NEW TECHNOLOGIES AND THE LAW IN WAR AND PEACE

Policymakers, legislators, scientists, thinkers, military strategists, academics and all those interested in understanding the future want to know how twenty-first-century scientific advances should be regulated in war and peace. This book tries to provide some of the answers. Part I summarises some important elements of the relevant law. In Part II, individual chapters are devoted to cyber capabilities, highly automated and autonomous systems, human enhancement technologies, human degradation techniques, the regulation of nanomaterials, novel naval technologies, outer space, synthetic brain technologies beyond artificial intelligence and biometrics. Part III notes important synergies that emerge between the different technologies and legal provisions (existing and proposed), assesses notions of convergence and of composition in international law and provides some concluding remarks. The new technologies, their uses and their regulation in war and peace are presented to the reader, who is invited to draw conclusions.

WILLIAM H. BOOTHBY is an Adjunct Professor at the La Trobe University, Melbourne and a retired Air Commodore. He retired in 2011 as Deputy Director of Legal Services for the Royal Air Force. He is the author of several leading texts on the law of armed conflict, including *Weapons and the Law of Armed Conflict* (2nd edn, 2016) and *The Law of War: A Detailed Assessment of the US Department of Defense Law of War Manual* (Cambridge, 2018) with Professor Wolff Heintschel von Heinegg. He has been a member of the Groups of Experts that addressed *Direct Participation in Hostilities* and that produced the *HPCR Manual on International Law Applicable to Air and Missile Warfare* (Cambridge, 2013), the *Tallinn Manual on the International Law Applicable to Cyber Warfare* (Cambridge, 2013) and the *Leuven Manual on the International Law Applicable to Peace Operations* (Cambridge, 2017). He teaches in Australia, Denmark and Geneva.

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Edited by
WILLIAM H. BOOTHBY
La Trobe University, Melbourne

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Contributors

It will be appreciated that this is a book that tackles a wide range of complex technologies, each of which is the subject of diverse international law and/or policy initiatives, domestic legislation, human rights implications and expert writings. I am therefore privileged and grateful that the contributing authors, all experts in their various fields, have been prepared to contribute chapters on particular technologies. Without their valuable contributions the preparation of the present volume would have simply been impossible. I therefore offer them my heartfelt thanks for all their hard work in preparing the chapters and for all their help in taking the project forward. With their contributions, I am able to offer the reader a comprehensive and in-depth treatment of this most challenging subject.

In the rest of this section, therefore, brief biographical notes will be offered in relation to myself and each of the contributing authors.

Harry Aitken is an Australian lawyer who holds a Bachelor of Laws (Hons I) and Bachelor of Arts from the Australian National University. He was law clerk to Judge James Crawford at the International Court of Justice as part of the Traineeship Program. He has also worked as a litigation lawyer in the disputes group of a major Australian law firm. He is currently an LLM Candidate at the University of Cambridge, where he is on a Cambridge Australia Allen Scholarship.

Air Commodore William H. Boothby (Retd) retired from the Royal Air Force Legal Branch as Deputy Director of Legal Services in July 2011. He holds a doctorate from the European University Viadrina, Frankfurt (Oder) in Germany. His publications include *The Law of Targeting* (2012), *Conflict Law* (2014), *Weapons and the Law of Armed Conflict* (2nd edn, 2016) and *The Law of War* (with Professor Wolff Heintschel von Heinegg, 2018). He has been a member of the Groups of Experts that addressed Direct Participation in

Hostilities, that produced the HPCR *Manual of the Law of Air and Missile Warfare* and that produced the *Tallinn Manual on the Law of Cyber Warfare*. He teaches at the Australian National University, at La Trobe University, at the University of Southern Denmark and at the Geneva Centre for Security Policy.

Diana M. Bowman is the Associate Dean for International Engagement in the Sandra Day O'Connor College of Law and the Associate Director for Students in the School for the Future of Innovation in Society, Arizona State University. Diana also holds visiting appointments in the Faculty of Law, KU Leuven (Belgium) and the Faculty of Law, University of New England (Australia).

Dr Melissa de Zwart is Professor and Dean of Law of the Adelaide Law School, University of Adelaide, and Deputy Director of the Research Unit on Military Law and Ethics. Prior to joining academia, Professor de Zwart was the Legal Manager, Corporate Legal Services, of CSIRO, Australia's largest science and engineering research organisation, where she was responsible for advising on the protection and commercialisation of leading-edge technology. She has published widely on issues relating to technology and regulation, including digital copyright, internet regulation, cybersecurity, surveillance, privacy, whistleblowing, social media, online communities and gaming platforms, commercialisation and space law. She is a member of the Advisory Council of the Space Industry Association of Australia and Director of the Woomera Manual on the International Law of Military Space Operations.

David P. Fidler is the James Louis Calamaras Professor of Law at the Indiana University Maurer School of Law and is Adjunct Senior Fellow for Cybersecurity and for Global Health at the Council on Foreign Relations. His books include *The Snowden Reader* (editor and contributor, 2015), *India and Counterinsurgency: Lessons Learned* (co-editor and contributor, 2009), *Biosecurity in the Global Age* (co-author with Lawrence O. Gostin, 2008) and *SARS, Governance and the Globalization of Disease* (2004). He holds degrees in international relations and law from the University of Oxford and in law from Harvard Law School.

Dr Heather A. Harrison Dinniss is a senior lecturer at the Centre for International and Operational Law at the Swedish Defence University. Her research and publications focus on the impact of modern warfare on international humanitarian law; in particular, on emerging military technologies such as cyber warfare, advanced and autonomous weapons systems and the legal aspects of human enhancement techniques on members of the armed forces. She is the author of *Cyber War and Laws of War* (Cambridge

University Press, 2012). She has served as a member of advisory groups to the Swedish government on both autonomous weapon systems and cyber operations. A member of the International Law Association's Study Group on Cyber Terrorism and International Law (2014–2016) since 2016, she has been involved as co-editor and a core expert for the project to establish a Manual on International Law Applicable to Military Uses of Outer Space (MILAMOS) and remains a core expert on the Woomera Manual on the International Law of Military Space Operations.

Professor Dr Wolff Heintschel von Heinegg holds the Chair of Public Law, especially Public International law, European Law and Foreign Constitutional Law at the European University Viadrina in Germany, where he has been Dean of the Law Faculty and University Vice President. He has held teaching posts at a number of universities and institutions, has been the Rapporteur of the International Law Association Committee on Maritime Neutrality and has taken leading roles in the German Society of Military Law and the Law of War, the International Institute of Humanitarian Law, the International Society for Military Law and the Law of War and the Cooperative Cyber Defence Centre of Excellence. He has been a member of the International Groups of Experts that produced the *San Remo Manual on International Law Applicable to Armed Conflicts at Sea*, the *Manual on the Law Applicable to Air and Missile Warfare* (2010) and the Tallinn Manuals on the *International Law Applicable to Cyber Warfare* (2013) and to *Cyber Operations* (2016). He publishes widely on legal matters.

Kobi Leins is a PhD candidate at the Law School at the University of Melbourne. Leins earned her Bachelor of Arts (Hons) and Bachelor of Laws at Monash University (Australia). In 2003, she was admitted to practice as a Barrister and Solicitor of the Supreme Court of Victoria, Australia. Her professional experience includes working for the United Nations, the International Committee of the Red Cross, and as a commercial litigator. Leins is currently undertaking research on whether the use of nanotechnology-enhanced or -based weapons is prohibited or limited in an armed conflict, with a focus on the adequacy of existing weapons review requirements for nanomaterials. Leins is more broadly interested in the governance and implications of new and emerging technologies.

Rob Mclaughlin is Professor of Military and Security Law, and Director of the Australian Centre for the Study of Armed Conflict, at UNSW Canberra (Australian Defence Force Academy). Prior to this he taught at the Australian National University (2011–2017), and was head of the United Nations Office on

Drugs and Crime's Global Maritime Crime Programme (2012–2014). Before becoming an academic, he served in the Royal Australian Navy (RAN) for more than two decades, as both a seaman officer and a legal officer. His final postings in the RAN were as Director of Operations and International Law, and Director of the Naval Legal Service.

Hitoshi Nasu is Professor of International Law at the University of Exeter, with expertise in public international law, particularly in the fields of international security law and the law of armed conflict. He holds bachelor's and master's degrees in political science from Aoyama Gakuin University and a master's degree and a PhD in law from the University of Sydney. He is the author of *International Law on Peacekeeping: A Study of Article 40 of the UN Charter* (2009) and co-editor of *Human Rights in the Asia Pacific Region: Towards Institution Building* (with Ben Saul, 2011), *Asia-Pacific Disaster Management: Comparative and Socio-legal Perspectives* (with Simon Butt and Luke Nottage, 2013), *New Technologies and the Law of Armed Conflict* (with Rob McLaughlin, 2014) and *Legal Perspectives on Security Institutions* (with Kim Rubenstein, 2015).

Ioana Maria Puscas is Research Officer at the Geneva Centre for Security Policy (GCSP), Geneva. She has master's degrees from the Graduate Institute of International and Development Studies (Geneva) and the Central European University (Budapest). Prior to her work at the GCSP, she was a trainee in the Operations Division at the North Atlantic Treaty Organisation (NATO) HQ in Brussels.

Preface

This book tackles the challenging topic of advances in technology by examining how the law seeks to cope with novel developments. If the practical issues raised by scientific and technological progress in numerous fields of research are complex, and that is undoubtedly the case, matters become even more difficult when the intricacies of different elements of international law are thrown into the mix. By seeking to consider how the various legal principles and rules address the applications, or potential applications, of new and emerging technologies in both the military and civil contexts and by asking whether either can learn from the other, this book adds numerous additional levels of complexity and challenge to an already tricky topic. And yet, that was the challenge that the editor set himself, and the following pages are the result.

The intent in preparing this volume has been to lay before the reader an explanation of the kinds of legal challenge that new and emerging technologies present, and to show how, in differing contexts, legal rules and initiatives for the generation of new law, guidance, codes of practice, etc., strive to address the challenges that have been identified. What emerges is not a blueprint that is capable of general application in all contexts. Rather, the discussion shows that it is the challenges posed by a particular technology or capability when applied in specific circumstances that will have to be the focus of appropriate provision.

However, it is not for the editor nor for the contributors to tell the reader which lessons can be learned, which approaches or solutions are to be preferred and which should be avoided. The role of the editor and of the contributors is to lay the relevant facts, rules and information before the reader while it is for the readers to draw their own conclusions. In that spirit, the editor very much hopes that readers will find worthwhile insights in this book, insights that will be of use to policymakers, lawyers, technologists, scientists,

academics and indeed to all with an interest in where scientific endeavour is taking us, what the consequences seem likely to be and how the law might profitably address such changes.

It would have been folly in the extreme to seek to meet the challenges associated with preparing a book of this nature alone. Indeed, some will consider that addressing such a topic at all is something of a tall order. Be that as it may, the editor has carefully selected a group of distinguished contributors, each of them authoritative in a variety of fields and is indebted to each and every one of them for all their hard work in putting together and refining the chapters of this book.

Grateful thanks are also offered to Simon Phippard for his helpful advice in relation to Chapter 6, to Jay Jenkins for helping with the reviewing of Chapter 10, to Kobi Leins for her helpful and insightful suggestions throughout the project and to Melissa de Zwart for taking on the Outer Space chapter with less than an ideal period of notice. Thanks also go to Cambridge University Press for agreeing to publish the book, and to copy-editor Sean Connolly and all in the production team for turning our humble writings into the impressive volume you have before you.

Abbreviations

AMW Manual	*Manual on International Law Applicable to Air and Missile Warfare, Program on Humanitarian Policy and Conflict Research*, Harvard University, March 2010
API	Protocol Additional to the Geneva Conventions of 12 August 1949, and Relating to the Protection of Victims of International Armed Conflicts, Geneva, 8 June 1977, 1125 UNTS 3
CCW	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, 10 April 1981, 1342 UNTS 137
DoD Law of War Manual	Department of Defense Law of War Manual, Office of General Counsel, US Department of Defense, June 2015
ECHR	European Convention for the Protection of Human Rights and Fundamental Freedoms, 4 November 1950, 213 UNTS 222

ECtHR	European Court of Human Rights
ENMOD	Convention on the Prohibition of Military or Any Other Hostile Use of Environmental Modification Techniques, 10 December 1976, 1108 UNTS 151
GCI	Convention (I) for the Amelioration of the Condition of the Wounded and Sick in Armed Forces in the Field, Geneva, 12 August 1949, 75 UNTS 31
GDPR	European Union, General Data Protection Regulation, Regulation 2016/679, adopted on 27 April 2016, became effective on 25 May 2018
ICRC	International Committee of the Red Cross
ICRC Customary Law Study, or CIHL	J.-M. Henckaerts and L. Doswald-Beck, *Customary International Humanitarian Law*, ICRC, 2005 – Volume 1: Rules
ICRC Commentary	Y. Sandoz, C. Swinarski and B. Zimmermann, eds., Commentary on the Additional Protocols of 8 June 1977 to the Geneva Conventions of 12 August 1949, ICRC, 1987
ICT	information and communication technologies
Nuclear Weapons Case	International Court of Justice, Legality of the Threat or Use of Nuclear Weapons (Advisory Opinion) [1996] ICJ Rep 226
Oslo Manual	*Oslo Manual on Select Problems of the Law of Armed Conflict: Rules and Commentaries* (to be published)
Rome Statute	Statute of the International Criminal Court, Rome, 17 July 1998, 2187 UNTS 90

Tallinn Manual	M. N. Schmitt, ed., *Tallinn Manual on the International Law Applicable to Cyber Warfare*, Cambridge University Press, 2013
Tallinn Manual 2.0	M. N. Schmitt and L. Vihul, eds., *Tallinn Manual 2.0 on the International Law Applicable to Cyber Operations*, Cambridge University Press, 2017
UK Manual	*The Manual of the Law of Armed Conflict, UK Ministry of Defence*, Oxford University Press, 2004