https://climateandsecurity.org/climatesecurityplanforamerica/; and Erin Sikorsky, 'Analyzing the Climate Security Threat: Key Actions for the US Intelligence Community, *War on the Rocks*, 22 January 2021, https://warontherocks.com/2021/01/analyzing-the-climate-security-threat-key-actions-for-the-u-s-intelligence-community/

Conclusion

The notion that climate conflicts will dominate the future of war owes little to either mainstream strategic studies analysis or to the interdisciplinary environmental studies community. Moreover, climate-change security analysis has, to date, not followed a unitary logic but varies greatly due to a multiplicity of different disciplinary lenses. Yet, even if the proposition of 'climate wars' had credibility, we might paraphrase Georges Clemenceau and say that climate change is far too important to be left to the generals. The securitisation of climate change over the past two decades is an unwelcome development as it has often contributed to narrow and overly speculative forms of research. The securitisation of climate change serves only to obscure the reality that global warming is a vastly complex area of public policy requiring both international and national whole-of-government approaches in which socioeconomic, technological and energy factors are likely to be of far more importance than the uses of the armed forces. A predominance of international effort needs to be directed at what Crutzen once described as the 'daunting and difficult task [of] the global research and engineering community to guide mankind towards global, sustainable, environmental management'.[95]

More than 20 years of research on the linkages between climate change and warfare demonstrate no direct causal link between the two phenomena. The significance of climate change in strategic analysis continues to lie in its capacity to act as a 'threat multiplier' and accelerant through interaction with traditional political sources of war and conflict. Beyond prudent monitoring of the parameters of climate policy and maintaining a mission focus to deliver timely humanitarian aid and disaster relief to reinforce civilian emergency services, it is difficult to view climate security as a compelling independent priority for Western professional militaries. While Western defence departments must be clearly aware of any emerging environmental security issues as they relate to military readiness, basing infrastructure and operational effectiveness, such awareness should not be related to the so far unproven idea that climate conflict represents the future of war.

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95 Quoted in Chakrabarty, 'The Climate of History: Four Theses', p 211.

Gaia, the earth goddess is likely to remain an improbable partner for the fierce warrior-god Ares; and there is nothing occurring in human affairs to challenge the veracity of Thucydides' statement that wars stem from the 'fear, honour and interest' inherent in the human condition. [96] Nor should Clausewitzian thinking on war as an extension of politics by other means be distorted, or weakened, by any quixotic forms of military environmentalism. Warfighting, not climate change mitigation, must remain the central mission of professional Western armed forces. In short, it is impractical to suggest that defence planners and military professionals reduce their knowledge of human-based geopolitical awareness, strategic analysis, operational warfare and the study of weapons technology in favour of concentrating on the science of the biosphere and a contemplation of ecocide. For the foreseeable future, then, there is little reason to suppose that the variables of Crutzen's Anthropocene will replace the gestalt of Clausewitz's *On War* in the classrooms of the world's war colleges and defence academies.

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96 Thucydides, *The Landmark Thucydides: A Comprehensive Guide to the Peloponnesian War* (Robert B Strassler ed, Victor Davis Hanson ed (introduction), Richard Crawley trans), Free Press, New York, 1998, p 43.

Commentary

Why Australia needs an Integrated Review

Matthew Sussex

The United Kingdom's (UK) recently released Integrated Review of Security, Defence, Development and Foreign Policy, published under the title *Global Britain* in a *Competitive Age*,[1] is an ambitious document. It seeks to navigate a pathway for the UK's role in the world in the aftermath of its withdrawal from the European Union, stresses the need to harmonise its approach to defence and security, and attempts to identify priority areas for investment and development. It is, in effect, a grand strategy for the UK at a time of global upheaval and regional discord.

Attaining a more clear-eyed and holistic vision about precisely what the threat and opportunity landscape looks like – as well as the types of capabilities needed to address them – is precisely the kind of activity Australia's strategic and security community should be engaging in. After all, it is not as though Australia is encountering a strategic future that is fixed or on which there is consensus between agencies, much less experts outside government working on the topic.[2] For the first time in many decades, Australia faces the prospect of great power competition on its doorstep. It must also meet the challenge

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1   UK Government Cabinet Office, *Global Britain in a competitive age: the Integrated Review of Security, Defence, Development and Foreign Policy*, UK Government March 2021, accessed 18 April 2021, https://www.gov.uk/government/publications/global-britain-in-a-competitive-age-the-integrated-review-of-security-defence-development-and-foreign-policy/global-britain-in-a-competitive-age-the-integrated-review-of-security-defence-development-and-foreign-policy.

2   On this point see for instance Jason Israel, 'Indo-Pacific Strategy: before justifying the means, identify the ends', *The Interpreter*, Lowy Institute, 27 August 2020 10:00, accessed 18 April 2021, https://www.lowyinstitute.org/the-interpreter/indo-pacific-strategy-before-justifying-means-identify-ends.

of a rising tide of autocracy and worrisome democratic backsliding.[3] Looming environmental dangers over the longer term and a global pandemic in the short term both serve to highlight significant current and future vulnerabilities in our trade and development postures.[4] And liberal democracies like Australia must also confront hybrid security concerns, including foreign influence and insecurity in cyberspace. These challenges cut easily across state borders and seek to weaken societies and economies from within via disinformation, encouraging mistrust of government and engendering politically fragmented communities.

Amid this flurry of challenges, conventional policymaking clearly cannot keep pace, much less operate adaptively and with agility. A good example here is Australia's *2017 Foreign Policy White Paper*, which did an excellent job of preparing the nation for a more uncertain future.[5] But its emphasis on ensuring the maintenance of a rules-based order with the United States as the main anchor underpinning Indo-Pacific security made it almost instantaneously a backward-looking document. After it was published, it was swiftly surpassed by a range of events that included: the Trump Administration's effective abrogation of a global leadership role; the failure of the Trans-Pacific Partnership; and the emergence of a much more assertive Chinese approach to defence and foreign policy, which was backed up by large reservoirs of investment funding from its Belt and Road Initiative (BRI) to woo regional actors.

Put simply, we have entered a period that will shape the futures of not just the next generation of Australians but several more to come. As the Lowy Institute's 'Power Index' makes clear, Australia may well be less influential, more vulnerable and poorer in the future than in the past.[6] That is why an honest reassessment of Australia's national interests – who Australians are, what Australia seeks to protect and what hard choices will accomplish that – is also overdue. In foreign policy, it is abundantly clear that simply adapting what has worked before in periods of strategic stability is insufficient. So too are soothing but woolly slogans about 'shared values', or a 'free and open Indo-Pacific'. In fact, the

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3   See *Australian Foreign Affairs,* Issue 11, 'The March of Autocracy', February 2021, which is devoted to the topic, accessed 18 April 2021, https://www.australianforeignaffairs.com/essay/2021/02/the-march-of-autocracy.

4   For a useful overview of systemic disaster risk for Australia – which predated the COVID-19 pandemic – see the National Resilience Taskforce report on the topic: Department of Home Affairs, *Profiling Australia's Vulnerability: the interconnected causes and cascading effects of systemic disaster risk*, Australian Government, 2018, accessed 18 April 2021, https://www.aidr.org.au/media/6682/national-resilience-taskforce-profiling-australias-vulnerability.pdf.

5   Department of Foreign Affairs (DFAT), *2017 Foreign Policy White Paper*, Australian Government, 23 November 2017, https://www.dfat.gov.au/publications/minisite/2017-foreign-policy-white-paper/fpwhitepaper/index.html.

6   'Lowy Institute Asia Power Index: 2020 Edition' [website], Lowy Institute for International Policy, 2020, accessed 16 April 2021, https://power.lowyinstitute.org.

UK's Integrated Review essentially abandons the notion of an international rules-based order in favour of a focus on adaptation to meet messy competition,[7] and stresses that, although it will seek to protect and promote democratic values, it will also work equally comfortably with others that do not share them.

This is a good starting point for a more pragmatic Australian approach, which will need to build partnerships with like-minded states that in many respects – especially in continental and maritime South-East Asia – will not be democracies. By the same token, like the theme of flux central to the Integrated Review, the broad challenges Australia faces in the Indo-Pacific mean its defence, foreign and security policies must assume uncertainty. That will require more flexibility, more agility and evaluating risks more strategically. Even the smallest choices can cut across all facets of Australian societal, economic and political life. Indeed, we have already experienced the tip of the iceberg on this. How, for instance, should Australia insulate itself from foreign interference when the main peddlers of disinformation are often already inside the country, their false messages amplified (but generally not devised) by hostile powers?[8] How does Australia ensure an empowered and cyberliterate Australian society without accusations of indoctrination or inadvertently causing Australians to mistrust government further?[9] Who gets to choose what Australia's 'values' are? And how can decision-makers be better held accountable for upholding them consistently?

We can find the need for a clearer focus on consistent and coherent strategic thinking in other arenas too. If it is in Australia's interests to lead the international charge for a robust enquiry into China's and the World Health Organization's handling of COVID-19, it must be prepared for a flurry of opprobrium from Beijing that accuses Canberra of racism and seeks to make an example of Australia by targeting key trade sectors. In other words, Australia needs to be more assured about the potential consequences of its policies and not merely content that they are virtuous.

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7   UK Government, *Global Britain in a competitive age*, March 2021.

8   On this topic see for instance Yevgeniy Golovchenko, Mareike Hartmann, and Rebecca Adler-Nissen, 'State, media and civil society in the information warfare over Ukraine: citizen curators of digital disinformation', *International Affairs*, 2018, 94(5):975–994, https://doi.org/10.1093/ia/iiy148; Herb Lin, 'The Existential Threat from Cyber-Enabled Information Warfare' *Bulletin of the Atomic Scientists*, 2019, 75(4):187–196, https://doi.org/10.1080/00963402.2019.1629574; and Susan Morgan, 'Fake news, disinformation, manipulation and online tactics to undermine democracy', *Journal of Cyber Policy*, 2018, 3(1):39–43, https://doi.org/10.1080/23738871.2018.1462395.

9   See Adam Henschke, Matthew Sussex and Courteney O'Connor, 'Countering foreign interference: election integrity lessons for liberal democracies', *Journal of Cyber Policy*, 2020, 5(2):180–198, https://doi.org/10.1080/23738871.2020.1797136.

The same issue can be found in the oft-quoted desire to build resilience by diversifying supply chains. This is a significant undertaking that will require a balance between onshoring and boosting capacity in alternative regional and global trading hubs. The onshoring component will necessitate turning cottage industries into manufacturing centres again, with the double-edged sword that while such activities will create jobs they will also be generally low-paid ones (by nature of the need to be globally competitive). Meanwhile, diversifying trading hubs will mean investing in overseas ports, often in nondemocracies. That task alone will be enormous. COVID-19 has taught us that everything can be a strategic resource depending on the circumstances, from elastic and paper for masks to plastic vials and chemical reagents for test kits.

What would an Australian Integrated Review look like? Here it is instructive to examine the UK document, which could provide a useful comparator for a similar Australian exercise. As with most strategies of its type, it is unlikely to be completely successful. In many cases, it does little more than update past rhetorical flourishes from political leaders, alongside thought bubbles about how to best serve British interests. Yet that is also entirely normal when it comes to big-picture policy papers, which are at least partly aspirational in nature and are the products of many hands and agencies. Various iterations of the US National Security Strategy – for instance – have ranged from conservative assessments of the threat landscape facing the US and how to address it, to transformational documents that have sought to recast the way Washington conceptualises threats and opportunities in the first place.[10]

The Integrated Review sits somewhere in the middle between the traditional and the transformative. It explicitly identifies Russia as a potent security threat across all domains of strategic competition.[11] But it also seeks to decouple its approach to Russia from the way it views the People's Republic of China (PRC), which it identifies as an economic and potential strategic competitor.[12] In doing so, it achieves two objectives. Firstly, it distances the UK from potential resets on Russia, from either EU nations or the US. Secondly, it signals that the UK will not play a central role in any arrangements aimed at balancing the PRC. Its Indo-Pacific tilt is largely a commercial rather than a strategic one, brought about by the need to forge new trading partnerships in the aftermath of Brexit.

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10 For a comprehensive assessment of different US National Security Strategy documents see Stanley A Renshon, *National Security in the Obama Administration: reassessing the Bush Doctrine*, Routledge, New York, 2010.

11 UK Government, *Global Britain in a competitive age*, March 2021.

12 Natasha Kuhrt, 'Why the Integrated Review treats Russia and China differently', *News Centre,* Department of War Studies, Kings College London, 19 March 2021, accessed 16 April 2021, https://www.kcl.ac.uk/news/why-the-integrated-review-treats-russia-and-china-differently.

Yet, the review clearly anticipates areas for future demand by further advancing Britain's force modernisation process in order to ensure it is the leading non-US military in NATO.[13] It also seeks to beef up investment in space technologies as well as artificial intelligence and STEM (that is science, technology, engineering and mathematics); and it centralises the UK's cyber power, counterintelligence capabilities and its dual-use science and technology research innovation agenda.[14] Further, in pushing a long-term strategic vision for the UK out to 2030, the review establishes a strategic framework for 2025. This is based on the Fusion Doctrine that emerged from the *2018 National Security Capability Review*, which sought to bring national security capabilities together to enhance faster decision-making and smoother, more adaptive policy implementation[15]. The new framework incorporates an Integrated Operating Concept for the UK's armed forces and cross-agency capabilities such as a National Cyber Force, a Situation Centre and a Counterterrorism Operations Centre.[16]

Obviously, an Australian Integrated Review would operate under a different set of geopolitical drivers; rather than Russia, Australia's relationship with a more muscular PRC will clearly provide the most complex set of challenges for decision-makers in the future. But many of the niche capabilities the UK has identified as opportunities to build prosperity also apply to a developed liberal, maritime-trading state such as Australia. So too does the need for more agile and holistic policymaking, where Australia is an outlier in terms of its reluctance to embrace a less siloed approach to defence, security and foreign policy.[17] This is in spite of the fact that many of the challenges it faces will require a much more coordinated approach.

13 UK Government, *Global Britain in a competitive age*, March 2021.

14 See for instance the comprehensive RUSI analysis on this. 'UK Integrated Review 2021', RUSI commentary and analysis, March–April 2021, accessed 16 April 2021, https://www.rusi.org/projects/uk-integrated-review-2021.

15 UK Government, *National Security Capability Review*, March 2018, accessed 16 April 2021, https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/705347/6.4391_CO_National-Security-Review_web.pdf.

16 UK Ministry of Defence, *Defence in a competitive age*, UK Government, March 2021, accessed 16 April 2021, https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/705347/6.4391_CO_National-Security-Review_web.pdf.

17 See for instance Ewan Levick, 'The way we think about national security needs to change', *The Strategist*, Australian Strategic Policy Institute, 11 September 2019, accessed April16, 2021, https://www.aspistrategist.org.au/the-way-we-think-about-national-security-needs-to-change/.

Broadly then, an Australian Integrated Review could seek to:

- identify areas where it lacks the information to make confident longer-range strategic policy plans
- identify the agencies that will need to work together more closely, in order to respond to particular threats
- address implementation bottlenecks
- develop a coherent strategic plan for the development and deployment of economic, diplomatic and military-security capabilities.

Some examples of what this might include follow.

Enhancing the quality of analysis around strategic trends, both in terms of relative capability assessments as well as integrated analysis of hybrid security threats

Australia currently lacks the capacity to conduct net assessments, which would considerably enhance its ability to plan for future contingencies as well as identify priorities for defence and security capability development. It is instructive that the UK has recently added net assessment to its toolkit for performing long-range trends analysis.

Harmonising Australia's approach to combating cyber-enabled information warfare, as well as nonlinear tactics by hostile actors

These could incorporate a combination of:

- societal capability enhancement (including education and awareness campaigns around points of vulnerability, such as election security, fringe narratives and disinformation campaigns)
- economic and technological capability enhancement (public-private partnerships and targeted investment such as the Defence STarShots program)[18]
- counterintelligence capability enhancement (swifter information sharing on threats will be vital, in spite of Australia's traditional reticence here)
- defence capability enhancement (including clearer strategic planning over when grey-zone threats spill over into the kinetic realm).

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18 Department of Defence, *More, Together: Defence Science and Technology Strategy 2030*, Australian Government, 2020. https://www.dst.defence.gov.au/strategy/star-shots.

Developing a National Strategy Statement

Such a document could identify how to make best use of Australia's core economic, diplomatic and military-security strengths, outline a vision for the next 20 years, and be regularly updated based on rolling strategic trend assessments.

Tying Australia's aid and development goals more centrally to its national interests

With significant investment flowing into the South Pacific subregion from the PRC's ambitious BRI,[19] an Australian Integrated Review should seek to plan how to maximise benefits from Australia's development agenda, recognising that maintaining the same strategic leverage Australia has enjoyed in the past is unlikely to endure without increased investment that maximises national benefit as well as aid outcomes.

A common counterargument here is that any nation smaller than a great power cannot engage in grand strategy, for the simple reason that it lacks the economic, military-security and raw resources required for such a whole-of-society undertaking. But how we understand grand strategy is changing too. Sweden, for instance, has had a society-wide 'Total Defence' concept in place for some time now, which is entirely concerned with the same project we associate with major power grand strategies: mobilising national energies to accomplish a broad overarching set of objectives.[20] Singapore too has what is effectively a grand strategy through its 'pragmatic adaptation' framework for addressing defence, security and foreign policy challenges.[21] Critics might charge that Australia is bigger than Sweden and more democratic than Singapore, which makes a more harmonised approach futile; but that leaves Australia in an especially unhelpful middle power subcategory – a state defined by what it is not, rather than what it is.

A root-and-branch strategic review of our national priorities would add clarity to Australia's strategic thinking. It would also better align Australia's interests with its policies, and join up its defence, foreign and security policy planning. Blessed by abundant natural resources and the stopping power of water, Australia has in the past benefited from its geography and its ability to pick history's winning

19 See for instance Jonathan Pryke, 'The risks of China's ambitions in the South Pacific', *Global China*, Brookings Institution, Washington DC, 20 July 2020, accessed 16 April 2021, https://www.brookings.edu/articles/the-risks-of-chinas-ambitions-in-the-south-pacific/.

20 Gerhard Wheeler, 'North composure: initial observations from Sweden's 2020 Total Defence exercise', *RUSI Commentary*, 3 September 2020, accessed 16 April 2021, https://rusi.org/commentary/northern-composure-initial-observations-swedens-total-defence-2020-exercise.

21 Ang Cheng Guan, 'Singapore's conception of security', in Barry Desker (ed), *Perspectives on the security of Singapore: the first 50 years*, S. Rajaratnam School of International Studies, NTU, Singapore, 2015, pp 1–12.

side. With an era of intense Sino-US competition likely to shape strategic interactions in the Indo-Pacific for the foreseeable future, and with the outcome of that competition unclear, it is even more crucial that Australia develops a better capacity for strategic planning. Above all, the messy future that awaits will reward boldness over comfort zones. It will benefit nations with a clear-eyed agenda about what is to come, rather than a misty-eyed one about what has gone before. Australia should seize this opportunity, not just for renewal but to better understand itself as well.

Countering cyber-enabled disinformation: implications for national security

Jennifer S Hunt

As state conflicts expand to cyberspace, foreign adversaries have been linked to increased campaigns that target democratic function. Is Australia ready?

Cybersecurity encompasses a vast threat landscape, involving both state and non-state-based actors with differing motivations and tactics. While cybersecurity was once exclusively a technical domain, the increasing sophistication and severity of cyber attacks has elevated it on the national security and popular agenda.[1] In the wake of high-profile attacks against state agencies, industries and critical infrastructure such as hospitals and utilities, cyber attacks now consistently rank in the top five threats in global surveys.[2] Recent cyberattacks in the US, such as SolarWinds and Facebook data breaches, represent near constant attacks. In Australia, significant cyber attacks have been detected against ASIO, the Bureau of Meteorology and research sectors.[3] In these examples, the goal is to exploit vulnerabilities to gain systems access and information, or deny them to others. Typically, cyber attacks are measured in dollars, though they may eventually be measured in lives. In February 2021, a water treatment plant in Florida was hacked through remote access and the sodium hydroxide mix remotely changed

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1   Myriam Dunn Cavelty and Andreas Wenger, 'Cyber security meets security politics: Complex technology, fragmented politics, and networked science', *Contemporary Security Policy*, 2020, 41(1):5–32, https://doi.org/10.1080/13523260.2019.1678855.

2   Jacob Poushter and Christine Huang, 'Climate Change Still Seen as the Top Global Threat, but Cyberattacks a Rising Concern', *Pew Research Center*, 10 February 2019, https://www.pewresearch.org/global/2019/02/10/climate-change-still-seen-as-the-top-global-threat-but-cyberattacks-a-rising-concern/.

3   Australian Broadcasting Corporation, 'ANU Data Breach stretching back 19 years detected', *ABC News*, 4 June 2019, https://www.abc.net.au/news/2019-06-04/anu-data-hack-bank-records-personal-information/11176788.

to dangerous levels.[4] System alerts allowed the change to be detected and reversed in real time by the plant operator.

The latest evolution of cyber attacks target democracy itself. Democratic infrastructure constitutes the soft underbelly of the modern liberal democratic state. It comprises not just electoral systems but the information commons of democratic discourse. In four public volumes, US Senate intelligence committee reports confirm the cyber tools used by Russia to interfere with the 2016 US Presidential election. These included cyber-intrusion into voter rolls and electoral systems, email hacking of candidates, and algorithmically targeted propaganda and disinformation campaigns launched over social media designed to rupture civil society.[5] Similar efforts have been reported in the UK, France and Germany. A former Soviet disinformation officer described disinformation as 'a carefully constructed false message leaked to an opponent's communication system in order to deceive the decision-making elite or the public'.[6] The purpose is to create doubt and confusion about the facts and sources of those facts. These revamped 'Active Measures' campaigns pushed conspiracy theories around salient issues such as election integrity and COVID-19, which were then laundered through traditional media and in some cases, officials and public office-seekers.[7] An April 2021 report from US Treasury detailed how the Kremlin sought, and received, polling data from the Trump campaign to microtarget voters.[8] In one particularly effective campaign, US Senate investigations have detailed how the

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4   Pinellas Sheriff Dept, 'Treatment Plant Intrusion Press Conference', 'On Monday, February 8, 2021, Sheriff Bob Gualtieri gave a press conference surrounding the unlawful intrusion to the City of Oldsmar's water treatment system. He was joined by Mayor Eric Seidel and City Manager Al Braithwaite', Oldsmar FL USA, 8 February 2021, video, duration 15:28, accessed via Youtube, https://www.youtube.com/watch?v=MkXDSOgLQ6M&ab_channel=PinellasSheriff; Carlie, Porterfield, Carlie Porterfield, 'Hacker Tried to Raise Chemicals in Drinking Water to Dangerous Levels at Florida Treatment Plant', Breaking News, *Forbes*, 8 February 2021 05:38pm EST, https://www.forbes.com/sites/carlieporterfield/2021/02/08/hacker-tried-to-raise-chemicals-in-drinking-water-to-dangerous-levels-at-florida-treatment-plant/?sh=6db2df021f21.

5   US Senate Select Committee on Intelligence, *Report of the Select Committee on Intelligence, United States Senate on Russian Active Measures Campaigns And Interference In The 2016 U.S. Election Vol I–V*, Senate Report 116–290, US Government Publishing Office, Washington, 10 November 2020, https://www.intelligence.senate.gov/publications/report-select-committee-intelligence-united-states-senate-russian-active-measures.

6   Ladislav Bittman, *The KGB and Soviet Disinformation: An Insider's View*, Pergamon-Brasseys, Washington, 1985.

7   Clint Watts, Testimony to US Senate Intelligence Committee, Washington DC, 30 March 2017, transcript available as PDF via https://www.intelligence.senate.gov/sites/default/files/documents/os-cwatts-033017.pdf and video available via c-span.org https://www.c-span.org/video/standalone/?c4664397#; Ilya Yablokov, 'Conspiracy theories as a Russian public diplomacy tool: The case of Russia Today (RT)', *Politics*, 2015, 35(3):301–315, p 302, https://doi.org/10.1111/1467-9256.12097.

8   US Senate Select Committee on Intelligence, *Russian Active Measures Campaigns and Interference in the 2016 U.S. Election, Volume 5: Counterintelligence Threats and Vulnerabilities*, S. Rpt. 116-290, US Senate, p 28, https://www.intelligence.senate.gov/sites/default/files/documents/report_volume5.pdf, for context see also Justin Hendrix, 'US Treasure Provides Missing Link: Manafort's Partner Gave Campaign Polling Data to Kremlin in 2016', *Just Security*, 15 April 2021, https://www.justsecurity.org/75766/us-treasury-provides-missing-link-manaforts-partner-gave-campaign-polling-data-to-kremlin-in-2016/.

Kremlin leveraged social and traditional media to amplify myths around voter fraud in order to erode trust in electoral infrastructure and democratic processes. In January 2021, this narrative was used to help motivate and coordinate the insurrection at the US Capitol building which left 140 Capitol police injured, several participants dead and hundreds arrested.[9]

Stanford Professor of Cybersecurity, Herb Lin has noted the difficulties democratic states face defending against these cyber-enabled disinformation campaigns. Traditional cybersecurity threats exploit the vulnerabilities of the system; however, these evolving attacks exploit the virtues of the system, harnessing the openness and virality of social media.[10] These avenues are then used to peddle cyber-enabled disinformation. In *Like War*, Peter Singer details how the weaponisation of social media has exacerbated challenges in nearly every policy area, from aiding terrorist recruitment to being a state tool of great power competition and damaging the vitality of democracy.[11] While policymakers work to secure technological systems, they should also recognise the target is not the machine but the mind of the user.

Cyber-enabled disinformation as a tool of state-based conflict is not limited to elections. The COVID-19 pandemic illustrates how disinformation can be used to undermine national security efforts. A report by the European Commission last year found foreign actors and countries, led by Moscow and Beijing, had carried out targeted disinformation campaigns aimed at stoking confusion about the COVID-19 pandemic.[12] Similarly, an August 2020 report from the US State Department confirmed Kremlin-linked sites were boosting conspiracy theories that alleged COVID-19 was created in a lab as a bioweapon, that billionaire Bill Gates was plotting to use the pandemic as an excuse to microchip people, and that plans for the vaccine were a well-orchestrated money grab by pharmaceutical companies.[13] As far away as Australia, protestors held up 'Arrest Bill Gates' signs; while in the UK, angry citizens attacked 5G towers and the

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9   Jennifer Hunt, 'Trump Evades Conviction again as Republicans opt for Self-Preservation', *The Conversation*, 14 February 2021, https://theconversation.com/trump-evades-conviction-again-as-republicans-opt-for-self-preservation-155283

10 Herb Lin, 'Cyber Operations v. Information Operations', *11th International Conference on Cyber Conflict (Cycon)*, Tallinn, Estonia. May 2019, video, 1:02:55, available via YouTube at https://www.youtube.com/watch?v=KyCDvEzq25s.

11 Peter W Singer and Emerson T Brooking, *Like War: The weaponization of social media,* Mariner Books, Boston, 2018.

12 European Commission (EC), 'Coronavirus: EU Strengthens action to tackle disinformation', press release, EC Press Corner, Brusels,10 June 2020, https://ec.europa.eu/commission/presscorner/detail/en/ip_20_1006.

13 US State Department, *GEC Special Report: Russia's Pillars of Disinformation and Propaganda*, Washington DC, August 2020, https://www.state.gov/russias-pillars-of-disinformation-and-propaganda-report/.

engineers sent to repair them.[14] These tactics are not new but they are evolving. In 2018, public health researchers documented how online bots and trolls linked to the Kremlin have been sowing 'discord and confusion' over vaccination as far back as 2014.[15] These tactics, whether for great power competition or profit, represent a strategic challenge to democracies.

Cyber-enabled disinformation has been the nexus of conspiracy-driven extremism. From recruitment to radicalisation, technology is the conduit to access new audiences, and COVID-19 has provided ideal conditions for accelerating this trend. In a rare public briefing, the head of ASIO detailed how far-right extremists were exploiting COVID-19 disinformation.[16] In 2019, an internal FBI memo warned against 'conspiracy-driven domestic terrorism' naming groups from Pizzagate to QAnon that would later form part of the Capitol Building insurrection.[17] QAnon is a creature of the internet in that it has exploited the virtues of social media (engagement, virality, community) to connect users, validate their viewpoints, spread misinformation and recruit. Radicalisation can be rapid. A US man spent only three days absorbing the early QAnon/Pizzagate conspiracy theory online before packing guns and ammunition and heading to DC seeking to kill paedophiles he thought were operating out of a pizzeria; the gunman is currently serving four years in prison.[18] State and non-state actors have capitalised on the internal fractures. A recent report from the Soufan Centre suggests that actors from Russia, China, Iran, and Saudi Arabia have all entered the fray to amplify QAnon messaging as a means to sow further discord and division within the American population.[19] Australia is not immune. When

14 James Vincent, 'Something in the Air – Conspiracy theorists say 5G causes novel coronavirus, so now they're attacking UK telecoms engineers', *The Verge*, 3 June 2020, https://www.theverge.com/2020/6/3/21276912/5g-conspiracy-theories-coronavirus-uk-telecoms-engineers-attacks-abuse; Rachael Dexter, 'The crowd has broken into chats of "arrest Bill Gates" at the anti-lockdown protest at Parliament House in Melbourne @theage. The crowd has grown considerably since midday.', tweet and video (0:11) posted to twitter.com, @rachael_dexter, Parliament House, Melbourne Australia, 10 May 2020, accessed 13 May 2021, https://twitter.com/rachael_dexter/status/1259306149930651648?s=20.

15 David Broniatowski, Amelia M Jamison, SiHua Qi, Lulwah AlKulaib et al., 'Weaponised Health Communication: Twitter Bots and Russian Trolls Amplify the Vaccine Debate', *American Journal of Public Health*, Oct 2018, 108(10):1378–1384, https://doi.org/10.2105/AJPH.2018.304567.

16 Mario Christodoulou, 'ASIO briefing warns that the far right is exploiting coronavirus to recruit new members' *ABC News*, 12 June 2020, https://www.abc.net.au/news/2020-06-12/asio-briefing-warns-far-right-is-exploiting-coronavirus/12344472.

17 Jana Winter, 'Exclusive: FBI document warns conspiracy theories are a new domestic terrorism threat', *Yahoo News*, 2 August 2019, https://news.yahoo.com/fbi-documents-conspiracy-theories-terrorism-160000507.html.

18 US Department of Justice, 'North Carolina Man Sentenced to Four-Year Prison Term for Armed Assault at Northwest Washington Pizza Restaurant', US Attorney's Office, District of Columbia, 22 June 2017, https://www.justice.gov/usao-dc/pr/north-carolina-man-sentenced-four-year-prison-term-armed-assault-northwest-washington.

19 Zachary Cohen, 'China and Russia "weaponized" QAnon conspiracy around time of US capitol attack, report says', *CNN*, 19 April 2021 updated 2133 GMT, https://edition.cnn.com/2021/04/19/politics/qanon-russia-china-amplification/index.html.

Facebook attempted to shut down QAnon groups in August 2020, membership surpassed 1 million members across 15 countries, including Australia.[20]

The implications for national security are considerable. From climate change to COVID-19, cyber-enabled disinformation hampers policy responses. Bot and troll accounts involved in a 'disinformation campaign' exaggerated the role of arson in Australia's bushfire disaster.[21] Vaccination efforts in allied countries have been undermined by disinformation campaigns targeting pharmaceutical companies, and the World Health Organization. By undermining trust in institutions and creating confusion over facts, it also stymes collective action and cooperation both domestically and with international partners. Noting the wider implications of disinformation, the former Deputy Secretary of the NATO, Rose Gottemoeller, called 'alternative facts a threat to the alliance' as they undermine a sense of shared reality and the will to fight together against common challenges.[22] In Australia, the vaccination effort may be hampered by similar false narratives, with the delayed roll-out providing time for hostile actors to coordinate and amplify campaigns.[23]

To counter cyber-enabled disinformation, democracies have employed individual and collective responses. In April 2021, the US announced targeted sanctions against Russia for 'undermining the conduct of free and fair elections and democratic institutions in the United States and its allies and partners; and engaging in and facilitating malicious cyber activities against the United States and its allies and partners that threaten the free flow of information'.[24] Recognising both cyber capabilities for traditional and disinformation attacks, these sanctions are intended to impose costs and limit Russia's ability to finance malicious and disruptive cyber capabilities. They also follow the indictment of 12 Russian intelligence officials in 2018, as part of the Mueller investigation.[25]

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20 Julia Carrie Wong, 'Revealed: QAnon Facebook Groups are growing at a rapid pace around the world', *The Guardian*, 11 August 2020 20:00AEST, https://www.theguardian.com/us-news/2020/aug/11/qanon-facebook-groups-growing-conspiracy-theory.

21 Stilgherrian, 'Twitter bots and trolls promote conspiracy theories about Australian bushfires', *ZDNET*, 7 January 2020 17:03AEST, https://www.zdnet.com/article/twitter-bots-and-trolls-promote-conspiracy-theories-about-australian-bushfires/.

22 Rose Gottemoeller, Deputy Secretary of General of NATO, Shangri-La Dialogue panel attended by the author, Singapore, 2 June 2018. See also NATO News Room, 'NATO Deputy Secretary General Rose Gottemoeller addresses the Shangri-La Dialogue in Singapore', NATO (website), 2 June 2018 17:22, https://www.nato.int/cps/en/natohq/news_155086.htm?selectedLocale=en.

23 Jennifer S Hunt, 'The COVID-19 Pandemic vs Post Truth', *Global Health Security Network*, 1 September 2020, https://www.ghsn.org/Policy-Reports.

24 US Department of Treasury, 'Treasury Sanctions Russia with Sweeping New Sanctions Authority', Washington DC, 15 April 2021, https://home.treasury.gov/news/press-releases/jy0127.

25 Mark Mazzetti and Katie Benner, '12 Russian Agents Indicted in Mueller Investigation', *New York Times*, 13 July 2018, https://www.nytimes.com/2018/07/13/us/politics/mueller-indictment-russian-intelligence-hacking.html.

Collectively, allies are being called upon to help each other secure elections and combat cyber-enabled disinformation. At the NATO-accredited Cooperative Cyber Defence Centre of Excellence (CCDCOE) in Estonia, substantial resources are being invested to help develop and institute cyber norms around conflict beneath the threshold of war, including cyber-enabled disinformation campaigns.[26]

Australia has recently prioritised cyber security and countering foreign interference, but has fewer resources directed at countering cyber-enabled disinformation. As part of the *2020 Cyber Security Strategy*, Canberra announced $A1.35 billion over 10 years, in part for training and recruiting more than 500 cyber specialists.[27] However, Australia should also invest in countering cyber-enabled disinformation as part of a larger strategy of cyber defence. As countries like Finland have demonstrated, defences are best found in the social sciences and humanities.[28] Social sciences research in psychology, political science and communication studies can also help support the design of counter-messaging strategies to fight disinformation in cyberspace.[29] Through technical and non-technical initiatives, Australia can strengthen its own cyber capability and resilience while contributing to emerging norms and practices in countering cybersecurity challenges in all their diverse forms.

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26 *Tallinn Manual 2.0 on the International Law Applicable to Cyber Operations* Cambridge University Press, February 2017, for further information see Cooperative Cyber Defence Centre of Excellence (CCDCOE), The Tallinn Manual, https://ccdcoe.org/research/tallinn-manual/.

27 Department of Home Affairs, *Australia's Cyber Security Strategy 2020*, Australian Government, 6 August 2020, https://www.homeaffairs.gov.au/about-us/our-portfolios/cyber-security/strategy.

28 Finland topped, by a significant margin, the annual Media Literacy index measuring resistance to fake news and disinformation amongst 35 countries. Media Literacy Index 2019 available at Open Society Institute Sofia, The Media Literacy Index 2019: Just think about, 29 November 2019, https://osis.bg/?p=3356&lang=en; Research links and targeted grants can be used to explore the adaptation of these tools to the Australian context. For example the Fulbright Cyber Security Scholar Award is available for US Scholars to conduct research at UK institution, but it is not yet available for Australian scholars or institutions or vice versa, https://awards.cies.org/content/fulbright-cyber-security-scholar-award; Jon Henley, 'How Finland starts its fight against fake news in primary schools', *The Guardian*, 29 January 2020, https://www.theguardian.com/world/2020/jan/28/fact-from-fiction-finlands-new-lessons-in-combating-fake-news.

29 National Academies of Sciences, Engineering, and Medicine, 'A Decadal Survey of the Social and Behavioral Sciences: A Research Agenda for Advancing Intelligence Analysis', The National Academies Press, Washington DC, 2019, https://doi.org/10.17226/25335; Bionca Nogrady, 'Australia cuts research funding to universities', News, *Nature*, 19 December 2018, https://www.nature.com/articles/d41586-018-07840-w.

The elevation of deterrence: examining the language of the *2020 Defence Strategic Update*

David Cave

The recent and significant shift in the language surrounding Australian defence strategy has inspired surprisingly little sustained debate despite its implications for the Australian Defence Force (ADF). The release of the *2020 Defence Strategic Update* (the *Update*) in July 2020 directed a move from traditionally broad strategic guidance towards a more targeted and competitive model summarised by the tagline of *shape, deter, respond*. Given the importance of this shift to Australia's defence posture, and especially to its potential capability acquisition options, it is surprising that there has been a distinct paucity of discussion regarding the utility and meaning of these three concepts for the ADF. Indeed, the words might be considered odd choices. *Shaping* is a largely non-military exercise, and Australia's defence establishment presently lacks a clear practical or doctrinal understanding of deterrence.[1] Historically, Australia has possessed small forces without a clear existential threat and has therefore supported limited discussion of what it means to *deter*. Only *respond* naturally accords with our present military capabilities and experience of conflict. Together they outline a commitment to engaging throughout the spectrum of competition, from cooperation through to conflict. This commentary reviews some of the implications of this new strategic language for the ADF, and examines how allied concepts of deterrence might inform an Australian approach. It is intended to

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1   Defence's concept of deterrence remains effectively limited to a two sentence definition in a single publication (Australian Defence Doctrine Publication (ADDP) 3.0 Campaigns and Operations), and some passing references in other doctrine and documents (not publicly available).That there is no publicly available definition or discussion of what Defence means by deterrence speaks volumes. Where discussed by external public organisations it has generally been in the context of Extended Deterrence (nuclear deterrence by the United States).

prompt discussion on how this new strategic direction should influence our intellectual approach to conflict and force design.

The implications of language

In examining the implications of this revised direction we must first consider what is being communicated by this new language. The foreword to the *Update*, co-signed by the Prime Minister and Minister for Defence, states:

> Defence's strategic objectives are to deploy military power to **shape** Australia's strategic environment, **deter** actions against our interests and, when required, **respond** with credible military force.[2]

There is much in this simple sentence to unpack, not least that the objectives must be considered in progressive sequence and with reference to each other. The first point to note is that despite their designation as strategic objectives, shape, deter and respond (SDR doctrine) are, in fact, effects presented as verbs.[3] This is problematic given the difficulty in determining when these objectives (now presented as actions) have been achieved. Putting this issue aside for the moment, these verbs have four key features: they are focused on external competitors or adversaries; they are escalatory from peace through to war; they are focused on activity and effects and not necessarily outcomes; and they rely on whole-of-government (rather than specific defence) effects. When we consider these features in more detail a number of implications for defence planners emerge.

First, the guidance is adversary focused. The effects are intended: to create a favourable strategic environment for Australia; to prompt a reaction from external actors; and to consider their responses to our actions. Unusually for Australian defence strategy, SDR doctrine looks external to Australia to elicit a reaction from our peers, partners and adversaries, and to consider their reaction to our actions and intent.[4] While it continues previous direction towards achieving a safe Australia, a secure near-region and the preservation of a rules-based global

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2   Emphasis from original, Department of Defence (DoD), *2020 Defence Strategic Update,* Australian Government,1 July 2020, accessed 26 Jan 2021, https://defence.gov.au/StrategicUpdate-2020/docs/2020_Defence_Strategic_Update.pdf.

3   Symptomatic of the overall problem, there is no definition for 'Strategic Objectives' in the Defence Glossary. The closest is 'National Objectives', defined as 'those aims, derived from national goals and interests, toward which a national policy or strategy is directed and efforts and resources of the nation are applied'. Australian Defence Glossary, (not publicly available), accessed 26 Jan 2021.

4   Previous strategic guidance has focused on Australia and been generally vague when discussing external factors other than allies. The rubric has generally been to maintain a safe and cohesive Australian nation, a secure near region, and to hold a limited capacity to project influence further afield. See for example the *Defence White Paper 2009, Defence White Paper 2013* and *2016 Defence White Paper*. https://www.defence.gov.au/WhitePaper/Links.asp

order, SDR doctrine is far more explicit about the necessity to demonstrate resolve and our willingness to project military power. It is also far more explicit about identifying China, and to a lesser extent Russia, as competitors and disrupters of the current global order.[5] This increasingly targeted language is necessary: to be successful we must clearly identify who we seek to shape, deter and respond to. However, it also accords our competitors a new prominence in our strategic calculus: what actions Australia takes may be less important than the reaction they elicit from the target. It also suggests that we are potentially reacting to events rather than holding the initiative. Such observations are hardly revelatory, but genuinely considering the critical vulnerabilities and defeat criteria for external threats is a different proposition from our traditional approach of strengthening and expanding alliances. This observation provides several deductions for defence planners. First, Australia needs to possess relevant and potent capabilities that genuinely influence adversary decision-making, and dissuade them from taking actions inimical to their and Australia's interests. Second, we must identify what changes in the environment and adversary posture will indicate that our desired effect has been achieved (or not). And third, we must possess appropriate sensor and analysis networks able to accurately identify those changes.

The second feature of these verbs is their escalation of force from shaping through to responding. Each progressively demands increasing resources and effort from Australia but, theoretically, also imposes rising costs or threats upon the target. In so doing they describe external engagement that covers the full spectrum from peacetime cooperation, through more confrontational competition and confrontation, up to conflict (i.e. 'traditional' war). Accordingly, this progression is described as the "contest spectrum" by some observers.[6] By spanning this spectrum the SDR doctrine permits a potential reduction in confrontation once conditions favourable to Australia have been achieved.[7] This accords with existing doctrinal understanding of deterrence as 'the ultimate aim of shaping prior to operations'.[8] Deductions that follow include that we must expect continual cooperation and competition to be a normal state of affairs,

5   Michael Shoebridge, 'Defence strategic update promises real change but more is needed', *The Strategist*, Australian Strategic Policy Institute, 1 July 2020, accessed 26 Jan 2021. https://www.aspistrategist.org.au/defence-strategic-update-promises-real-change-but-more-is-needed/.

6   Paul Arbon (ed), *The Resilience of the Deterrence Effect*, Torrens Resilience Institute, Flinders University, 2020, p 7, Development of a Resilience Research Science and Technology Capability for Information and Influence - Torrens Resilience Institute (flinders.edu.au)

7   John Warden, 'Success in modern war: A response to Robert Pape's bombing to win', *Security Studies*, 1997, 7(2):173.

8   Australian Defence Force*, ADDP 3.0 Campaigns and Operations*, Australian Defence Doctrine Publication, Australian Government, 2012, not publicly available.

and that Australia needs to possess sufficient capability options to achieve the range of desired effects. The latter point is particularly important for planners as it will define both the variety of capability options required, as well as their size. For example, if the desired effect was disruption or denial of a certain maritime straits, the force needed might be markedly different (and potentially smaller and cheaper) to that required to achieve command of the sea in the same area. Relevant examples can be found in nuclear postures: the British maintain a 'minimum credible deterrent' of submarine launched missiles only, the French possess submarine launched and aircraft delivered weapons, and the United States opts for the 'nuclear triad' of submarines, aircraft and land-based missile delivery options. The resulting analysis of the variety and size of capability required should in theory result in significant changes to our future defence capability options, particularly in balancing offensive and defensive capabilities.

Third, the SDR doctrine is focused on the execution of activities. I have already noted that the terminology of 'strategic objectives' is problematic given their presentation as effects and as verbs rather than products or end-states. This approach also defies doctrine which recommends effects are expressed as nouns and not verbs precisely to allow focus on outcomes instead of activity.[9] Such phraseology also challenges our more traditional conceptions of war and conflict as having a defined beginning and/or end. The result of this action-oriented language is an expectation of continual activity to generate the desired effect, committing Australia to be more active in creating the conditions for our national security. In part, the preceding point drives this activity: a contest spectrum drives continuous competition through continual engagement with other nations in a variety of circumstances and intensities. It is important to note that this contest may not change what we currently do in our region, but it does change the way we perceive our actions and should prompt Australians to be more demanding of what we expect our routine regional activities and engagements to achieve. This perspective shift should challenge our conception of 'peacetime' endeavours: more targeted routine training and force generation activities will be required to maximise regional engagement opportunities, and to rehearse or prepare for select operations further afield.[10] Routine activities might be easier to conduct in Australia, but be more effective if executed in the region in partnership with others. Australia's deployed force structure may also

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9   *ADDP 3.0 Campaigns and Operations*, Annex A to Chapter 5.

10 Something explicitly identified in the latest Air Force Strategy document, Director-General Strategy and Planning – Air Force, *Air Force Strategy 2020*, (AFSTRAT 2020) Department of Defence, Australian Government, 2020, accessed 26 Jan 2021, https://www.airforce.gov.au/our-mission/air-force-strategy.

require revision, as shaping and deterrence effects in our region are unlikely to be delivered by expeditionary operations in more distant locations.[11]

Finally, the generation of these effects and the conduct of activities are not the exclusive responsibility of Defence. Indeed, Defence's own studies indicate our military plays little role in shaping activities in comparison to the levers available to a variety of other Australian government agencies and industry organisations.[12] This is reasonable: Australia lacks a national security strategy to encompass and align whole-of-government effects, and the *Update* tries to cover this gap by recognising the importance of other government efforts in achieving a secure nation.[13] In the absence of a national security strategy, the *Update* will probably remain as close to national level guidance as we are likely to get. The expansion of strategic guidance to encompass capabilities and effects beyond those under the exclusive control of Defence is necessary and prudent. Concern over 'grey zone' operations, 'lawfare' or 'liminal warfare' is pervasive in current western military professional discourse.[14] Our primary adversaries design operations around the concepts that 'war space is expanding but combat space is shrinking' or that 'nonmilitary means' of conflict are of increasing importance.[15] Taking the current Army concept of *Accelerated Warfare* as both true and applicable, competition is just as important a role for the military as conflict.[16] Australia is hardly alone here, with the latest British Armed Forces doctrine of the *Integrated Operating Concept* outlining four key concepts of 'protect, engage, constrain, war-fight',

11 For instance, the conduct of training or counter-piracy operations in the Middle East may be less important to Australia's immediate interests than the same missions conducted in the Indo-Pacific. However, the effect of the former missions in shaping our allies and demonstrating our force capabilities cannot be ignored either.

12 Arbon, *The Resilience of the Deterrence Effect*, p 7.

13 For example, Britain employs a Strategic Defence and Security Review, and the United States' a National Security Strategy; Jim Molan, 'Whatever the question, the answer is a national security strategy', *Centre of Gravity,* 50, ANU Strategic and Defence Studies Centre, 2009, accessed 26 Jan 2021. http://sdsc.bellschool. anu.edu.au/experts-publications/publications/7188/whatever-security-question-answer-national-security-strategy.

14 See Lieutenant General Rick Burr, *Army in Motion: Accelerated Warfare Statement*, Australian Army, 22 October 2020, accessed 02 January 2021, https://www.army.gov.au/our-work/army-motion/accelerated-warfare Accelerated Warfare | Army.gov.au; General Nick Carter, 'Speech: Chief of the Defence Staff, General Sir Nick Carter launches the Integrated Operation Concept' (transcript), UK Ministry of Defence, 30 September 2020, accessed 02 January 2021, https://www.gov.uk/government/speeches/chief-of-the-defence-staff-general-sir-nick-carter-launches-the-integrated-operating-concept; David Kilcullen, *The dragons and the snakes: how the rest learned to fight the west,* Oxford University Press, 2020.

15 Edmund J Bourke, Kristen Gunness, Cortez A Cooper III, Mark Cozad, *People's Liberation Army Operational Concepts*, Report RR-A394-1, RAND Corporation, 2020, accessed 02 January 2021, https://doi.org/10.7249/RRA394-1; and Ofer Fridman, 'On 'Gerasimov Doctrine': Why the West Fails to Beat Russia to the Punch', *Prism*, 4 October 2019, 8(2):101–112, https://ndupress.ndu.edu/Media/News/News-Article-View/Article/1981229/on-the-gerasimov-doctrine-why-the-west-fails-to-beat-russia-to-the-punch/.

16 Burr, *Army in Motion: Accelerated Warfare*.

only the last of which is an exclusively military role.[17] However, it is in responding that Defence has the most experience, with two decades of global operations having honed our skills and equipment in the conduct of a range of operations likely to be required in any military response.

Having identified that our military is designed to respond, and that shaping is a whole-of-government activity, our attention necessarily turns to the less explored concept of deterrence. The *Update's* focus on influencing adversaries through a range of escalatory activities elevates the prominence of deterrence and makes it central to Defence's future strategy. Its prominence is explicitly identified early:

> [I]t is the Government's intent that Australia take greater responsibility for our own security. It is therefore essential that the ADF *grow its self-reliant ability to deliver deterrent effects.*[18]

Unfortunately, deterrence is presently a relatively unexplored concept in the ADF and we possess a comparatively unsophisticated and shallow understanding of its requirements. Apart from referencing a few key platforms such as the long-retired F-111 or existing submarines, there has been little recent discussion of the nature of deterrence or its role in Australian defence strategy.[19] There has been some limited examination of the concept in recent years amongst (partly) Defence funded think tanks, but there is little public evidence that these efforts have resonated within Defence.[20] This reflects a global trend: concepts of conventional (i.e. non-nuclear) deterrence were widely discussed by western analysts at the conclusion of the Cold War, but the concept has lapsed somewhat amongst western militaries who enjoyed the 'unipolar moment' of the 1990s and 2000s.[21] The last time Australia's defence thinkers considered conventional deterrence in any significant depth was during a series of studies

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17 UK Ministry of Defence (MOD), *Introducing the Integrated Operating Concept*, MOD, 30 September 2020, accessed 6 January 2021, https://www.gov.uk/government/publications/the-integrated-operating-concept-2025.

18 Emphasis added. *2020 Defence Strategic Update*, Section 2.22 accessed 26 Jan 2021.

19 For example, Vice Admiral Tim Barrett AO CSC RAN, Chief of Navy, Address to the Submarine Institute of Australia 7th Biennial Conference, 12 Nov 2014, accessed 26 Jan 2021, https://www.navy.gov.au/sites/default/files/documents/20141112-Submarine_100_Conference_%28SIA%29_speech.pdf.

20 Most notably the United States Studies Centre's Deterrence Dialogues: Ashley Townsend, David Santoro and Brendan Thomas-Noone, *Revisiting Deterrence in an Era of Strategic Competition – Outcomes report from the Inaugural US-Australia Indo-Pacific Deterrence Dialogue*, 8 February 2019, www.ussc.edu.au/analysis/revisiting-deterrence-in-an-era-of-strategic-competition; Ashley Townshend and David Santoro, *Operationalising Deterrence in the Indo-Pacific*, 2 April 2020, https://www.ussc.edu.au/analysis/operationalising-deterrence-in-the-indo-pacific; or a number of discussions in Australian Strategic Policy Institute's *The Strategist* (e.g. Mike Scrafton, 'Strategic strike, deterrence and the ghost of the F-111', *The Strategist* 25 March 2020, https://www.aspistrategist.org.au/strategic-strike-deterrence-and-the-ghost-of-the-f-111/.

21 Lawrence Freedman, *Deterrence,* Cambridge: Polity Press, 2004, p 1.

between 1979 and 1999.[22] Unfortunately for proponents of the *Update*, their consistent conclusion was that Australian forces lacked the size and firepower required to comprise a credible deterrent.[23] Given that Australia's relative military-technological edge has eroded since that time it is unlikely that this situation has changed. The resultant challenge to the credibility of the *Update's* approach is worth separate consideration; however, this commentary will focus instead on how Australia might best achieve our stated objective of deterrence.

Considering deterrence in an Australian context

Australia presently defines deterrence as:

> the convincing of a potential aggressor that the consequences of coercion or armed conflict would outweigh the potential gains. This requires the maintenance of a credible military capability and strategy with the clear political will to act.[24]

While this definition matches that of our allies, there is no further discussion of deterrence within Defence or single-Service doctrine so we must look more widely for a deeper understanding. It is important to note upfront that within the Australian context we examine conventional deterrence, not the significantly different and more widely explored concept of nuclear deterrence. This directs us towards Mearsheimer's classical definition of conventional deterrence being 'a function of the capability of denying an aggressor his battlefield objectives with conventional forces'.[25] The implication of these definitions, reinforced by the language of the *Update*, is that deterrence is linked to the outcomes of battle, making it potentially achievable by Defence alone. The question then becomes of how to best design a deterrent-based approach. Freedman and Gray provide two of the most recent, holistic and considered discussions of

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22 These studies include JO Langtry, and DJ Ball, *Controlling Australia's Threat Environment: A Methodology for Planning Australia's Defence Force Development*, Strategic and Defence Studies Centre, Australian National University, 1979; MG Smith, 'Conventional Deterrence and Australian Military Strategy', *Defence Force Journal* July/Aug 1988, p 5-16; and Michael Evans, 'Conventional Deterrence in the Australian Strategic Context', Working Paper No. 103, Land Warfare Studies Centre, Department of Defence, May 1999, https://researchcentre.army.gov.au/library/land-warfare-studies-centre/conventional-deterrence-australian-strategic-context; Paul Dibb, Review of Australia's Defence Capabilities (Dibb Report), AGPS, March 1986, p 35-36.

23 Then Lieutenant Colonel (later Major General) MG Smith concluded that it was not currently possible for the ADF to 'translate this national objective into a military strategy that has meaning or is usable'. Michael Evans noted 'for Australia, the adoption of an explicit conventional deterrent posture would be a tenuous foundation upon which to build a twenty-first century military strategy'. MG Smith, 'Conventional Deterrence and Australian Military Strategy', *Defence Force Journal* July/Aug 1988, p 5-16; and Michael Evans, 'Conventional Deterrence in the Australian Strategic Context, May 1999, Land Warfare Studies Centre Working Paper No. 103. Additionally, Paul Dibb noted conventional deterrence was 'not a basis for detailed force structure decisions although it can be a useful element of our general defence strategy', Paul Dibb, *Review of Australia's Defence Capabilities* (Dibb Report), AGPS, March 1986, p 35-36.

24 *ADDP 3.0 Campaigns and Operations*.

25 JJ Mearsheimer, *Conventional Deterrence*, Cornell University Press, London, p15.

the concept, noting that concepts for strategy and deterrence are necessarily intertwined and mutually supporting, as well as being inherently uncertain and unreliable in execution (posing the questions what actually deters? And how much deterrence is enough?).[26] This is a reflection of the fact that deterrence (and strategy for that matter) is an interplay of two independent, changeable and competitive entities. Problematically, deterrence also lacks evidence: successful deterrence results in an absence of events and the link between cause and effect is therefore fraught (conversely, failure is easily attributable).[27] Gray's cautionary approach can be summarised thus: 'Specifically, the would-be deterrer has to calculate, which is to say guess, how much, of what kind, of military power as threat or in use is likely to have the desired effect on culturally alien minds.'[28] The challenge is thus significant, but not insurmountable. With deterrence now defined, and its inherent theoretical limitations noted, we now consider how it applies to Australian military decision-makers seeking to execute the *Update's* direction.

Using the aforementioned academic definitions, and American and British doctrinal concepts as a conceptual basis, deterrence therefore seeks to stop or prevent an action detrimental to Australian interests (in contrast to compelling an action to occur). In general, it can be achieved through denial (making the action unfeasible or unlikely to succeed), or through punishment (penalising the adversary after the action).[29] Deterrence is also divisible into general (a long-term, persistent effect) and specific deterrence (aimed to deter a specific action or event, often during a crisis).[30] At its heart, deterrence threatens either the potential success of the aggressor's intended action, or their other interests. This threat seeks to persuade the adversary to pursue a course of action more favourable to the deterring nation. It is an effect that is generated by operating, not a discrete operation.[31] Historical studies indicate that successful deterrence depends upon the aggressor's motivation; their understanding of what the defender is deterring and their intended actions if aggression occurs; and that the defending state has

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26 Freedman, *Deterrence*, pp 26-42.

27 An excellent summary of US thinking on deterrence is contained in Michael J Mazarr, 'Understanding Deterrence', *Perspectives* (PE-295-RC), RAND Corporation, 2018, p 1, accessed 04 Jan 2021. https://doi.org/10.7249/PE295.

28 Colin S Gray, Deterrence and the nature of strategy, *Small Wars & Insurgencies*, 2000, 11(2):17–26, p 24, https://doi.org/10.1080/09592310008423274

29 Mearsheimer defines this as the imposition of costs on the adversary: 'Cost on the conventional battlefield is a function of military casualties, equipment lost or damaged, civilian casualties that result from the fighting, and the expense of mobilizing, deploying and maintaining the forces'. Mearsheimer, *Deterrence*, p 23.

30 US sources refer to specific deterrence as 'immediate'.

31 United States Air Force Doctrine Update 02-15, *Deterrence: an effect or an operation?* https://www.doctrine.af.mil/Portals/61/documents/doctrine_updates/du_15_02.pdf, accessed 10 Jan 2021.

both the capability and the will to act.[32] However, as Freedman and Gray noted above, because successful deterrence results in something not happening (the absence of an event), it is inherently difficult to prove success.[33] It can be seen that deterrence is a complex interplay of competing factors, which can fortunately be reduced to four key requirements for success.

When considering what this means for Australian defence capabilities we can look to British and United States doctrine that defines the four fundamental requirements to achieve a successful deterrence effect. First, Australia must possess a *capability* that is demonstrably able to threaten the adversary through denial or punishment. Second, we must establish *credibility* that we can and will use that capability: this is dependent upon both military and political will. Third, *communication* between ourselves and the adversary must be adequate to effectively transmit our preferred outcome and the threat of not complying. Finally, the preceding three requirements must result in the accurate *comprehension* of the situation by our adversary.[34] Despite this common framework there are necessary differences in application. Britain, as a lesser power, focuses heavily on ensuring it has a range of military capability options available to provide multiple deterrence effects without over investing in any one area.[35] Such thinking permits the development of specific military capabilities, with emphasis on achieving a minimum credible deterrent in multiple capabilities to theoretically prevent any one force element unduly dominating resource allocation.[36] Conversely, for 30 years the United States has possessed sufficient mass of conventional forces to achieve victory by defeating the enemy in battle, an approach now challenged in some areas by China.[37]

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32 Mazarr, *Understanding Deterrence*, see also G Snyder, *Deterrence by Denial and Punishment,* Princeton: Center of International Studies,1958.

33 Gray, 2000 and Freedman, 2004.

34 Recently, a fifth element has been added: that of competition, designed to move British understanding of deterrence beyond nuclear weapons and towards an understanding of actions below a 'threshold that would prompt a war-fighting response'. This latter element actually moves Britain closer to Australia's present concepts of a contest spectrum. The two nations have largely similar concepts, notwithstanding some minor differences in terminology. British doctrine includes MOD, *Introducing the Integrated Operating Concept.* Relevant United States doctrine includes Joint Chiefs of Staff, *Joint Operations JDP 3-0* (online interactive presentation course), 17 January 2017, accessed 06 January 2021, https://www.jcs.mil/Doctrine/DOCNET/JP-3-0-Joint-Operations/.

35 One senior British officer memorably referred to these as extending 'from the Hereford gun club to instant sunshine', i.e., from the employment of 22 Special Air Service in unconventional roles through to submarine launched nuclear missiles. Presentation attended by the author in 2017, Chatham House rules preclude identification of the speaker.

36 It is debatable whether this occurs in practice. For example, the Queen Elizabeth carriers are nominally capable of supporting amphibious operations, justifying the retirement of purpose-built amphibious warfare ships, but are unlikely to permit a Falklands-style air defence and amphibious operation to occur simultaneously.

37 Marcus Hellyer, 'The US Navy need to admit it can't outbuild China', *The Strategist,* 28 January 2021, accessed 28 Jan 2021, https://www.aspistrategist.org.au/us-navy-needs-to-admit-it-cant-outbuild-china/.

Conceptualising our task to deter adversaries using the 'four Cs' framework leads to a number to deductions for defence planners. First and foremost, we must be clear *who* we are trying to deter. Without a clear target deterrence is aimless, expensive and potentially ineffective. Noting Mearsheimer's focus on battlefield objectives, this target may be at the operational rather than the strategic level. Next planners must identify *how* deterrence might be achieved: that is, how best to threaten the adversary. This requires a detailed understanding of our competitors, what they value and fear, and when and where threats are best applied and communicated to them. Identifying criteria for success at this stage is essential as without them it is likely we might generate activity without outcomes, with unintended second and third order effects. The third step is to identify *where* deterrence should occur, with location relevant across all domains.[38] Finally, *what* tools are required to successfully deter will be identified, with an appropriate balance between offensive and defensive capabilities.[39]

The outcomes of this process will probably challenge existing thinking and capability investment priorities. Rather than achieving a traditional 'balanced' force, it may be more effective to identify our key competitive advantages and reinforce them. For instance, long-range fires, sea mining and space-based reconnaissance assets may prove more important to offensive deterrence, while littoral manoeuvre, coastal defence missiles and armoured vehicle capabilities might be valuable in a defensive scenario.[40] Improved understanding of our competitors and adversaries is also vital: improved intelligence, surveillance and reconnaissance capabilities are required to understand their intent, disposition and reactions as well as if our threats have had their intended effect.[41] However, we must remember 'what' we use to deter remains just one element of many, with the method of employment subject to a wide range of factors. Much of the responsibility for deterrence will remain in the hands of political leaders and other government agencies: Defence may operate the capability, but the credibility of

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38 Sea, land, air, space and cyberspace, plus any other (such as human) that may subsequently enter our terminology. See Jon R Lindsay and Erik Gartzke (eds), *Cross-Domain Deterrence,* Oxford University Press, Oxford, 2019.

39 Hugh White provides a comprehensive analysis of Australia's defence options in his most recent book, including advocating strongly for focusing primarily on sea denial (arguably achieving conventional deterrence). Hugh White, *How to Defend Australia,* La Trobe University Press, Melbourne, 2019. Rod Lyon, 'Coercion, deterrence and Australia's long-range strike options', *The Strategist*,19 March 2020, accessed 26 Jan 2021, https://www.aspistrategist.org.au/coercion-deterrence-and-australias-long-range-strike-options/.

40 That we appear not to have conducted this analysis has already been noted. Michael Shoebridge, 'Defence strategic update promises real change but more is needed', *The Strategist,* 1 July 2020, accessed 26 Jan 2021. https://www.aspistrategist.org.au/defence-strategic-update-promises-real-change-but-more-is-needed/

41 Much of the debate about whether conventional deterrence is more easily achieved with modern military technologies focuses on the improvements in precision targeting and improved understanding of adversary dispositions and vulnerabilities via Intelligence, Surveillance and Reconnaissance.

decision-makers to employ it and the clear communication of intent is largely outside our realm.

Conclusion

This brief review of deterrence has several implications for Australian defence strategists and planners. Firstly, we should support debate on what deterrence actually means in the Australian context, and expand its discussion beyond a brief mention in a single doctrine publication. Central to this discussion will be identifying just what Australia seeks to gain from deterrence, where the best opportunities lie, and how our limited defence resources can be applied to exploit them. And secondly, we must improve our knowledge of who we are seeking to shape and deter, and of their perceptions, beliefs and vulnerabilities. At its core, deterrence is predicated on understanding. We must understand what our competitor wants. Our competitors must understand what we seek to deter and how we might threaten them, and know we have the capability and will to respond with that threat. Such understanding will only be achieved through dedicated and deliberate effort by Defence in cooperation with a range of other government agencies and partners.

This paper has sought to examine the implications of Australia's move to a defence strategy based on the effects of *shape, deter and respond*. This change in language goes far beyond a catchy slogan to challenge the fundamental concepts upon which our previous approach to national security have been based. Despite this challenge there has been only limited discussion of its implications to both our conceptual approach to operating and the military hardware we will employ. It is vital we address this shortcoming to ensure that Australia remains secure.

Reviews

Niche Wars: Australia in Afghanistan and Iraq, 2001–2014

John Blaxland, Marcus Fielding and Thea Gellerfy (eds)

ANU Press, Canberra, 2020

Reviewed by Andrew Maher

Released in late 2020, *Niche Wars: Australia in Afghanistan and Iraq, 2001–2014* offers intriguing insights into the character of Australia's tailored contributions to our 'long war' in the Middle East and South Asia. As this year will mark the twentieth anniversary of the September 11 attacks, it is pertinent to reflect upon the tactical actions that flowed from Prime Minister Howard's invocation of the ANZUS Treaty. By providing a wide range of personal reflections of events of that time, *Niche Wars* captures lessons for today's national security and policy professionals.

The collection of perspectives is more than an assortment of interviews or reflective musings from participants involved in these military operations. Instead, it is like the proverbial blind men's description of an elephant: a snake-like trunk of invidious counterinsurgency on the ground; a policy bulk in the post-9/11 era; and stout but wrinkly legs of interdepartmental contributions. Accounts are thus rich in individuality and coherent in aggregate. Robert Hill (former Senator and Minister for Defence) and Ric Smith (former Secretary of Defence) bring us into the Cabinet Room and the political deliberations that guided our military contributions, while senior officers, such as Admiral Chris Barrie and General Peter Leahy, provide the military perspective on these missions. Command reflections from Army officers Dan McDaniel and Anthony Rawlins then expose the challenges in translating these larger strategic interests into tactical actions. A broad swathe of non-military perspectives are also provided, ranging from the provision of aid in conflict environments through to policing challenges of corruption and counternarcotics, to engagement with the media. Dr Alan Ryan rounds out these perspectives, reminding us that 'all wars end, and the military will play a constructive role only if they have established a close and constructive

relationship with the peace builders'.[1] The contributors to this book reflect this whole-of-government approach, an approach that evolved within these conflict environments.

While it may not have been the editors' intent, three key themes emerge from the individual accounts provided: the tactical aggregation of actions for strategic effect; poor strategic policy and coordination; and the absence of robust strategic thinking about our interventions. Consequently, *Niche Wars* serves a broad national security practitioner audience.

Tactical aggregation of actions for strategic effect

Current Deputy Chief of Army, Major General Rawlins (a lieutenant colonel commanding Overwatch Battle Group – West in Iraq in 2006–7), speaks candidly about his frustrations in responding appropriately to the tactical situations he faced, shackled by restrictive command guidance. His frustrations reveal Dan Marston's criticism of policymakers and military commanders applying 'blanket solutions' without understanding the need for context. Marston highlights that veterans will well understand that 'Basra was different from Al-Anbar, which was different from Mosul in Iraq'.[2] His perspective and nuance helps to convey the necessity to

'go small' in understanding tactical context if one is to develop effective policy. Politics is, indeed, local. The Anbar Awakening (in 2006), which 'flipped' the Sunni tribes in Iraq from supporting al-Qaeda, had unique political and social characteristics that limited its replication elsewhere. Robert Hill amplifies this point:

> Both conflicts illustrated how little we in the West knew or understood about both societies … We do not fight wars in a vacuum, and politicians need to better appreciate the social and cultural environments to which we send our forces.[3]

Poor strategic policy and coordination

Sometimes Australian national policy appeared inconsistent. The potential for a whole-of-government approach was missed because objectives were disconnected and execution was siloed. An example is illuminated by Australian Federal Police (AFP) officers Col Speedie and Steve Mullins, who describe the initial AFP commitment in October 2007 as having a heavy weighting towards combating the transnational counter-narcotics challenge. This orientation was confirmed by the 2008 National Security Committee of Cabinet endorsement of the AFP concept of operations. General Stanley McCrystal

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1   John Blaxland, Marcus Fielding and Thea Gellerfy (eds), *Niche Wars: Australia in Afghanistan and Iraq, 2001–2014,* ANU Press, Canberra, 2019, p 188, http://doi.org/10.22459/NW.2020.

2   Blaxland, Fielding and Gellerfy, *Niche Wars*, p 293.

3   Blaxland, Fielding and Gellerfy, *Niche Wars*, p 29.

highlighted how the narcotics industry fuelled the insurgency in 2009, when he assumed command of the International Security Assistance Force (ISAF). Although RAN maritime patrolling had long included a narcotics interdiction component, it was not until 2011 that Australian Army elements began nexus targeting,[4] directing efforts against the overlap of the Afghan insurgency, narcotics processing and smuggling and governmental corruption. The counternarcotics challenge serves as an example of a four-year absence of coherent strategic policy, which *Niche Wars* fails to pick up or make explicit. The varying perspectives of the book's contributors will allow the astute reader to identify other seams created by different departmental orientations and cultures that these Middle Eastern conflicts illuminated.

An absence of strategic thinking about our interventions

Perhaps because of such seams, the book makes the case that success in our niche wars has proved elusive. Peter Leahy illuminates the very British conclusion of the Chilcott Report, which found that United Kingdom's interests in Iraq 'fell far short of strategic success'.[5] Given ongoing security concerns in Afghanistan and Iraq post-2014, such a charge could similarly be levelled against Australia's interests. A possible cause for such failure is the absence of robust strategic thinking about our interventions – the third key theme of this book. John Blaxland sets this tone upfront:

> Without a holistic counterinsurgency campaign for Afghanistan, let alone Uruzghan, much of the direction of tactical actions fell on the shoulders of soldiers and commanders. In the absence of a compelling overarching strategy, the main campaign plans left Australian and coalition forces with an inadequate raison d'être for the brutal fight they were tasked to undertake.[6]

This sentiment was not an isolated opinion. Robert Hill laments that combating the insurgencies that subsequently evolved in both Iraq and Afghanistan, 'should have received more thought'.[7] Incoherence in our strategic thinking is evidenced as Ric Smith argues that democratisation 'was certainly not on our agenda',[8] although he notes Prime Minister Howard's statement on 24 August 2005, that 'if democracy takes root [in Afghanistan] … then a massive blow

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4   Major Andrew Maher, 'Counter-Network Operations: insights into the application of complexity theory', *Australian Defence Force Journal*, 2015, no. 198, available at: https://www.defence.gov.au/adc/adfj/Documents/issue_198/Maher_Nov_2015.pdf.

5   Blaxland, Fielding and Gellerfy, *Niche Wars*, p 297.

6   Blaxland, Fielding and Gellerfy, *Niche Wars*, p 9.

7   Blaxland, Fielding and Gellerfy, *Niche Wars*, chapter 1.

8   Blaxland, Fielding and Gellerfy, *Niche Wars*, p 35.

is struck in the war against terrorism'.[9] What was it? Did Australia seek to support the growth of democracy in Afghanistan (as a counter to terrorism and insurgency)? The absence of a clear answer highlights deficiencies that the authors examine regarding Australian strategic thinking.

Peter Leahy succinctly identifies the challenge the Army should take from our Niche Wars.

The Australian Army has tended to focus on developing skills at the tactical level and up to the operational level of war. We have tended to leave the strategic level to others to manage.[10]

That three key themes from *Niche Wars* pertain to deficiencies in formulating strategy poses issues for the national security community. The first of these is the need to consider how Australian strategic policy might be improved. Dan McDaniel describes a clarity in his counterterrorism mission in 2001–02; however, he subsequently identifies a shift in tasking over 2002 and laments the absence of clarity in subsequent operational tasking. This suggests that Australia's strategic policymakers were poorly served by the military's application of 'operational art' or

'campaigning' and manifest through the lack of discernible 'operations', with clearly articulated tasks, purposes and end-states. Professor Theo Farrell, articulates a similar problem within the British operations: 'military strategy was delegated to field commanders, resulting in an inconsistent campaign as successive brigades did their own thing.'[11] Operation SLIPPER remained the terminology for Australian commitments to Afghanistan, despite the clear defeat of al-Qaeda in Afghanistan in 2001. Yet, the war clearly shifted through at least three further phases: support to national elections and reconstruction; holistic provincial counterinsurgency; and national capacity building, under the vague moniker 'contribution to the International Security Assistance Force.'[12]

Niche Wars encourages the national security practitioner to question how 'strategic–tactical dissonance', as described by Major General Rawlins,[13] might be created. Where there is difficulty articulating mission requirements, through the creation of clear operational campaigns, up to policymakers then a failure to 'convey the strategic intent … down to the

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9   Blaxland, Fielding and Gellerfy, *Niche Wars*, p 44.

10 Blaxland, Fielding and Gellerfy, *Niche Wars*, p 303.

11 Theo Farrell, *Unwinnable: Britain's War in Afghanistan 2001-2014*, (London: The Bodley Head, 2017), p 273.

12 Nicole Brangwin, *Australia's military involvement in Afghanistan since 2001: a chronology*, (Commonwealth of Australia: Parliamentary Library, 16 July 2010), Available at: https://www.aph.gov.au/About_Parliament/Parliamentary_Departments/Parliamentary_Library/pubs/BN/1011/MilitaryInvolvementAfghanistan; and Department of Defence, Operations in Afghanistan website, available at: https://www.defence.gov.au/operations/pastoperations/Afghanistan/.

13 Blaxland, Fielding and Gellerfy, *Niche Wars*, chapter 6.

tactical level' is the inevitable result.[14] We are thus reminded of Colin Gray's 'strategy bridge' between policy and tactical action, a metaphor seemingly central to our lessons from niche contributions to these US-led campaigns.[15]

In terms of the book's production, it is disappointing that the imagery used throughout bore little resemblance to the narrative at hand. The editors have thus lost an opportunity to enhance the reader's understanding and highlight some of the nuances within the issues each contributor was presenting. Subconsciously, perhaps, incoherent imagery points towards an uncomfortable question for our national security community. Is it possible the strategic objective sought by Australian policymakers was the appearance of Australian Defence Force personnel in our niche wars: imagery that demonstrated an Australia contribution to our alliance frameworks and a vague commitment to a 'rules-based global order'? If so, the tactical successes were somewhat irrelevant. Such a perception, as uncomfortable as it may be, might

have undermined the crafting of effective military strategy.

The rare and valuable lessons on the challenges of whole-of-government coordination, translating tactical actions for strategic effect and codifying lessons learned that are provided by *Niche Wars* make it an important reference for the national security and policy professional Indeed, that such lessons span the machinery of government – from policy to policing to military actions – only amplifies this conclusion. *Niche Wars* serves also to record the insights of political, public service and military authors who have or will soon retire from service. As Australian operations in the Middle East come to an end, it is especially timely to have a book that captures the hard-won leadership lessons learnt by many who were junior military leaders during this period and went on to become Commanding Officers and Sergeant-Majors. *Niche Wars* is an important contribution to Australian strategic studies that will help prevent the loss of such knowledge and ensures it can be passed on to future generations.

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14 This assertion stands in stark contrast to the clear phasing associated with Australia's ultimately effective engagement in Timor Leste through shifting aims, objectives and command relationships. Australia's strategic objectives were pursued through discrete operations progressing from Operation FABER (19 June to 15 September 1999), Operation SPITFIRE (6 to 19 September 1999), Operation STABILISE (16 September 1999 to 23 February 2000), Operation TANAGER (20 February 2000 to 19 May 2002), Operation CITADEL (May 2002 to May 2004), Operation SPIRE (20 May 2004 to 20 May 2005), Operation CHIRON (20 May 2005 to 11 May 2006) to Operation ASTUTE (2006 to 2013). Another campaigning comparison (albeit imperfect) is the UK approach over a similar timeframe to that of Operation SLIPPER, involving Operation VERITAS (October 2001 to 31 July 2002) – the overthrow of the Taliban regime; Operation FINGAL (1 January 2002 to 19 March 2002) – contribution to the ISAF support of the Afghan Interim Authority with the provision of security and stability in Kabul; Operation JACANA (16 April to 9 July 2002) – clearance operations against Al Qaeda and Taliban remnants; and Operation HERRICK (2002 to 2014) – British contribution to ISAF and the American-led Operation Enduring Freedom (OEF).
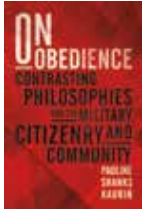
15 Colin Gray, *The Strategy Bridge*, Oxford University Press, New York NY, 2010.

On Obedience: Contrasting Philosophies for the Military, Citizenry and Community

Pauline Shanks Kaurin

Naval Institute Press, Annapolis MD, 2020

Reviewed by Deane-Peter Baker

When Professor Martin Cook announced his retirement as the Admiral James B Stockdale Professor of Professional Military Ethics in the College of Operational and Strategic Leadership at the US Naval War College, the small international community of applied military ethics scholars and 'pracademics' held its collective breath. Cook had been a towering figure of the community; one of two leaders (the other being fellow US Navy ethics scholar Professor George R Lucas) who had played a dominant role in shaping military ethics in the US and influencing the discipline's development around the globe. Who could possibly be asked to step into these shoes? The answer came in the form of Dr Pauline Shanks Kaurin, then an associate professor at the Pacific Lutheran University. Shanks Kaurin was an unexpected choice. Though her book *The Warrior, Military Ethics and Contemporary Warfare: Achilles Goes Asymmetrical* is undoubtedly good (and has had an important impact on my own work), Shanks Kaurin was not among the 'usual suspects' in this field and was largely unknown to those of us outside the US.[1]

We need not have worried. Professor Pauline Shanks Kaurin has not tried to step into anyone's shoes (and we were wrong to expect that), she has instead blazed her own path, one that has done the field of military ethics no end of good. Nowhere is that more evident than in her new book, *On Obedience: Contrasting Philosophies for the Military, Citizenry and Community*. As she notes in the introduction, this book grew out of questions she engaged with in her Twitter-linked blog,[2] as well as from conversations with colleagues and members of the military community over their concerns and confusion about the requirements of military obedience when the

1   Pauline M Kaurin, *The Warrior, Military Ethics and Contemporary Warfare: Achilles Goes Asymmetrical*, Routledge 2014.

2   Pauline Shanks Kaurin, *Practicing Philosophy in Real Time: Not so random deep thoughts from a Philosopher Queen*, [Blog], https://shankskaurin.wordpress.com/.

Trump administration was making that increasingly challenging for many. This is quintessential Shanks Kaurin – intimately and deliberately connected to the broad community of practice she serves and fiercely determined not to shy away from the hard real-world ethical questions that emerge from that interlocution. The questions are not, for her, primarily a matter of philosophical curiosity. Nor are they matters for generating papers, as Martin Cook once put it, 'in which philosophers argue with the positions of other philosophers' and which are 'wonderfully logically developed, conceptually clear, rigorously argued – and in the end professionally irrelevant'.[3] Shanks Kaurin unapologetically engages with the gritty reality of the profession of arms.

That is not to say that her work is philosophically uninformed, far from it. Though *On Obedience* is deliberately written to be accessible to the intelligent non-specialist reader, Shanks Kaurin nonetheless sets out to 'take up a philosophical exploration of the idea of obedience in both military and political communities of practice and examine how we think about what obedience is and what grounds its moral necessity'.[4] In this,

Shanks Kaurin succeeds admirably and through the book she draws on, and engages with, key philosophical thinkers both old (Aquinas, Hume, Kant, Mill) and new (McMahan, Osiel, Pattison, Sherman and Australia's own Nikki Coleman).

The argument begins with a teasing out of the distinction between obedience and deference (chapter 1). Deference is merely positional, whereas obedience must be built on a genuine basis of respect. Shanks Kaurin's exploration of the nature of obedience (chapter 2) brings her to a working definition: obedience is 'the intentional and voluntary carrying out of orders or commands given by a commander or other authority figure who represents legitimate political authority in action'.[5] This definition balances the internal and external aspects of obedience, reflected also in Shanks Kaurin's MacIntyre-inspired analysis that, when understood as a virtue (chapter 3), obedience is not simply about individual character but is instead 'a social virtue bounded by the practices and traditions of the communities in question'.[6] This opens up a discussion of the grounding of obedience in those communities (chapter 4) via an examination of civil

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3   Martin L Cook and Hendrik Syse, What Should we Mean by Military Ethics?' *Journal of Military Ethics,* 2010, 9(2):120.

4   Pauline Shanks Kaurin, *On Obedience: Contrasting Philosophies for the Military Citizenry, and Community*, Naval Institute Press, 2020, p 5.

5   Shanks Kaurin, *On Obedience*, p 46.

6   Shanks Kaurin, *On Obedience*, p 72.

disobedience. This leads Shanks Karin to conclude:

> Any grounding of moral obligation to obey must be rooted in the conceptions of justice and related concerns (like the just war criteria) that are part of the norms, practices, and traditions of the community of moral practice in question. These questions of justice are not abstract concerns but also involve impacts (both short and long term) of the actions and policies that obedience will be carrying out.[7]

While the context of specifically military obedience is threaded throughout the book, from chapter 5, in which Shanks Kaurin addresses disobedience and discipline, this becomes the central focus. Does General Mark A Milley's notion of 'disciplined disobedience' make any kind of sense?[8] Shanks Kaurin contends that it does and draws on it to support her argument that true obedience is 'critical obedience'.[9] 'Critical' because true obedience is neither blind obedience nor blind loyalty. Loyalty is arguably one of the most challenging virtues within the context of military service, and Shanks Kaurin provides (chapter 6) a nuanced and valuable discussion of the differences – and connections – between obedience and loyalty. The theme of critical obedience is again the focus in chapter 7, which offers an exploration of the role of judgement and discretion. At the core of this is a tension between 'individual agency and responsibility; one cannot cede that to the state' and 'the context of a community of practice, within a collective context that is relevant and impacts on how that agency is conceived and what the limits on it will be'.[10] Here, Aristotle's notion of 'prudence' is central and underpins the idea that obedience is best understood as negotiation (chapter 8) – a view Shanks Kaurin recognises is in strong contrast to traditional notions of obedience in the military.

What does all this mean for those who raised the questions that led to the writing of the book, most notably those struggling with their duty of military obedience to a country led by an administration with which they found themselves deeply at moral odds? Chapter 9 explores the situation of military service members in liberal democracies, such as the United States and Australia, who 'are citizens first, who will revert to civilian citizenship once they leave the military, and members of the military

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7   Shanks Kaurin, *On Obedience*. p 91.

8   For background on General Mark A Milley's 'disciplined disobedience' see C. Todd Lopez, 'Future warfare requires "disciplined disobedience", Army chief says', US Army News (website), 5 May 2017, https://www.army.mil/article/187293/future_warfare_requires_disciplined_disobedience_army_chief_says

9   Shanks Kaurin, *On Obedience,* p 116.

10 Shanks Kaurin, *On Obedience*, p 169.

as a profession second'.[11] Against the classical view of members of the military being apolitical, Shanks Kaurin points out that, in fact, as agents of the state, military personnel are very much political actors.

> Members of the military are engaged in a collective political activity on behalf of a political community, in which they also have membership as individual, private citizens; they are political actors twice over.[12]

It is therefore not the case that military members must be apolitical – that is impossible – rather, they should not be *partisan*. There is, accordingly, Shanks Kaurin argues, some space (though it must be carefully circumscribed) for military personnel to engage in political debates.

> It is important to acknowledge the dual obligations of military members, especially those in positions of senior leadership, who are for all intents and purposes very direct political actors in ways that include space for civilians to meaningfully enter and engage. Members of the military are still citizen and as such have obligations to their fellow citizens; obligations within a political community cannot just go in one direction.[13]

The concluding chapter of the book is arguably its crowning jewel. In it, Shanks Kaurin shows how the philosophical ideas discussed in the preceding chapters have clear traction in concrete situations. She does this through a consideration of the application of her account of obedience to four fictional-but-feasible case studies. To say more would be to risk providing 'spoilers'; suffice to say, this exercise is a very worthwhile one and adds significantly to the credibility of the book's argument. The inclusion of a discussion guide at the end of the volume, designed to aid individual readers or small groups to get the best out of it, further enhances the practical value of the book.

Professor Pauline Shanks Kaurin's *On Obedience* is an important contribution to the field of military studies and should find a place in any thoughtful military professional's reading list.

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11 Shanks Kaurin, *On Obedience*, p 195.

12 Shanks Kaurin, *On Obedience*, p 196–7.

13 Shanks Kaurin, *On Obedience*, p 216.

Quagmire in Civil War

Jonah Schulhofer-Wohl

Cambridge University Press, Cambridge, 2020

Reviewed by Sascha Dov Bachmann

> Our understanding of civil war is shot through with the spectre of quagmire, a situation that traps belligerents, compounding and entrenching war's dangers.[1]

This important work by Schulhofer-Wohl provides an authoritative analysis of the origins and application of the empirical concept of 'quagmire' in modern civil war.

Schulhofer-Wahl defines 'quagmire' as a strategic situation in a civil war context where foreign states and internal warring parties interact and at least one belligerent faces a strategic dilemma: where 'continuing to fight costs more than the expected benefits' but also where withdrawal 'will increase rather than avert those net costs'. Quagmire as a strategic challenge and form of entrapment is 'not found but man-made' by political and military decision-makers.

Modern history is rich with examples of conflicts where a military force has become bogged down in a costly but eventual unwinnable war. Vietnam, the USSR war in Afghanistan, Syria and the US and its allies war in Afghanistan are examples that come to mind: all have been conflicts where both winning and withdrawing were difficult, even impossible, and that led to political and strategic dilemmas which were hard to navigate.

In the first two chapters, the author provides his introduction to the subject and provides a conceptual framework for quagmire as a concept of asymmetric conflict before turning to his main case study, the Lebanese Civil War of 1975 to 1990, which he uses to examine the theory's application, manifestations in the conflict and mechanisms (chapters 3 and 4). He then turns to other civil wars between 1944 and 2006 to identify quagmire scenarios and applications; thus Lebanon, Chad and Yemen provide comparative case studies for analysing the evidence of the existence of quagmire in the civil wars. The author's analysis of civil wars in a comparative and actor-focused approach draws from his extensive knowledge on the subject of civil wars in the Middle East from a comparative, even empirical, angle.

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1   Jonah Schulhofer-Wohl, *Quagmire in Civil War*, Cambridge University Press, Cambridge, 2020, Abstract, https://doi.org/10.1017/9781108762465

The author's work is the culmination of his core research projects on the 'study the interaction between civil war belligerents at three levels of analysis:

> [Q]uagmire as the macro-level result of the interaction between the warring parties; warfighting choices, focusing on alliance behavior and the operational goals of fighting, both meso-level behaviors; and, at the micro-level, the behavioral determinants of individual actions in situations of group conflict.[2]

The author's empirical work on the quagmire notion is grounded in solid formal analysis using various civil war case studies in the empirical application of his evolving concept. One of the strong points of the book is the application to concrete case studies of Schulhofer-Wohl's empirical formulation of mechanisms, probabilities, interactions of actors, interests and costs in civil wars worldwide from 1944 to 2006 as a multi-case study reflecting on the subject from a multitude of facts, considerations, strategic and tactical circumstances and conditions.[3] This chapter (chapter 5) is for me the highlight and could have perhaps been expanded on in a subsequent chapter. In my opinion, the overt focus on the Lebanese Civil War may limit the overall impact the

book could have in terms of military and strategic studies. If the analysis were to be expanded and applied to other conflict scenarios outside the nexus of civil war (but still within the asymmetric conflict parameter) it would qualify as one of the seminal books on the strategic risk and dilemma of quagmire in the wider strategic and war studies context: both 20th century conflict and now.

Quagmire serves as a conceptual framework, even development tool for critical military case analysis and definition for a 'catch 22' risk in foreign policy, national security and international affairs that should affect our decision-making process in respect to operations. Its lessons can also be applied to current challenges in the context of great power competition and its manifestations in hybrid, grey zone and unrestricted warfare. Strategic entrapment, for example, can be witnessed in the current Chinese–United States 'below the threshold' rift, which has various strategic, economic and diplomatic consequences for Australia. Using quagmire as both consequence and a strategic choice by policymakers and strategists alike allows us to look at the strategic interactions among the players and do a cost–benefit assessment when defining the next strategic positioning.

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2   'Jonah Schulhofer-Wohl', Universiteit Leiden (web page), accessed 24 March 2021, https://www. universiteitleiden.nl/en/staffmembers/jonah-schulhofer-wohl#tab-1

3   Schulhofer-Wohl, *Quagmire*, pp 134–175, https://doi.org/10.1017/9781108762465.005

This book has been written for both the academic and the professional to identify, understand and perhaps mitigate the risk of quagmire in current and future civil war and other asymmetric war scenarios. *Quagmire in Civil War* serves (or should serve) as a warning to policymakers and military strategists alike.

Schulhofer-Wohl's work advances scholarship on two key questions around one of the most devastating types of conflict in terms of human and political costs. Firstly, why do some civil wars turn into quagmires? And secondly, what lessons can we – as strategists, policymakers, academics and flagship officers – learn from this dilemma in order to avoid being once again dragged into a strategic quagmire?

The major contribution of Schulhofer-Wohl's work lies in the empirical understanding it provides and the application of quagmire as a theory of defining and identifying a state of strategic entrapment that binds both foreign backers and domestic belligerents, 'bogging' them down in an unwinnable conflict. This strategic dilemma ties neatly into the game theory applicable to modern conflict and closes a void in literature regarding 'how political-military organizations fighting civil wars make decisions resulting in quagmire'. Practitioners and operators considering today's great power competition and grey-zone conflict should give this book a

second look. The asymmetry of civil war and its potential for strategic entrapment might very well provide lessons to be learned regarding the costs and benefits of current and future below the threshold conflicts.

China's Grand Strategy and Australia's Future in the New Global Order

Geoff Raby

Melbourne University Press, Carlton, November 2020

Reviewed by Peter Layton

China is the conundrum of our time. Since becoming General Secretary of the Communist Party of China (CPC) in 2012, Xi Jinping has fundamentally changed China's relationship with the world. This tectonic shift, from China 'bidding its time' to an aggressive assertiveness, has significantly impacted Australia.[1]

Given these momentous changes, Geoff Raby, Australia's Ambassador to China (2007–2011), decided to sum up his 30 years working in and on China in a book: *China's Grand Strategy and Australia's Future in*

the New Global Order. His book is incisive, insightful and informative and has already attracted many favourable reviews. Given this journal's readership, this book review will principally discuss the strategies and strategic thinking that Raby discerns China following, and that which he thinks Australia should adopt in response.

The book has three major parts: the first and shortest sets out China's grand strategy; the second and longest examines China's geostrategic and domestic weaknesses; the third advocates a specific grand strategy Australia should embrace. The second section is particularly well done. Many similar works focus on China's strengths and neglect its difficulties. This section in the book provides a useful counterpoint and gives it a pleasing balance.

China's grand strategy

Broadly speaking, China's grand strategy aims to ensure the CPC continues to rule China and to defend the territory the CPC claims. Raby considers this intent reflects that, since 1949, 'China's leaders [have] based their strategies on fear'.[2] This is not about intentionally making other countries afraid; but rather,

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1   .Tobin Harshaw, *Emperor Xi's China Is Done Biding Its Time: Interview with Kevin Rudd*, Belfer Centre, Harvard Kennedy School, 3 March 2018, https://www.belfercenter.org/publication/emperor-xis-china-done-biding-its-time.

2   Geoff Raby, *China's Grand Strategy and Australia's Future in the New Global Order*, Melbourne University Press, Carlton, November 2020, p 24.

the CPC permanently feels anxious, apprehensive and insecure.

The form this insecurity takes has evolved since China rejoined the world some 40 years ago to begin its rapid modernisation. This transformation has come at the cost of China becoming increasingly dependent on other countries for its resource and energy needs. To help address this CPC-assessed 'strategic vulnerability', China's grand strategy is now governed by the Belt and Road Initiative (BRI), which will build enhanced transport connectivity with Central Asia, the Middle East and Africa. Raby considers the BRI now 'provides a hierarchy of priorities for decision-making within China'.[3]

China's grand strategy emphasises the economic instrument of national power, the other instruments of military, diplomacy and information now play only supporting roles. This is perhaps not surprising for a party whose members are educated in Marxism, an ideology that considers the economy to be the substructure on which all else, the superstructure, is built.

Under Xi, China principally uses economic coercion to compel other states into conforming to its demands, with the 14 points given to Australia to

correct an exemplar.[4] However, the global marketplace works, in large part, on trust and, over time, Xi's move will undermine the market's confidence in China. If contracts and commercial agreements can be negated overnight by a capricious political decision then sovereign risk worries will start to weaken China's economic attractiveness, and its greatest strength. For example, can countries and companies rely on China abiding by free trade agreements it signs, such as the recent Regional Comprehensive Economic Partnership, or are these now situation-dependent and unreliable? China's preferred instrument of international influence can cut both ways.

Notably, Xi has reversed earlier efforts by China to build soft power and instead embraced deliberately destroying it through wolf warrior diplomacy, insults in state media and general threats.[5] Raby devotes a complete chapter to this remarkably self-destructive policy. Declining trust and diminishing soft power are likely to increasingly destabilise an area where he believes China is successful: the building of institutions. These include the Shanghai Cooperation Organisation, the Forum on China–Africa Cooperation, the Central and Eastern European Countries Plus One Forum,

3   Raby, *China's Grand Strategy*, p 27.

4   Brad Glosserman, 'China's hard line against Australia is a lesson for us all', *The Japan Times*, 1 December 2020. https://www.japantimes.co.jp/opinion/2020/12/01/commentary/world-commentary/china-hard-line-australia/

5   Jonathan McClory, 'China's missed soft-power opportunity', *Nikkei Asia*, 24 October 2020, https://asia.nikkei.com/Opinion/China-s-missed-soft-power-opportunity

the Community of Latin American and Caribbean States, and the Asian Infrastructure Investment Bank.

There must be worrying doubts developing over China's long-term commitment to these multilateral institutions. China, the anchor tenant, might leave at an instant. Moreover, Raby sees these carefully constructed institutions as key to China building a durable bounded order that will tie others to it and help China compete with the US. China's new order might be a fragile one, which it is itself subverting.[6]

Realists may quote Niccolò Machiavelli's words of 1513: 'it is much safer to be feared than loved'.[7] Fear might work for short-term power politics and the winning of petty triumphs but is a poor basis for an enduring beneficial relationship, especially those centred on economics. In this, China's present use of economic coercion against Australia is not unusual. A recent study found that over the past 10 years, there were 152 cases of such coercion affecting 27 countries and the EU, with a very sharp escalation in such tactics since 2018.[8]

Such regularity suggests China's grand strategic use of economic coercion may not be to win influence but rather to shape the strategic environment. China may be aiming to unsettle all others, keep them off balance and create a feeling of apprehension where they self-police their behaviour to avoid displeasing the CPC. If so, the CPC has no desire to gain the trust and friendship of other states. Such an approach seems in harmony with the early strategic thinking of the Chinese legalists (400–200BC).[9]

Australia's grand strategy

Having set out the China problem, Raby offers his solution: a grand strategy involving 'working with those with common interests in maintaining regional balance and continued economic growth'.[10] Of note, this is a grand strategy for managing China that is not focused on China. Raby's proposal is worth some examination.

The balancing is not the traditional realist balancing using mainly military means, although he does mention doubling the Defence budget but without explaining further. Raby does not see China as a military threat

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6   Raby draws on Mearsheimer's work on international orders: John J Mearsheimer, 'Bound to Fail: The Rise and Fall of the Liberal International Order', *International Security*, Spring 2019, 43(4):7–50, 9–18.

7   Nicolo Machiavelli, *The Prince,* (WK Marriott trans.), Project Gutenberg eBook, 1998, updated 2021, Chapter XVII, https://www.gutenberg.org/files/1232/1232-h/1232-h.htm#chap17.

8   Fergus Hanson, Emilia Currey and Tracy Beattie, *The Chinese Communist Party's coercive diplomacy*, Australian Strategic Policy Institute, Canberra, 1 September 2020, p 3.

9   Francois Jullien*, A Treatise On Efficacy: Between Western And Chinese Thinking*, University of Hawaii Press, Honolulu, 2004, pp 99–103.

10 Raby, *China's Grand Strategy*, p 162.

and dislikes the term 'competition', seeing it as an unproductive frame for Australia to view China through.

Raby's grand strategy is built around the diplomatic instrument of national power. Australia should embrace middle power diplomacy, build multilateral and regional coalitions, and work with like-minded countries to accomplish specific policy objectives. Raby writes that the primary goal would be to 'encourage China to adhere to rules and norms that seek to minimise conflict while respecting the sovereignty of all states in east Asia'.[11] This is a notion of diplomatic balancing where the diplomatic pressure from middle power groupings would persuade great power China to be a better behaved, less assertive neighbour. This pressure would establish a new and improved regional equilibrium.

This is an admirable suggestion but there are implementation problems. China's recent actions in relation to Hong Kong, the South China Sea and trade coercion indicate the CPC feels unconstrained by the bilateral, regional or global agreements it makes. It is not clear how a middle power grouping could enforce rules struck with China if the CPC decides the rules are no longer suitable.

To be fair to the CPC, that is how rules-based orders work. Countries abide by their agreements until they consider they would be better off breaking them.

To achieve the desired diplomatic balancing, Raby's grand strategy would focus mainly on working with ASEAN and its constituent states. Australia working with ASEAN would add 'substantial geopolitical weight' to both. With such connections, China would be unable to pick off each country individually one at a time as it does now. China would 'know that if it pushed hard against one, it will be pushing hard against them all'.[12]

This idea has merit considering ASEAN, with its population of 600 million, has a regional GDP that makes it the sixth largest economy in the world. In aggregate, it has real economic heft. However, ASEAN is not designed to be a cohesive political grouping, like say the European Union. Indeed, in matters where China takes a strong interest, ASEAN tends to split into the mainland states – who in bordering China are generally cautious – and the archipelagic states – who are somewhat less so. For example, so far China has been able to continually divide ASEAN over its

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11 Raby, *China's Grand Strategy*, p 173.

12 Raby, *China's Grand Strategy*, p174.

issues with China's actions in the South China Sea.[13]

This may change. ASEAN may become cohesive and agree to join with Australia to present a united front. Such a turn of events, however, would require considerable, protracted diplomatic effort by Australia and, as Raby acknowledges, resourcing Australian diplomacy far more.

In terms of the grand strategy method, Raby has set out the objective (the 'ends'), the causal path (the 'ways') and discussed at least one instrument of national power (the 'means'). On the other hand, he is vague on how the information, military and economic instruments may be used to help diplomacy achieve the outcomes sought. Moreover, in focusing on applying power, he has neglected discussing how this power might be built.

The ultimate question is would this grand strategy work? In the business of strategy, one's own strategy operates against or with another's. Strategic interactions 'are essentially bargaining situations … in which the ability of one participant to gain his ends is dependent … on the choices or decisions the other participant will make'.[14]

China's grand strategy plays to its greatest strength: economics. Raby takes an asymmetrical approach that stresses diplomacy, which, given Australia's middle power diplomacy successes in the 1980s and 1990s, he argues is an under-appreciated but real national strength. Australia's grand strategy to counter China's would then work through and with ASEAN. Such an approach would involve more than a few moving parts. There would be a complex pattern of multiple interactions and in the management of this the proposed grand strategy fails to convince. While a good start, the advocated grand strategy needs further development and, to be more convincing, needs to be compared against other possible alternatives.[15]

China's Grand Strategy and Australia's Future in the New Global Order is undoubtedly a must read book for both Australians and the international audience. Short, sharp and generally to the point, the book brings fresh thinking and will stimulate many debates on how to approach middle power relations with China. The book offers much for national policymakers, grand strategy builders, defence and foreign affairs thinkers, academics and all those concerned about the China conundrum.

13 Phar Kim Beng, 'ASEAN Is Failing On The South China Sea Issue', *The Diplomat*, 26 October 2020, https://thediplomat.com/2020/10/asean-is-failing-on-the-south-china-sea-issue/; Emma Connors, 'Vaccine diplomacy a threat to South China Sea pushback', *Australian Financial Review*, 2 September 2020, https://www.afr.com/world/asia/vaccine-diplomacy-a-threat-to-south-china-sea-pushback-20200901-p55raa.

14 Thomas C Schelling, *The Strategy of Conflict*; Oxford University Press, New York, 1963, p 5.

15 Peter Layton, 'The battle for Southeast Asia's soul'. *The Interpreter*, Lowy Institute, 1 June 2017, https://www.lowyinstitute.org/the-interpreter/battle-southeast-asia-soul.

The Storm Before the Calm: America's Discord, the Coming Crisis of the 2020s, and the Triumph Beyond

George Friedman

Black Inc., Melbourne, 2020

Reviewed by Joseph Voros

As the title suggests, Friedman's view of America for the coming decade and beyond is one of an impending crisis, upheaval and discord. The 'storm' will be followed by an extended period of readjustment, settling down, and renewed (relative) accord – the 'calm' – when the political, economic and social forces that have collided to bring about the crisis have resolved and more-or-less stabilised (which, Friedman says, they always do). This historical trajectory is an example of

what is known, in futures research, as the *New Equilibrium* archetype.[1] It is one of a fairly small set of scenario archetypes that can be used to imagine and map out a wide variety of alternative futures.[2] In this case, a structural shock to a social system that eventually rebalances, realigns and recovers.

This optimistic position is based on a reading of American history that sees it as having been broadly shaped by two long cycles of structural change. The first is an approximately 80-year political 'institutional' cycle, which defines the relationship of the US federal government to the member states and the citizenry. The second is an approximately 50-year 'socioeconomic' cycle, which defines the economic and sociocultural relations between different sectors of the citizenry in terms of class and the relative privilege engendered, such as access to the means to create wealth.

These twin cycles have been going on, Friedman claims, since America was (as he puts it) 'invented'. However, without first understanding how America's *history*, values and people have made it resilient to crises in the past we cannot understand how it will withstand the *coming* crisis, as Friedman is profoundly confident it will since America always has. So, the

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1 Andy Hines, 'Fun with scenario archetypes', *Hinesight* [weblog], 17 October 2014, https://www.andyhinesight.com/forecasting/fun-with-scenario-archetypes/.

2 Jim Dator, 'Alternative futures at the Manoa school', *Journal of Futures Studies,* November 2009,14(2):1–18, https://jfsdigital.org/articles-and-essays/2009-2/; Wendy L. Schultz, 'Scenario archetypes', *Infinite Futures* [web site], 3 June 2004, http://www.infinitefutures.com/essays/prez/scenarch/.

first of the three parts of the book is Friedman's telling of the history of the 'invention of America'.

This view of American history puts Friedman into the category of social theorists and 'macrohistorians' who consider *cycles* as the primary mechanism of history.[3] Part II of the book is thereby spent describing these two cycles and their dynamics in some detail. As in Part I, this is an interesting telling, at an overview-ish level, of a version of American history. We see the arising, cresting and end-stage playing out of these cycles, each with its own rhythm and form of crisis, from the founding of the United States up to the recent ructions of the 2010s. It is essentially a Toynbean 'challenge-response' dynamic,[4] where the challenge in each cycle is met with an appropriate response; albeit one that, despite dealing successfully with the issues at the time, also seeds the (eventual) next challenge, born from and as a direct result of that very success. This is how American history works, says Friedman, where these dynamics 'lead to frequent crises that seem about to break the nation. But instead, America actually refuels itself from the crises, re-forming itself with a remarkable agility'.[5] And, it

is important for everyone, not just Americans, to understand these 'internal' dynamics, due to America's pre-eminent place in world politics. 'The United States has become an empire,' he says, 'of power and global reach, [by being] the most powerful agent, for good or bad, in the world … [And though] it did not [do this] by choice, nor can it abandon the reality of what it is.'[6]

One of the more interesting aspects of this presentation is Friedman's claim that incumbent presidents – especially in the end-stage of a cycle and during the inevitable new crisis it wreaks – are essentially *passengers* of these dynamics. They are not the drivers, being neither powerful enough to be the cause nor in control of the underlying currents of history upon which they (like the rest of us) are merely riding. But the nation, as a whole, does not realise this fundamental reality. So, inevitably (and incorrectly), it is the president who gets either blamed or praised for what happens. Consequently, he says, forget the personality of whoever is the president. Instead, we should focus on understanding the underlying *impersonal* forces driving these historical events and dynamics. This shows Friedman's analysis also

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3   Johan Galtung and Sohail Inayatullah (eds), *Macrohistory and macrohistorians: Perspectives on individual, social, and civilizational change,* Praeger, Westport, CT, USA, 1997.

4   Galtung and Inayatullah, *Macrohistory and macrohistorians*, sec. 2.16.

5   George Friedman, *The Storm Before the Calm: America's Discord, the Coming Crisis of the 2020s, and the Triumph Beyond*, Black Inc., Melbourne, 2020.

6   Friedman, *The Storm Before the Calm*, pp 82–3.

coming down on the side of *structure* in the age-old debate about agency versus structure in understanding historical dynamics (which is quite common for cyclical theorists). Noting these categorisations of *structure* and *cyclic* is not merely an academic exercise, however. They are important for allowing us to actively seek out both related and countervailing views to balance the inevitable blind spots that any analytical lens will generate. When it comes to attempting to understand something as vast and complex as how history happens, triangulation is important.

What is different now from the past, in Friedman's view, is that both cycles will be reaching their end points at roughly the same time, something which has never occurred before. Previously, the end of each of these cycles has separately led to increased tensions and upheaval during the turbulent transitional period from one to the next. This time around America is slated to receive a double dose, as the current institutional cycle (begun after the Second World War) is due to end around 2025 and the current socioeconomic cycle (begun under Reagan) is due to end around 2030. This sets the scene for Part III, which is the actual forecast for the future of America for the decade 2020–2030 and for the aftermath of extended relative calm, prosperity and renewed

confidence that will follow once the storm has passed ('the triumph beyond').

The institutional cycles have been driven, essentially, by war.[7] The first cycle began with the drafting of the US Constitution in 1787, which emerged from the aftermath of the Revolutionary War of Independence and lasted until the end of the Civil War (when constitutional amendments established the authority of the federal government over the states). The second cycle lasted until the end of the Second World War. The third cycle, prompted by the political and military necessities of the Cold War, resulted in an expansion of the authority of the federal government over not only the states but also more broadly over the nation's economy and American society. This cycle also led to the rise of a powerful new social class: the 'technocracy', comprised of 'experts'. The third cycle's terminal crisis is now in its early stages. This crisis has been driven by the combination of the post-9/11 war against the jihadists and the declining effectiveness of – and disillusion with – expert-led institutions, including government. 'If this pattern continues as it has', says Friedman, 'the next institutional cycle will begin around 2025', wherein the new fourth cycle 'will redefine the relationship of the federal

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7   Friedman, *The Storm Before the Calm*, pp 95–6.

government to itself'.[8]Socioeconomic cycles are punctuated by interrelated 'political confrontation, social tension and economic dysfunction'.[9] What tends to be most visible is the 'political instability' and associated cultural strife. These can begin to arise anywhere up to 'a decade or more before' the cycle shifts and are 'accompanied by growing economic and social divisions'.[10] Friedman details five such socioeconomic cycles. The first four he identifies as Washington to (John Quincy) Adams; Jackson to Grant; Hayes to Hoover; Roosevelt to Carter. The fifth and current cycle, Friedman says, began under Reagan and is due to end with someone 'likely to be elected in 2028',[11] who, like those named at the end of each of the previous cycles, will be widely considered a 'failed' president. Although, somewhat confusingly, a bit later on, Friedman alters this timing slightly and he then 'surmise[s] that the final president of this cycle will be elected in 2024 (or in 2020 if he is a two-term president)'.[12]

Friedman also offers an interesting diagnosis of the Trump phenomenon. The current cycle, he asserts, has been driven by a surplus of capital – which is now concentrated in the hands of a wealthy elite who possess (much) more money than they need to live – and declining innovation and associated opportunities for relatively safe investment. In combination this has led to surplus capital being put into very safe assets which has depressed interest rates. Industrial workers who were dislocated by the high-tech boom of the last few decades, as well as retirees who had planned on a larger return from their savings than these lowered interest rates actually produce – not to mention the continuing immiseration of the middle class – are facing an economic crisis. And, Friedman argues, an economic crisis always drives a corresponding social crisis. The tension between the ascendant class – this time around, primarily technological entrepreneurs and investors – and the declining class – mostly displaced industrial workers – prompts a cultural crisis that, on the surface appears economic, but is actually driven by a divergence of values. This (as it has always done) generates a time of mutual distrust, incivility, contempt, loathing and vilification. The opportunistic arising of Trump – who grasped the alienation, pain and anger of the displaced industrial class but was also a symbol of, and mechanism for, the rejection of the candidate

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8   Friedman, *The Storm Before the Calm*, p 96.

9   Friedman, *The Storm Before the Calm*, p 144.

10 Friedman, *The Storm Before the Calm*, p 117.

11 Friedman, *The Storm Before the Calm*, p 117.

12 Friedman, *The Storm Before the Calm*, p 148.

who embodied the technocracy, Hillary Clinton – is therefore merely a symptom of this dynamic. The Trump phenomenon indicates just the 'first tremors of the coming storm'.[13] The fact that the presidential election of 2016 was so close (as it took roughly 100,000 votes in the industrial 'Rust Belt' states to give victory to Trump via the Electoral College, while he lost the popular vote by nearly 3 *million* votes) was an indication of how divided America is on these lines and the deep mistrust of the federal technocracy. As Friedman puts it, the election map shows that Clinton 'won the heartland of the technocracy but lost the heartland of the country—the declining industrial base'.[14]

This 'twin cycles' analysis sets the scene for a description of the dual playing out of these dynamics into the near future, the decade of the 2020s and beyond. I will not comment on the details since these sorts of forward-dynamical analyses are almost always wrong *in their details*. The principal value of such analyses lies in decision-makers thinking through for themselves how the dynamical forces shaping change into the future pertain to their own specific contexts, which

is the very essence of scenario-based thinking. Macrohistory, as a foresight method, should never be considered 'predictive' in the lazy sense of the word. Rather, macrohistorical models – such as Friedman's seeks to be – need to be used principally as sources of potential insights about the underlying drivers of change and how these may play out, shift or, possibly even, reverse over the time span of the futures assessment. At the 'historical' level of analysis in foresight methodology, where the 'half-life of change' tends to be much longer, we are thereby able to 'cast forward' somewhat further than the more transient trends or even systemic drivers allow but with the necessary trade-off of a commensurately lower level of detail.[15] Since specific events and trends will be 'emergent' and thus inherently unpredictable, it is almost certainly a wasted effort to try to fill in details too much beyond just a 'broad brush-stroke' view intended to, in the main, merely 'profile' the future.[16]

Overall, the book is certainly a fascinating and entertaining read, with the conversational style allowing one to fairly zip along through it. But

13 Friedman, *The Storm Before the Calm*, ch 8.

14 Friedman, *The Storm Before the Calm*, p 159.

15 Joseph Voros, 'Big History and anticipation: Using Big History as a framework for global foresight', in Roberto Poli (ed) *Handbook of anticipation: Theoretical and applied aspects of the use of future in decision making*, Springer International, Cham, 2017, https://doi.org/10.1007/978-3-319-31737-3_95-1; Joseph Voros, 'Nesting social-analytical perspectives: An approach to macro-social analysis', *Journal of Futures Studies*, August 2006, 11(1):1–21, http://jfsdigital.org/articles-and-essays/2006-2/.

16 Arthur C Clarke, *Profiles of the future: An inquiry into the limits of the possible*, Millennium edn, Orion Books, London 2000.

what is frustrating to someone like me – whose profession is to help people think about the future in a systematic and disciplined way – is the lack of any references. There are none given *at all* – although the handful of graphs shown do seem to have been sourced from official US government statistics – and I doubt I heard explicit mention of more than at most half-a-dozen works by anyone else which might have informed the thinking of the writer. Thus, whether one agrees or disagrees with Friedman's analysis, it is impossible to go to any of the sources, work through the ideas on your own – or at least follow the arguments using the same evidentiary basis that he used – and come to your own conclusions.

In futures research, this type of forecasting became known as 'genius forecasting',[17] nuclear military strategist Herman Kahn being the archetypal example. It suffers from a number of problems, not the least of which is that the mind of the 'genius' is essentially an impenetrable (and sometimes incomprehensible) 'black box'. There is also the fundamental problem of identifying the 'right' genius for the domain being analysed and/or forecast as well as the impossibility of any sort of rationally based certainty ahead of time. No matter how good the track record of

that genius has been, success in the past is no guarantee of success in the future. Thus, readers are forced by Friedman's approach and manner of presentation into choosing antithetical stances on the forecasts he has made: believe-it or don't-believe-it.

From my perspective, this dichotomy is not only *not* a useful one to be forced (or buy) into, but it also invites the risk of a lot of misdirected mental effort. Instead, since no-one is smart enough to be 100% *wrong*, I take the view that it is better to respond to these types of forecasts or analyses by wondering whether some of what the forecaster or analyst has said can be used, even if they are not right. This suggests a less glamorous and more matter-of-fact approach that employs multiple, sometimes 'nested', models, analyses and perspectives – each of which may be only partially 'correct' – in order to try to tease out deeper insights or to look for emerging common themes across them.[18] In essence, this is the equivalent of 'crowdsourcing' analysts and forecasters, and their analyses and forecasts. This (as it were) 'multi-angulation' approach is likely to be more effective, manageable, and generate the deeper insights that are, after all, the very point of doing these analyses and forecasts.

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17 Jerome C Glenn, 'Genius forecasting, intuition, and vision', in Jerome C Glenn and Theodore J Gordon (eds) *Futures research methodology,* CD-ROM version 3.0., The Millennium Project, Washington DC, 2009, http://www.millennium-project.org/.

18 Voros, 'Nesting perspectives'.

The metaphor I would offer for this type of foresight view is that of an insect's multifaceted compound eye, as opposed to the singular, keen sharpness of an eagle's (which one might imagine a foresight practitioner/ educator would be more inclined to suggest). Each small facet might only see a tiny part of the whole scene, but, taken together, they produce an overall wide-angled view which can detect changes even at the edges and allow for both practical engagement with, and satisfactory navigation of, the real world.

Friedman's *The Storm Before the Calm*, therefore, should be regarded as but one facet of a portfolio of perspectives about how the US is shaping up over the coming decade or two, how its institutional and socioeconomic dynamics are unfolding, and about what this means for the rest of the world. It will be fascinating to watch whether, and how in detail, the macrohistorical dynamics he has identified ultimately play out, and what related and countervailing views might also add to a multiperspective compound image of America's emerging future.

The Craft of Wargaming: A Detailed Planning Guide for Defense Planners and Analysts

Col Jeff Appleget USA (Ret.), Col Robert Burks USA (Ret.) and Fred Cameron

Naval Institute Press, Annapolis MD, 2020

Reviewed by Darren Huxley

Books on wargaming often fall into two categories. The first is for the hobby gamer looking to understand aspects of wargaming, generally within a particular historical period and genre. Donald Featherstone's *War Games through the Ages* or Paddy Griffith's *Napoleonic Wargaming for Fun* are great examples of this category and both books that I devoured as a child.[1] The second category is for professional wargamers. These books are for those closely associated with national security or government organisations around the globe and are focused on analysing aspects of actual crisis events, generally as a means to seek ways to improve. *The Craft of Wargaming: A Detailed Planning Guide for Defense Planners and Analysts* is the latest entry into this professional wargaming library. The authors, Jeff Appleget, Robert Burks and Fred Cameron are all professors at the US Naval Postgraduate School in Monterey, California, an internationally respected centre for operational analysis and wargaming.

With *The Craft of Wargaming*, they seek to educate the reader on gamification as an analytical tool. As its subheading states, this book is a planning guide for the construction of analytical wargames. However, it goes beyond this, taking the standard process approach of other professional wargaming books and enhancing its educative value by interspersing interactive exercises as summary activities for its chapters. The authors' stated aim for *The Craft of Wargaming* was to 'provide the key educational component foundations or best practices that a novice wargamer needs to work toward becoming a wargaming journeyman'.[2]

The book is divided into three parts; Part 1 provides foundational

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1   See *The History of Wargaming Project* at http://www.wargaming.co/ for other great examples.

2   Jeff Appleget, Robert Burks and Fred Cameron, *The Craft of Wargaming: A Detailed Planning Guide for Defense Planners and Analysts*, Naval Institute Press, Annapolis, 2020, p 2.

information on wargaming and the authors' deliminations of the types of wargaming activity. Part 2 gets to the meat of setting up and running wargames, covering the fundamentals on how the authors approach initiating, designing, conducting and analysing a wargame. Part 3 is about the planning and management of wargaming events alongside some examples of the authors' experience with good and bad wargame practices.

A key to understanding the flow of the book is the authors' repeated view that wargaming is a skilled craft, like masonry or carpentry, which leverages best practice across a range of disciplines rather than a single skill. The book, therefore, is less of a manual on the analytical technique that is professional wargaming, and more a story a master craftsperson would pass on to their apprentices. The backstory of wargaming, Part 1, teaches every apprentice the foundations and origins of their craft. They need to understand this background to avoid diverging on previously trodden paths to failure. It also teaches the importance of managing their craft knowledge over time and to different generations of craftspeople. The fundamentals in Part 2, then teach the basic skill areas that all craftspeople must master if they are to be successful at their craft. The final part is the passing of 'handy hints' from these three masters to the apprentice wargamer.

The learning approach used by the authors follows the paraphrased Confucian adage: 'Tell me and I forget, teach me and I learn, involve me and I remember.' At its heart, the book recommends that you must practice the craft of wargaming as part of the learning process. Amid telling the story of the origin and tradecraft of wargaming, it, therefore, includes practical exercises that give the opportunity to experience the construction of an analytical wargame. The authors stress that the book is only designed to start interested individuals on the path from wargaming apprentices to journeymen. It is not a comprehensive masterclass or the final word on the craft. For those with some wargaming knowledge, this book can provide new insights and give techniques that can augment existing wargaming skills, without losing sight of the needs of the apprentice-level reader.

The Craft of Wargaming does a great job of summarising the origin story of analytical wargaming in the US Defense Department. The authors come from operations research backgrounds and focus much of their story on the influences of the Cold War on US analytical wargaming practices. For those unfamiliar with how high levels of reliable intelligence and seemingly limited conventional military options influence the balance of science versus art in wargaming, there is much of interest in this story. The book tells of the rise of simulation and modelling

as the predominant form of analytical wargaming for conventional combat that was followed by a return to a more balanced approach, focused on human decision-making amidst the science of simulated combat caused by the irregular warfare of the early 21st century. Other than being an interesting story, this is important background information as it clearly establishes the authors' view that while the US Defense Department has a strong background in modelling and simulations to answer its capability questions, it needs more wargamers who understand the value of extracting relevant data from decision-makers. Here their argument is that:

> for the analysis and planning community raised on closed-loop simulations and little practical experience in the diverse nature of wargames, there were some critical concerns with placing more emphasis on analytic wargames. As an example, many in the analytical community view analysis as a scientific method of providing decisionmakers with a quantitative basis for decisions. Wargaming is about the players and decisions, not about science and mathematics, although there are definitely elements of science and mathematics in many wargames. This distinction makes it difficult for young analysts and planners to see how analytic wargaming fits within analysis.[3]

The Craft of Wargaming seeks to be a guide that balances the skills required to acquire quantitative data from an analytical event with the qualitative insights generated from the game participants. The emphasis on quantitative data about player decisions and the results of those decisions is a key focus for the wargame construction process offered.

Unfortunately, a major weakness of the book is that the dense writing style can bury some wonderful pieces of knowledge in endless text. It is a great credit to the authors that they have managed to include so much information in 200 pages, however, the lack of visual handrails for the novice wargame constructor makes the guidance hard to absorb. Unsurprisingly, it is often difficult for novices to identify golden nuggets of information from commonplace beads as the book makes no effort to highlight key pieces of information. While the structure of the wargame construction process is abundantly clear – initiate, design, develop, conduct, analyse – the anecdotal gems that these experts in the craft have to pass on are mostly buried in the story. For example, problem structuring and decomposition techniques, buried on page 85, are identified as critical to the initiate phase; however, no highlighted text or subheading points to this valuable

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3   Appleget, Burks and Cameron, *The Craft of Wargaming*, p 20.

insight. Likewise, the problem of time versus expected results on page 89 is also sage advice that gets lost inside the story of engagement with the wargame sponsor. Again, to their credit, the authors devote an entire chapter of 20 pages to best and worst practices; however, these could have been included alongside the description of the process step in Part 2, thereby providing adding emphasis to the suggested approach, rather than being what feels like an afterthought at the end.

Where this handbook distinguishes itself is in the incorporation of practical exercises for the process steps. The authors repeatedly state their belief that 'the craft of wargaming is learned by doing versus by just reading or watching'.[4] Hence, they provide practical exercises throughout each stage of their construction process. Here, the authors' experience of teaching their wargame construction methodology shines through. The practical exercises are detailed and supported by extensive appendixes, which include suggested solutions to the practical exercises so that the novice is not left wondering if they got it 'right' or not. The practical exercises themselves are suitable for an individual reading through the book alone to clearly recreate the authors' methods or for a newly formed wargaming design team that needs some refresher training to work through as a group. When combined with the pearls of wisdom from the preceding text, the practical exercises make this book more than a standard wargame construction guide.

'Wargaming is a broad church,' stated Graham Longley-Brown, in the opening of his collection of essays on professional wargames,[5] and this new book on professional wargaming is a worthy entry to the canon. Having attended the analytical wargame construction mobile course taught in Australia by two of the authors, I can confirm this book is a comprehensive distillation of their teachings, enlivened by a taste of their vast professional wargaming experience. While at times the novice may feel overwhelmed by the detailed information provided, the logical process taught, reinforced by excellent practical activities, is a winning approach. Although some of the content is clearly applicable mainly to a US Department of Defense context, the book delivers a practical approach that novices and journeymen will find useful when crafting wargames for a wide range of analytical situations.

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4   Appleget, Burks and Cameron, *The Craft of Wargaming,* p 97.

5   Graham Longley-Brown, *Successful Professional Wargames: A Practitioner's Handbook*, The History of Wargaming Project, London, 2019, p 3.

Correspondence

Grand strategy strikes back: response to 'What is in a name: discarding the grand strategy debate and seeking a new approach' by Jason Thomas

Peter Layton

Introduction

Almost a hundred years after JFC Fuller first outlined the modern conception of grand strategy, the term still perplexes. Some now insist that grand strategy is an illusion best ignored and replaced with a sole reliance on strategy – which, it must be said, others argue is an illusion as well![1] Jason Thomas's commentary in the last edition of this journal is of the former view.[2] It brings up several issues that are useful to discuss not just to gain a better understanding of grand strategy but also of strategy.

This response initially reviews what grand strategy is before assessing the argument that strategy is enough. It is not, but the issue is larger than it might appear. The article's final section applies Von Moltke's description of strategy as 'a system of expedients', which was noted in Thomas's article, to grand strategy and then its implicit extension into the fourth dimension. Moltke's quote nicely implies the importance of time when formulating strategies, grand or not.

This response happily accepts Thomas's assertion that the English language meaning of the word 'strategy' has evolved since its earlier derivation from the Greek as the art of the general.[3] However, while factually correct in terms of

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1   For grand strategy is an illusion see: Simon Reich and Peter Dombrowski, *The End of Grand Strategy: US Maritime Operations in the 21st Century*, Cornell University Press, Ithaca, 2017, https://www.jstor.org/stable/10.7591/j.ctt1w0dbzt. Concerning strategy see: Richard K Betts, 'Is Strategy an Illusion?', *International Security*, 2000, 25(2):5–50.

2   Jason Thomas, 'What is in a name: discarding the grand strategy debate and seeking a new approach'*, Australian Journal of Defence and Strategic Studies,* 2020, 2(2):247–257.

3   Beatrice Heuser, *The Evolution of Strategy: Thinking War from Antiquity to the Present*, Cambridge University Press, Cambridge, 2010, p 4.

current dictionary definitions, there are differences between business, military and other professions' conception and use of strategy.[4] The word may be the same but how 'strategy' is understood can vary depending on the context.

What makes strategy grand?

Strategy has two fundamental characteristics. Firstly, the crucial issue that defines 'strategy' is that it involves interacting with intelligent and adaptive others, whether friends, neutrals or adversaries. This social interaction though is particular. Each party involved continuously modifies their position, intent and actions based on the perceptions and actions of the others participating. This is 'the paradoxical logic of strategy', where successful actions cannot be repeated as the other party adapts in response to ensure the same outcome cannot be gained in same way again.[5]

Secondly, strategy is often described as ends, ways and means.[6] The 'ends' are the objectives, 'ways' are the courses of actions and the 'means' are the instruments of national power. The 'means' are used in certain 'ways' to achieve specific 'ends'. This can be expressed as E=W+M. Good strategy then involves an astute course of action, a shrewd 'way', that is additive to the available power. The impact of the means is magnified. Poor strategy subtracts from the available means. It destroys the power you have.

Beyond these two abstractions, the real-world experience of the First World War revealed that strategy as an idea had limitations. The war ushered in a new style of conflict that was not just between armies but rather between whole nations and which necessitated the mobilisation, organisation and control of the societies and economies involved. In the postwar 1920s, strategy as a term was felt to need some elaboration in order to give the abstract thinking of policymakers, military staffs and officials more precision, clarity, sophistication and utility. Accordingly, the adjective 'grand' was added to strategy.

Grand strategy differs from strategy in three specific areas: the ends sought, the diversity of means used and the inclusion of how these means are developed. The ends sought are those beyond the current problems; Liddell-Hart wrote that: 'while the horizon of strategy is bounded by the war, grand strategy looks beyond the war to the subsequent peace.'[7] The means of grand strategy are

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4   The military reader might find this book instructive concerning business strategy thinking: Walter Kiechel, *The Lords of Strategy: The Secret Intellectual History of the New Corporate World*, Harvard Business Press, Boston, 2010.

5   Edward N Luttwak, *Strategy: The Logic of War and Peace*, Belknap Press, Cambridge, 1987, pp 7–65.

6   Arthur F Lykke, *Military Strategy: Theory and Application*, US Army War College, Carlisle, 1989, pp 3–9.

7   BH Liddell-Hart, *Strategy*, 2nd revised edn, Penguin, New York, 1991, pp 321–22.

many and varied, not one as is the case in strategy – for example a military strategy, a diplomatic strategy etc. By dent of collective usage, Laswell's DIME (Diplomacy, Information, Military and Economic) has been embraced by most to describe the diversity of the means grand strategies uses.[8]

The development of the means also falls under grand strategy, rather than just being assumed as strategy does. In 1923 Fuller wrote: 'While strategy is more particularly concerned with the movement of armed masses, grand strategy … embraces the motive forces which lie behind.'[9] This has real implications. Historians analysing the Second World War and the Cold War determined that the major states involved purposefully struck a balance between the demands of their chosen grand strategies and the ability of their domestic resource base to meet those demands.[10] The development of the means and their application in a war were not simply opposite sides of the same coin but were instead mutually determining elements.

Can strategy replace grand strategy?

In a hierarchal sense, grand strategy sits above the various lower-level DIME strategies, giving their implementation coherence. This is achieved through providing a shared high-level objective while simultaneously developing the means each strategy needs, including the workforce, material, money, legitimacy and soft power.[11] Without a grand strategy, the lower level strategies would be uncoordinated, probably work at cross-purposes with each other, be less likely to succeed and need to each develop their own means. Reflecting grand strategy's indispensability, Colin S Gray declares 'all strategy is grand strategy'.[12]

The issue though becomes more complicated given states generally have more than one problem to address. One grand strategy is not enough to do all that most states wish to do. This is seized upon by those arguing that several strategies beat one grand strategy. This position seems to have resulted from examining a particular example of grand strategy: the US post–Cold War national security strategies. These were of the milieu type that aim to address the whole international system. Historically, these are rare and demonstrably difficult to

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8   Harold D Lasswell, *Politics: Who Gets What, When, How*, McGraw-Hill, New York, 1958, pp 204–05.

9   Col JFC Fuller, *The Reformation of War*, 2nd edn, Hutchinson and Co., London, 1923, p 219.

10 Alan S Milward, *War, Economy and Society 1939–1945*, University of California Press, Berkeley,1979; Aaron L Friedberg, *In the Shadow of the Garrison State: America's Anti-Statism and Its Cold War Grand Strategy*, Princeton University Press, Princeton, 2000.

11 Peter Layton, *Grand Strategy*, CreateSpace, Brisbane, 2018, pp 19–25, pp 52–66.

12 Colin S Gray, *The Strategy Bridge: Theory for Practice,* Oxford University Press, Oxford, 2010, p 28.

implement. Much more common are positional grand strategies that address one specific state or a small group of states.[13]

The highly regarded American containment grand strategy of the Cold War era was a positional type. This grand strategy gradually grew to involve taking actions across the globe; however, it consistently focused on the bilateral relationship between the US and the USSR. For the US, the rest of the world comprised others who could help, hinder or distract from its grand strategy but were considered unimportant in themselves, being seen instead in terms of the American–Soviet relationship.

This indicates that a state can have more than one grand strategy. Australia for example could have a grand strategy for managing China, perhaps in which the US helps, and another grand strategy for Australia's relationship with the ASEAN countries. Immediately obvious is that states do yet more and for these risk management and opportunism can be useful.

Risk management can be used for problems in which the ends cannot be defined, such as crime and terrorism. Both problems cannot be conclusively solved but rather keep reoccurring over time. When such problems eventuate, there will be losses and associated costs but with careful risk management the damage can be actively limited to acceptable levels.

Opportunism is similarly useful when the ends are again indefinable. It is an approach that aims to seize opportunities and address challenges as they arise rather than work towards some defined objective. An example is the late 1800s British Empire expansion, people on the spot – like Cecil Rhodes in southern Africa or the Premier of the Colony of Queensland in annexing Papua in 1883 – took advantage of opportunities to expand the Empire. London did not have some grand plan but got forced into expansion by colonial opportunists.[14] The British state ceded its future to others. Some see Australia and Denmark joining the US 2003 invasion of Iraq as opportunistic: both were less concerned about Iraq than with simply getting closer to the US.[15]

Overall, Thomas's claim that 'specific strategies provide greater utility' than a single grand strategy has some logic but fails to help states manage the diversity

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13 G John Ikenberry, *Liberal Leviathan: The Origins, Crisis, and Transformation of the American World Order*, Princeton University Press, Princeton, 2011, pp 349–50.

14 John Darwin, *The Empire Project: The Rise and Fall of the British World-System 1830–1970*, Cambridge University Press, Cambridge, 2009, p 91.

15 Fredrik Doeser and Joakim Eidenfalk, 'The Importance of Windows of Opportunity for Foreign Policy Change', *International Area Studies Review*, 2013, 16(4):390–406.

of problems and issues faced.[16] It also throws up concerns over coordination, coherence and developing the means.

The forgotten fourth dimension

Many learned debates about strategy treat it in a rather static manner. In reality, strategies operate through time.

As noted earlier, a grand strategy involves interacting with intelligent others, all seeking their own objectives. Accordingly, grand strategies as initially implemented will inevitably decline in effectiveness and efficiency over time as others take actions that oppose it, either deliberately or unintentionally. Moltke's advice concerning strategy being 'a system of expedients' has a firm conceptual foundation. Grand strategies cannot be 'set and forget'. They must continually evolve in response to external forces, whether emanating from the others involved or from the continually changing strategic environment.

Helpfully, business strategy formally discriminates between strategy-as-a-design and strategy-as-an-emergent-process.[17] The initial strategy design is meant to learn from the positive and negative results of being implemented and the emergence of new issues. Strategists should be 'open, flexible and responsive, in other words, willing to learn'.[18]

Conceiving grand strategies as dynamic admits they have a distinct life cycle: they arise, evolve through learning and then at some point finish. A grand strategy may finish when it reaches its desired objective, although an earlier termination may be as likely given its interaction with intelligent and adaptive others. Minor adjustments may only go so far in addressing the steadily changing situation.[19] Clausewitz's culminating point helpfully captures this idea.

For Clausewitz, an offensive strategy continued until it could no longer advance and then the strategy needed to transition to the defensive.[20] At some time in its life cycle a grand strategy will similarly reach a culminating point where it has achieved the greatest effect for the effort expended. Beyond this point, greater efforts will yield diminishing effects and bring only marginally greater benefits.

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16 Thomas, 'What is in a name', p 256.

17 Robert M Grant, 'Strategic Planning in a Turbulent Environment: Evidence from the Oil Majors', *Strategic Management Journal*, 2003, 24(6):491–517.

18 Henry Mintzberg and James A Waters, 'Of Strategies, Deliberate and Emergent', *Strategic Management Journal*, 1985, 6(3):271.

19 A grand strategy may also reach such a point of diminishing returns because of poor implementation, not just due to the original conception losing effectiveness.

20 Carl Von Clausewitz, *On War*, (Michael Howard and Peter Paret ed and trans), Princeton University Press, Princeton, 1984, p 528.

The culminating point may then be thought of as a point of diminishing marginal utility.

There are two broad alternatives that may be considered when a grand strategy reaches its culminating point. The grand strategy may be terminated, with a careful transition to a replacement new grand strategy or to some other methodology such as risk management. Conversely, the grand strategy may be continued if there are reasonable expectations it will still achieve the desired objectives. The focus may then shift to optimising the grand strategy's effectiveness and efficiency to shift its culminating point further into the future.[21]

With grand strategies having a life cycle, trying to constrain them within some imaginary temporal boundary makes little sense. Defining a specific time period would immediately raise the question of what if the grand strategy being considered is a fraction shorter or longer, is it not then a grand strategy? Instead, grand strategies take as long as they take. They are intellectual artefacts arising from human agency and so 'live' for as long as the implementing humans need, which could be short or long but inherently cannot be some predetermined quantitative measure.

Conclusion

The argument concerning replacing grand strategy with multiple strategies has some shortcomings. It fails to suggest what methodology would provide the overarching objectives that guide these multiple strategies and make their implementation coherent and coordinated. Moreover, the matter of resourcing the numerous strategies is similarly neglected.

In this, it must be borne in mind that grand strategy is just another problem-solving methodology. It is not a panacea. Grand strategy as an idea has much to offer but there are other options. Strategists, grand or otherwise, need to choose the best methodology to solve the challenge before them. There is no single methodology suitable to solve every type of policy problem, but there may be some that are more right than others.

21 Layton, *Grand Strategy*, pp 30–33.

Author's reply

Jason Thomas

In reply to Peter Layton's correspondence regarding my commentary in the last edition of this journal, I would offer that I do not prescribe a specific approach to strategy. Rather, my piece explores and challenges existing paradigms. The commentary does not insist that anything in the severe game of strategy is an illusion.[22] However, it is better to focus more on developing good security strategies (grand or otherwise). The commentary does not dispute a classic understanding of grand strategy but rather contends that ongoing attempts to define grand strategy further are a distraction. A strategy should be specific in focus and, if necessary, supported by others. It may be that one strategy has initial primacy; and then, as it achieves desired outcomes, another becomes more important. They are dynamic and mutually supportive, rather than permanently subservient in the classic hierarchical structure. One should seek to broaden perspectives rather than narrow them.

Peter Layton's observation of what is grand strategy can relate to all strategies. Indeed, time is an essential consideration for all security activities, as highlighted in my meta-framework. The commentary was written to raise a concern that a 'classic' approach can lead to trapping strategy in the military domain, the presumption of inevitable conflict.[23] Hence, my support for The Copenhagen

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22 As footnoted in Peter Layton's correspondence, footnote 1: Simon Reich and Peter Dombrowski, *The End of Grand Strategy: US Maritime Operations in the 21st Century*, Cornell University Press, Ithaca, 2017, https://www.jstor.org/stable/10.7591/j.ctt1w0dbzt. Concerning strategy see: Richard K Betts, 'Is Strategy an Illusion?', *International Security*, 2000, 25(2):5–50.

23 Danny Quah, 'A Thucydides Fallacy: The New Model of Power Relations for Southeast Asia, the US, and China', *The Diplomat*, 27 July 2019, https://thediplomat.com/2019/07/a-thucydides-fallacy-the-new-model-of-power-relations-for-southeast-asia-the-us-and-china/; Francis P Sempa, 'How to Avoid the Thucydides Trap: The Missing Piece', *The Diplomat,* 7 March 2018, https://thediplomat.com/2018/03/how-to-avoid-the-thucydides-trap-the-missing-piece/.

School is to demonstrate one possible alternative avenue to shifting such a perspective.

In recently writing an excellent tribute to the late Colin Gray, Lawrence Freedman noted that Gray accepted grand strategy in the classic view. Gray preferred J C Wylie's definition of 'strategy as a "plan of action designed to achieve some end; a purpose together with a system of measures for its accomplishments".'[24] Gray considered himself a strategist, but he doubted that a perfect definition could be found; why do we assume otherwise for grand strategy?

Near the conclusion of his paper, Freedman cites a significant point of divergence with Gray on the nature of a master strategist. 'The only people who could be master strategists were political leaders, because they were the ones who had to cope with the immediate and often competing demands of disparate actors, diplomats as well as generals, ministers along with technical experts, close allies and possible supporters.'[25] Freedman does not link such a person exclusively to grand strategy nor, in their debate, does Gray.

In a short commentary, there was not room to explore the linear and closed logic of 'ways', 'means', 'ends'. Gray saw such an approach enduring. However, Sir Hew Strachan, in the first Sir Michael Howard memorial lecture, does challenge its origin (Clausewitz).[26] Strachan posits that Howard sought a linear (and hence easy to teach the soldier) logic (ways to ends) that does not exist in *On War*, which relies on more complex juxtapositions (thesis/anti-thesis). However, in terms of human cognition in complex situations, such linear frameworks are by their very nature flawed (as is potentially any simple theoretical construct).[27] My recent consulting has confirmed to me that military minds under-appreciate how complex other disciplines are and what they could bring to strategy.[28] Peter Layton touches on some of the benefits of looking at other disciplines. Still, this approach should not be unique to the top tier of a hierarchy. Additionally, I think there needs to be more than consideration of these approaches than as mere augmentations.

24 Lawrence Freedman, 'Strategy's Evangelist', *Naval War College Review,* Winter 2021, 74(1): Article 4, p 17 (p 6 of article 4), https://digital-commons.usnwc.edu/nwc-review/vol74/iss1/4.

25 Freedman, 'Strategy's Evangelist', p 22 (p 11 of article 4); Although master strategists, political leaders are conspicuous by their absence as attendees at DSSC.

26 Sir Hew Strachan, '2020 Sir Michael Howard Centre Annual Lecture 2020', Kings College London, https://www.kcl.ac.uk/news/2020-sir-michael-howard-lecture-delivered-to-audience-of-500, 19 November 2020, 23 minutes, available on YouTube at https://www.youtube.com/watch?v=cJBG1rQLzEQ&t=991s,

27 Karl E. Weick, *The Social Psychology of Organizing*, Topics in Social Psychology, Addison-Wesley Publishing Company, 1969.

28 To be fair the reverse applies as well but perhaps not as much as military personnel assume.

The continued reliance on established Western military strategy frameworks has not recently yielded near-optimal outcomes for the nations using them or those engaged.[29] It may be the case that we have used such shiny tools as window dressing for ultimately self-serving, almost hollow rationales.[30] As Chris MacGregor put it:

> According to Hew Strachan, the word strategy has "…acquired a universality which has robbed it of meaning, and left it only with banalities". The difficulty of definition and much semantic change has provoked misunderstanding and misinterpretation of its practice and strategy itself has thus been variously described as illusory or a lost art. In light of the blood and treasure lost in the western interventions into Iraq, Afghanistan and Libya this is significant and deserves investigation.[31]

As both Gray and Freedman agree, creating a worthy strategy is not easy, grand or otherwise; above all, it must be good. In my commentary, I proposed a meta-framework of contextual, temporal, relational and ethical considerations to assist in that assessment and question a paradigm that has sat as 'accepted' wisdom for at least a century.[32] I hope it encourages others to also question received wisdoms and not automatically seek safe harbour in architypes.

29 Alex Ward, 'The Joint Chiefs Chair Just Gave a Brutally Honest Assessment of the Afghanistan War', *Vox* (blog), 2 December 2020, https://www.vox.com/2020/12/2/22062808/milley-afghanistan-war-modicum-brookings; Todd South, 'Army's Long-Awaited Iraq War Study Finds Iran Was the Only Winner in a Conflict That Holds Many Lessons for Future Wars', *Army Times*, 18 Jan 2019, https://www.armytimes.com/news/your-army/2019/01/18/armys-long-awaited-iraq-war-study-finds-iran-was-the-only-winner-in-a-conflict-that-holds-many-lessons-for-future-wars/.

30 Ryan Noordally, 'The British Army Has a Blackbelt in "Bullshito"', *Wavell Room*, 19 Mar 2021, https://wavellroom.com/2021/03/19/blackbelt-in-bullshito/. See points 3 and 4.

31 Chris MacGregor, 'The Comprehensive Approach as a Collaborative Wrap to Strategy', University of Reading, 31 Jul 2012, p 14, https://chrismacgregor.academia.edu/research. Reference from MacGregor relating to this quote: 'See Betts, R. Is Strategy an Illusion? *International Security*, Vol. 25, No. 2 (Autumn, 2000), pp. 5-50 ; Stirrup, ACM Sir Jock. CDS Speech to RUSI, 2009; and Porter, Patrick. "Why Britain Doesn't Do Grand Strategy". *RUSI Journal*. Vol 155, No 5, Aug/Sept 2010. pp.6-12.'

32 And read more Gray, Strachan, Howard, and Freedman.

Australian Journal of Defence and Strategic Studies

Call for submissions (2021–2022)

The Australian Journal of Defence and Strategic Studies (AJDSS) is the flagship journal of the Australian Defence Force. The AJDSS encourages contributors and readers from across the professional military, academic, government and industry sectors. The AJDSS welcomes submissions considering contemporary and future concerns relevant to the defence and strategic outlook of Australia and the Indo-Pacific region.

Submission deadlines

Submissions are accepted at any time, however, please note the issue deadlines below:

Volume 4 Number 1   27 September 2021
Volume 4 Number 2   1 February 2022
Volume 5 Number 1   30 May 2022

Length of submissions

- academic articles between 4000 and 7000 words

- commentary and opinion essays between 2000 and 4000 words

- reviews and review essays between 1000 and 2000 words

- correspondence in response to articles between 1000 and 2500 words

Submissions should be original, clearly argued and demonstrate appropriate levels of research and evidence. Academic articles undergo a double-blind peer review process. This process can be lengthy, and reviews may recommend revision and resubmission.

The AJDSS is interested in receiving submissions on:

- the military thinking and geostrategic and geopolitical concerns of Australia's regional neighbours and allies

- crisis management including dilemmas of escalation and grey-zone conflicts/ spectrum management

- deterrence in contemporary statecraft and warfare

- mobilisation and whole-of-government policy integration of Australia's defence industry and technology base, including considerations of the resilience of regional economic structures and supply chains in the Indo-Pacific

- great power competition including the use of proxy actors to avoid direct conflict and asymmetric warfare

- defence responses to dis/information and political warfare for example, misinformation, stoking strategic social media discordance and other influence operations

- Australia's strategic approach to the use of space and space defence

- Australia's future defence strategy and operational concepts

- defence and strategic implications of emerging technologies including artificial intelligence and automation, electronic warfare, surveillance and reconnaissance technology, data collection, and cyber security

- reflections on lesson learned from significant historic events being marked in 2021–22 and how they may affect our thinking about the future, including:
  - Cuban Missile Crisis (70th anniversary)
  - signing of the ANZUS treaty (50th anniversary)
  - Afghanistan and the War on Terror (20th anniversary)

- defence and strategic issues facing Australia or its allies with analysis of the implications for Australia

The AJDSS also invites proposals from organisations conducting workshops, symposiums or conferences to submit a series of themed papers for our Focus section or a potential special issue.

Please see the AJDSS website for more suggestions.

Submitting your manuscript

All submissions should be sent by email to: cdr.publications@defence.gov.au and accompanied by a cover letter biography and declaration statement.

For general style and documentary-note referencing guidelines refer to the Australian Government Style Manual available online at https://www.stylemanual. gov.au/. For spelling queries refer to the Australian Macquarie Dictionary. Please note that bibliographies are not required. For further information see the editorial policies and submission guidelines on the AJDSS website.

To discuss potential papers or submissions, or to propose books for review, please contact the editorial office via email: cdr.publications@defence.gov.au

RECENT RELEASE FROM ADC PUBLICATIONS

Joint Studies Paper Series No. 4

Fighting Artificial Intelligence Battles: Operational Concepts for Future AI-Enabled Wars
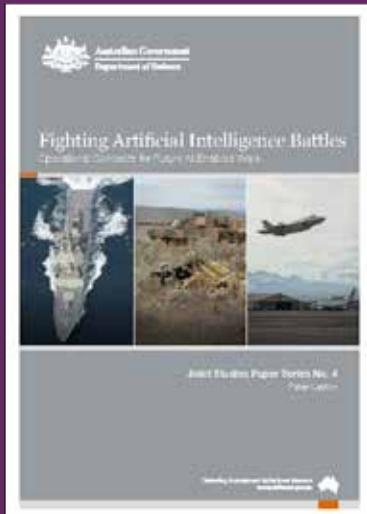
In recent years, militaries around the world have recognised the need to rapidly increase investments in artificial intelligence (AI) technologies and examine the potential ways it may be employed in future warfighting. Over time, AI will likely infuse most military equipment and enable the battlespace. Yet, there is still much to be determined in terms of the application and management of AI as a military capability.

In this latest edition of the Joint Studies Papers, Dr Peter Layton considers these issues and proposes operational level defensive and offensive concepts for an AI-enabled battlespace. He then explores how these concepts may be applied to the traditional sea, land and air domains. The intent is to stimulate discussion and new ways of thinking about how AI may be employed in the future and how to begin preparing for that future now.

This paper takes AI and looks outward, relating this new technology to both operational ways of war and tactical employment options.

About the Author

Dr Peter Layton is a Visiting Fellow at the Griffith Asia Institute, Griffith University, a Royal United Services Institute Associate Fellow and a Royal Australian Air Force Reserve Group Captain. He has extensive aviation and defence experience and, for his work at the Pentagon on force structure matters, he was awarded the United States Secretary of Defense's Exceptional Public Service Medal. He has a doctorate on grand strategy from the University of New South Wales and has taught on the topic at the Eisenhower School for National Security and Resource Strategy at the US National Defense University. He contributes regularly to the public policy debate on defence and foreign affairs issues and is the author of the book Grand Strategy. For more information on his articles and papers visit https://peterlayton.academia.edu/research.

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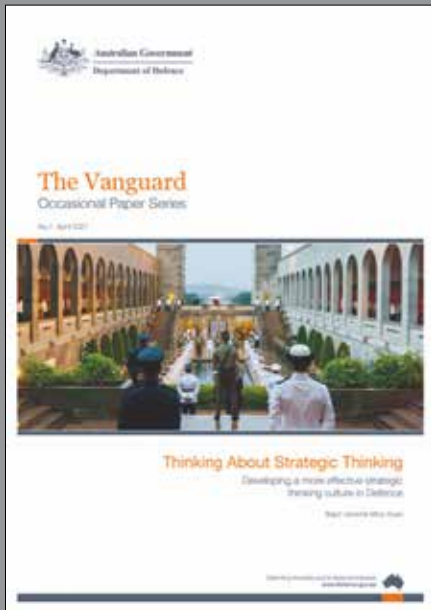
Individuals think strategically, not institutions. However, the development of strategic thinkers cannot be separated from institutional culture.

What can the Australian Defence Force and the wider Department of Defence do to nurture and build better strategic thinkers? In this paper, the first in The Vanguard occasional paper series, Major General Mick Ryan highlights the challenges and provides a framework for developing a strategic learning culture that supports strategic thinking at all levels of Defence.

About the author: Major General Mick Ryan is the Commander of Australian Defence College. He has deep experience in the fields of strategy, interagency and joint operations, command and leadership, and professional military education. He is a Distinguished Graduate of the United States Marine Corps (USMC) Command and Staff College, a graduate of the USMC School of Advanced Warfighting and graduated with distinction from the Johns Hopkins University School of Advanced International Studies. Follow him on twitter @WarintheFuture.

About the series: The Vanguard occasional papers advance understanding and awareness of current and future Australian defence and security concerns. The papers contribute to public debates and policy deliberations facing Australian defence and strategic decision-makers by providing timely research, analysis and diverse points of view.