Military Robots: Mapping the Moral Landscape,
by Jai Galliott, Burlington, USA, and Farnham Surrey, England: Ashgate Publishing Limited, 2015, pp. IX + 266, £100.00

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The ethical use of the military robots is a serious concern and in the last few years this debate has gained significant momentum on various human rights as well as military forums. The book under review deals with the same debate. The author's idea is to thoughtfully bring forth the relevant arguments that have surfaced over last few years and examine them under the broad lens of 'just war theory'.

The introduction (Chapter 1) is about the moral implications of using robots in warfare and combat operations. In the first section, evolving robotics and techno-social and ethical challenges in modern warfare have been discussed and the author has referred to several books and articles in order to emphasise the importance of strict oversight of international regulations involved in the utilisation of unmanned systems. The next section of the chapter is about the terms and definitions which are generally used to define the unmanned system in terms of tasks, human interference, senses, thought and actions. In order to provide a broader overview, the author has cursorily examined issues of ethics, legality and the military use of unmanned autonomous systems. He has done so by referring to the works of several well-known authors and philosophers. The last section of the chapter gives a brief overview of the full book.

Chapter 2 discusses the evolution of unmanned systems and places it as the end of a long chain of advancements in military technology used

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to assess and perform target, decoy, logistics, rescue, explosive ordinance disposal, reconnaissance and combat roles across land, sea and space. The author has divided system development into four parts. The first part examines the history of the system, tracing it back to early Greek, Chinese and South Asian mythology. These examples span from Hephaestus's creations (Greek idea of complex intelligence machines) and automata (mechanical humanoid creatures) in 1200 BC to Yen's mechanical man during the reign of King Mu of Chou and the aerial chariot as seen in the Mahabharata. From a historical perspective, the author also traces a trajectory from the usage of kites as weapons of war in 200 BC to more recent theoretical developments in the subject as conducted by Leonardo da Vinci.

In the second section, the author also tries to establish the existence and importance of mechanical system in war as early as 1890. The early development is not only focused on the full system but also gives details about subsystems, such as radio-controlled system, 'radio-guided torpedo'—first invented by Nicola Tesla—and similar kind of systems developed by some other inventors, which are useful in modern remote-controlled system. The author summarises the development of unmanned systems that started during the 1920s, like German V-1 and some other notable achievements, which showed their potential in World War II. The next section looks into the current usage of systems across each domain—land, sea and air—separately, such as BigDog, Modular Advanced Armed Robotic System (MAARS) and Dragon Runner for land operations; USS Cole (DDG-67) and Spartan Scout for maritime operations; and the well-known RQ-4 Global Hawk and MQ-1 Predator drone for air operations. This section also looks into some of the future potential systems like Nano Hummingbird, Black Widow and Dragon Eye. In addition to this, the author justifies rapidly growing unmanned systems in the context of autonomous, unpredictable swarm technologies, their relevance in war as well as rules of engagement.

Chapter 3 explores the moral reasoning and justification for the use of unmanned systems over other weaponry. In the first part, the author focuses on the potential benefits of unmanned systems for forces, for the benefit of society, and how the use of these systems is going to reduce the cost of war, improve/upgrade war-fighting capabilities and change the underlying political motivation, along with associated ethical issues. In addition, the author also argues against the unnecessary damage to forces (manpower) during the combat operation in hard geographic,

physical and environmental conditions. His argument, in fact, creates a supportive framework in favour of the armed forces as he argues that the soldiers who return from warfare face physical and psychological problems. Nevertheless, subsequently, the author also presents the ethical moral constraints, and difficulties, with regard to the employment of the unmanned systems. In the next section, the author refers to B.J. Strawser's work to support the use of unmanned systems in military operations, labelling it the principle of 'unnecessary risk'. The author has also presented some cases where the undesired, potential lethal risk of unmanned systems can reduce casualties on the ground and highlighted the ethical issues involved in the design of unmanned systems. The necessary framework is laid out in last two sections and it also helps to understand the employment of systems. In the third section, the nature of the relationship between state, citizen and military forces is discussed with the collective arguments and psychological ideas of John Locke, Thomas Hobbes and Jean Jacques Rousseau, in which they define the state of nation, perfect freedom, sovereigns and their functions. The author argues for the employment of unmanned systems under social contract and military and standard civil–military contract.

Continuing from the previous chapter, Chapter 4 explores warfare, moral restraints and old rules for war, as argued by philosophers such as Immanuel Kant, Francisco Suarez and others. The first section introduces the moral-framework-for-war theory. The argument on war theories is a comprehensive summary, which links the historical roots since the Greco-Roman and Judeo-Christian way of war and the ethical and moral constraints in that. In the second and third sections, the author explains the traditional 'just war duo', that is, the two set of principles that just war theory has developed into over time: *jus ad bellum* (justice of war) and *jus in bello* (justice in war). In the second section, the first set of six principles with regard to *jus ad bellum* has been examined by the author and this is linked to his theorisation in the previous chapter. The third section is about *jus in bello*, which explains the standard required to conduct warfare in a discriminatory and proportional manner. The final section argues that despite claims to the contrary, the classical just war framework remains the most suitable and robust tool for analysing the ethical and moral problems associated with the use unmanned systems.

In Chapter 5, the author's main focus is on the technological and operational dimensions of robotics, both manned and unmanned. He

tries to clarify the way theory, myths and fallacies pose danger and concern to various unmanned system variants. The author has linked the first section with previous chapters in which he explained war theories and principles with regard to unmanned system. Here, he tries to present a comprehensive collaborative view of philosophical ideas of different thinkers like Sparrow and Singer. In the next section, the author focuses on the cognitive phenomena that can reduce the efficiency of unmanned systems and presents a range of strategic problems of mortal importance: drone complacency, dependency and servitude. In the next two sections, the author, once again, gives a preview of new weapons, their testing and the suitable target analysis of various advance systems in the operational area. He also presents the use of this new weapon in urban warfare and examines the technological limitations of incorporating it into the urban environment, which can be militarily and morally challenging.

In Chapter 6, the main focus of the discussion is on socio-political and psychological factors. The chapter also examines the efficacy of unmanned systems. In particular, it focuses on the mindset-altering dimensions of the unmanned war arc and their impact on the principal war-making agents: the public; unmanned systems operators; their commanders; and higher-level military and political decision makers. The first section argues for risk transference. Unmanned warfare challenges the principle of right authority and increases the propensity to use force, which, in turn, along with some linguistic subterfuge and media management, results in cognitive dissonance for the public and a lowered authority threshold, making it easier for high-level decision makers to take an unwilling public to war. In the second section, the author's focus is on problems associated with technologically mediated fighting and he suggests that, through a process of moral disengagement and desensitisation, the barriers to immoral conduct in war may also be reduced. The author further argues that this aspect, coupled with unmanned warfare, makes it significantly easy for soldiers to kill without proper respect for the *jus in bello* principles of discrimination and proportionality. The third section discusses the potential impact of the same on the personal well-being of the operators themselves. Here, the arguments are mainly focused on the impact of being simultaneously present in contrasting environments, which may lead to serious transgressions of just war principles. In the fourth and final section, the author discusses and examines some technological solutions to this

largely human problem and argues for human interference in wartime decisions, and the designing of such weapons control interfaces, as well as the judicious introduction of autonomy, to ensure that support for the aims of just war theory does not wane. Greater automation certainly has the potential to alleviate some moral concerns generated by these systems, but there is a strong case for keeping humans in the decision-making chain, even if it involves having to make delicate moral trade-offs between maintaining and/or improving war-fighting capability and limiting harm to non-combatants.

Moving on from discussions of the previous chapter, in Chapter 7, the author's focus is on the role of unmanned systems and the risks involved at the strategically challenging inter-state level. In this chapter, it has been argued that the use of unmanned systems can introduce a morally problematic asymmetry and that, at least in some cases, there are reasons for rejecting the legitimacy of unmanned engagements on grounds that stem from this asymmetry. In the first section, he tries to clarify the concept of asymmetric warfare and, in seeking to call into question the legitimacy of radically asymmetric conflicts, he focuses on the contrasting views of B.J. Strawser and Suzy Killmister. As David Rodin has argued in his exploration of the ethics of asymmetric conflict, this image reflects a moral assessment of war in two ways. First, it gives us the idea of war as a fair fight between the two combatants. Second, because the battle is isolated from all non-combatant elements, it accords with our sense of justice in war, that is, the risk of harm to those not directly involved in the conflict is non-existent. It is demonstrated that unmanned warfare challenges the traditional understanding of combatant status and perhaps even some elements of the nature of war. The concern here is that some states may eventually come to wield such strength in military robotics, with risks to the state that are so low that it would present an impediment to just war.

In Chapter 8, the author's arguments venture towards unexplored territory, that is, war's end, and explain the role that unmanned systems can play in facilitating a lasting peace if used to support transparent communication and directly aid support operations, rather than angering and scaring the local populace. The first section highlights that—while in its modern theoretical infancy—*jus post bellum* has its place in the thinking of theorists such as Vitoria, Grotius and Kant, all of whom gave textual evidence of tripartite conceptions of just war theory. The second section details Orend's contemporary attempt at reviving the tripartite

conception, exploring his six proposed principles. The third section aims to bridge the gap between theory and practice. It shows that unmanned warfare presents numerous challenges for Orend's 10-point blueprint for enacting these principles. Apart from these systems challenging the moral rules of war, unmanned systems also make it significantly more difficult to disarm and demilitarise society, threaten non-state associations and the flourishing of a post-war society, hinder efforts to work with locals towards establishing instruments facilitating lasting peace and hamper efforts towards purging harmful propaganda and capturing those suspected of war crimes. The fourth section acknowledges that there are ways to ensure that the drone stigma is, where possible, offset. Overall, this chapter illustrates that unmanned aircrafts can potentially play a critical but often overlooked role in hampering war's end, and limiting the prospects for a lasting peace, if not properly managed. With this in mind, the author's argues for taking responsibility of any kind of failure, or avoiding unnecessary collateral damage during operations, and the other potential problems.

In Chapter 9, the author discusses complex problems associated with attributing responsibility. The author tries to explore the need for a clear account of responsibility in just war theory and counters the claim that there is some sort of explicit requirement to hold a single individual responsible. There is, less specifically, an implicit responsibility component which stipulates that the agents of war—whether human, non-human or some combination thereof—must be held responsible for violations of the just war theory no matter how difficult the moral accounting. It is also demonstrated that technology generates a number of barriers against successful attribution of responsibility, from distancing users from their sense of responsibility to obscuring causal chains, making it more difficult to identify where a moral fault lies.

In this chapter, it is outlined how these issues and others come together in the case of fully automated unmanned warfare to create what Sparrow—following Matthias—alleges is a 'responsibility gap', or a class of actions for which nobody/nothing is supposedly responsible. The final section lays down the foundations for a theory of responsibility, which revolves around the idea that action and responsibility can be distributed amongst human and non-human agents or some combination thereof. More work is needed to reveal exactly what this new theory of responsibility will look like and to determine its precise implications. However, if nothing else, this chapter demonstrates that while ascribing

responsibility in the case of autonomous systems is more complex and troubling than in the case of semi- and non-autonomous systems, it is by no means an insurmountable problem.

The final chapter is the conclusion of the book in which the author has created a collective augmented summary of the book and recapitulated the diverse topics covered in the book. The master argument throughout in this book is one that expresses the difficulty in balancing the social, political and moral issues of the day with the need for national defence. The author calls for a synergy between the technology and development of unmanned systems. But the information used and examples provided are more in line with the American context. The author has provided various debates and arguments, along with various philosophical concerns and traditions. But the book does not include international humanitarian law[1,2] and international rules for governing military operations[3] referring to the Certain Conventional Weapons (CCW)[4] and Article 36 Additional Protocol 1[5] which directly deals with the robotics and autonomous weapon systems. All in all, the book is a comprehensive read and has been well researched and documented. It provides a wholesome overview regarding the debate concerning ethical issues surrounding the usage of military robots.

Notes

1. Dieter Fleck and Michael Bothe, *The Handbook of International Law of Military Operations*, Oxford: Oxford University Press, 2008, chapters 5 and 10, pp. 500–91.
2. Ibid., pp. 401–79.
3. Bill Nott, *Handbook on International Rules Governing Military Operations*, ICRC, June 2012, chapters 2, 5 and 6, pp. 43–73, 141–73, 175–97, available at https://www.icrc.org/eng/assets/files/publications/icrc-002-0431.pdf, accessed on 5 November 2016.
4. ICRC, *Convention on Prohibitions or Restrictions on the Use of Certain Conventional Weapons Which may be Deemed to be Excessively Injurious or to have Indiscriminate Effects*, Geneva: ICRC, June 2005, available at https://www.icrc.org/eng/assets/files/other/icrc_002_0811.pdf, accessed on 11 November 2016. (This publication contains the text of the Convention with the amendments and protocols adopted through 28 November 2003. It is intended to promote understanding of the instrument's rules and to facilitate its ratification and implementation by governments.)

5. ICRC, 'A Guide to the Legal Review of New Weapons, Means and Methods of Warfare: Measures to Implement Article 36 of Additional Protocol I of 1977', *International Review of ICRC*, Vol. 88, No. 864, December 2006, available at https://www.icrc.org/eng/assets/files/other/irrc_864_icrc_geneva.pdf, accessed on 15 October 2016.