

BOOK REVIEW

***War and Peace in Outer Space: Law, Policy, and Ethics.* Cassandra Steer and Matthew Hersch eds, Published by Oxford University Press. 2021. 336 pp. Hardback USD 99. ISBN 9780197548684**

The history of space activities is fundamentally tied to military history. In the first half of the twentieth Century, early innovations in rocketry were largely (but not wholly) conducted by national militaries or towards military interests. That military history underpins space history is widely known, yet bears repeating in the context of the formation of international space law. Early efforts at the United Nations sought to demilitarise outer space and forestall the creation of conditions in space that would permit national rivalries and tensions over space to escalate. These include the inclusion of outer space in the 1963 Partial Test Ban Treaty; Article II of the Outer Space Treaty prohibiting national territorial acquisition in space or on celestial bodies by claim, conquest, or annexation (or by any other means); and especially in Article IV of the Outer Space Treaty – an article which substantially de-weaponizes the space domain by prohibiting the placement of nuclear weapons and other weapons of mass destruction into orbit or on celestial bodies.

For decades, the concept of space as a ‘sanctuary’ was the dominant narrative, and reflected the shared understanding (in both international law and in the general consensus of states) that while national militaries can conduct peaceful activities in space, and space assets & capabilities can lawfully form part of national military infrastructure and operations, outer space itself was not to be a new battleground. Today, the ‘space sanctuary’ era has ended. This is evident from the advancement and proliferation of national military space capabilities, the slackening of international arms control efforts, irresponsible and troubling activities on orbit, and the growing feeling that conflict from, to, or in the space domain is simply inevitable. Notably, in March 2018, officials in the US began referring to outer space as a

‘warfighting domain’,¹ and in November 2019, NATO followed suit, in declaring that outer space is now an ‘operational zone’.²

In light of these worrying developments, *War and Peace in Outer Space: Law, Policy, and Ethics* is a new volume of edited chapters on various discrete yet interlinked subjects. The book consists of twelve chapters written by recognized experts from across a wide field of relevant expertise with each chapter going into considerable depth on particular aspects of war and peace in space. The book is edited by Cassandra Steer, Lecturer at the Australian National University College of Law, and Matthew Hersh, Associate Professor of the History of Science at Harvard University. It achieves a comprehensive interdisciplinary overview of the field, and will be of interest and utility to those wishing to bolster their knowledge of these subjects.

The book’s introductory chapter, by Steer and Hersh, provides a high-level overview of the complex topic of war and peace in space with sections on the history of space militarization, the current geopolitical and diplomatic situation, and an overview of the structure and contents of the book. They explain that the book’s parts are ordered so as to first explore the legal regimes applicable to conflict in space, ethical issues of such conflict, specific threats to space security, and finally on proposed possible legal and diplomatic pathways forward.

Section One of the book, entitled *The Law of War and Peace in Space*, focuses on the legal regimes addressing and regulating war and peace in outer space. The first chapter, *International Humanitarian Law and Its Application to Outer Space*, by Cassandra Steer and Dale Stephens, details several categories and the salient characteristics of various space weapons and threats to space systems. The bulk of the chapter then explains the core principles of international humanitarian law (IHL) as a foundation for the rest of the book. The two main principles of IHL, military necessity and considerations of humanity, are supplemented with three subsidiary principles, those of distinction, proportionality, and precaution in attack.

The second chapter, *Norm Setting and Transparency and Confidence-Building in Space Governance*, by Theresa Hitchens, contains an overview of normative practice within the United Nations Committee on Peaceful Uses of Outer Space (COPUOS), including its earlier era of treaty making and its later and current era where ‘soft law’ instruments are its main deliverables. The chapter then focuses on two recent and important initiatives at the UN: the UN Group of

¹ Testimony of John E. Hyten, *Commander, US Strategic Command, Senate Armed Services Committee* 11 (20 Mar. 2018), https://www.armed-services.senate.gov/imo/media/doc/Hyten_03-20-18.pdf (accessed 14 Oct. 2021).

² Banks M, *NATO Names Space as an ‘Operational Domain’, But Without Plans to Weaponize It*, *DefenseNews* (2019), <https://www.defensenews.com/smr/nato-2020-defined/2019/11/20/nato-names-space-as-an-operational-domain-but-without-plans-to-weaponize-it/> (accessed 30 Aug. 2021).

Governmental Experts on Transparency and Confidence-Building Measures in Outer-Space Activities (GGE on TCBMs), and the more recent Long-term Sustainability of Space Activities working group within COPUOS, which in 2019 finalized its first set of guidelines on the long-term sustainability of outer space activities. This chapter is especially useful in explaining the geopolitical context of these multilateral initiatives and issues.

The third chapter, *The Rule of Law in Outer Space: A Call for an International Outer Space Authority*, by Ichō Kealotswe-Matlou, discusses the importance of preserving and strengthening the rule of law in outer space, especially in light of the worrying geopolitical destabilization and military postures. However, the current network of legal regimes does not seem adequate to this challenge, and therefore (the author argues) an international Outer Space Authority is warranted, which would regulate mining, grant commercial licenses and leases, conduct inspections and verifications, and would have binding decision-making powers.

Section Two of the book, *The Ethics of Space Security*, contains two chapters on ethical perspectives and arguments. The fourth chapter, *Peaceful Purposes for the Benefit of All Mankind: The Ethical Foundations of Space Security*, by P.J. Blount opens the discussion with a needed analysis of the softer, aspirational and humanitarian clauses of the Outer Space Treaty that form the ethical dimensions of the treaty and colour the hard obligations of the treaty. Blount warns that discarding ‘the spirit of the law to take advantage of the permissions of the letter of the law can be a folly with grave circumstances’.

The fifth chapter, *US Space Dominance: An Ethics Lens*, by Joan Johnson-Freese and Kenneth Smith, applies different ethical and moral philosophies to the question of whether conflict in space is inevitable, and consequently whether the US should seek to achieve space dominance. Their analyses apply utilitarianism; a rights-based approach; a fairness-based approach; a common good approach; a virtue approach; and a technology ethics approach to these questions.

Section Three of the book, *Current and Future Threats to Space Security*, is composed of five chapters of discrete topics of that nature. The sixth chapter, *What Should the Space Force Do? Insights from Spacepower Analogies, Doctrine, and Culture*, by Peter Hays, explore fundamental questions of what US Space Force doctrine and culture should be, and some near-term operational tasks for the Space Force. The four traditional military space doctrines (space sanctuary, space survivability, space control, and space as a high ground) are compared and discussed, with the Space Force likely assuming a space control doctrine. Next, foundational roles for the Space Force include blunting counterspace threats, improving space acquisition for the US government, and future roles include fostering and accelerating the creation of wealth in and from outer space.

The book's seventh chapter, *The Legal Challenges to Arms Control in Space*, by Jinyuan Su, addresses antisatellite weapons (ASATs) and their regulation during peacetime. The chapter assembles relevant norms from space law including Articles IV and IX of the Outer Space Treaty, international environmental law including the Stockholm Declaration and the Rio Declaration, and elements of ICJ jurisprudence to show the current normative context for ASATs development and testing. The chapter is especially interesting for its discussions of 'harmful contamination' and 'due regard' in space law, drawing on other areas of international law for an analysis richer than is often found in academic space law literature.

The book's eighth chapter, *The Legality of Keep-Out, Operational, and Safety Zones in Outer Space*, by Matthew Stubbs, is a tightly-focused exploration of keep-out or exclusionary zones declared by states (or the UN Security Council) whose characteristics may be transposed to the space domain, either during peacetime or in the courts of an international armed conflict.

The book's ninth chapter, *Prominent Security Risks Stemming from Space Hybrid Operations*, by Jana Robinson, looks at 'grey zone' activities – so called because they do not appear clearly illegal or aggressive, yet permit those who undertake them to achieve desired objectives or effects without triggering unwanted military or political responses by other nations. Grey-Zone activities include debris-creating directed-energy operations, orbital operations that don't create debris, electronic operations such as jamming & spoofing, cyber operations, and finally economic and financial operations which blur the lines between civil and military goals.

The book's final section, entitled *Towards Stability*, includes three chapters on potential pathways forward for arms control. The tenth chapter, *A Proposed Transparency Measure as a Step Toward Space Arms Control*, by Gilles Ducet, includes a discussion of the Chinese and Russian backed draft *Treaty on the Prevention of Placement of Weapons in Outer Space and on the Threat or Use of Force in Outer Space* (PPWT). The author advances one possible TCBM to foster space security, as follows: 'Any activity that results in the transfer of kinetic energy to an object in Earth orbit requires prior notification and reporting'.

The book's eleventh chapter, *Outer Space and Crisis Risk*, by Laura Grego, discusses crisis stability and the unique challenges that space activities pose to it. Grego offers several intriguing pathways forward for crisis stability, including advanced Space Situational Awareness (SSA), further TCBMs to alleviate misperceptions, the clarification of permissible and impermissible actions on orbit, high-level arms control discussions, and further recommendations. One notable idea is a meeting of the States Parties to the Outer Space Treaty, an action which happens in other security realms but which has yet to take place for the governance of outer space.

The book's twelfth chapter, *Diplomacy: the Missing Ingredient in Space Security*, by Paul Meyer, briefly summarizes recent diplomatic initiatives which have failed

to fully deliver needed space security and sustainability arrangements. Meyers offers numerous pathways forward, include follow-on activity from both GGEs, creation of an open-ended working groups at the UN General Assembly to revitalize the International Code of Conduct, and individual state initiatives to practice strategic restraint in their military programs, greater transparency on their national programs, and a muting of escalatory rhetoric and posturing. He also recommends a meeting of the States Parties to the Outer Space Treaty as long overdue.

The book's final chapter, *Conclusion: Cooperation, Collaborations and Communication in Space*, by Cassandra Steer and Matthew Hersh, looks back across the rationales for this book and includes a synthesis of the main findings and recommendations from the various authors. Steer and Hersh offer multiple pathways forward for ensuring peace in space. Pathways forward include countering the main concerns and anxieties about space which have worsened the security situation. Recommended pathways also include fostering greater transparency about individual states' capabilities and intentions, and increased space situational awareness and space traffic management. Diplomacy and global leadership are also necessary – and they recommend that the United States take a much stronger and more positive role in international space diplomacy. International diplomatic efforts should focus on the further articulation of international transparency and confidence-building measures. To this end, significant benefits might be realized once the *MILAMOS* and *Woomera* projects conclude their work, as each of these manuals will provide more certainty and predictability regarding the laws applicable to military activities in space.

In summary, this volume is valuable for a variety of reasons: the urgency of the topic and the paucity of great scholarship surrounding it, and the variety of views and perspectives that offer both critical insights as well as actionable recommendations. Because of the range of expertise evident from the authors this book will be very useful both for legal scholars aiming to get their heads around the complex and intertwined regimes of international and national law applicable to space activities, and those looking to gain knowledge about international diplomatic fora, and historical developments. Some further discussions would have been valuable, including perhaps a discussion on 'inevitability' of conflict in space, arms races in space, and related strategic thinking on how such postures might play out; lunar rivalries and security issues; private sector involvement in space security and the challenges this poses under IHL; and a discussion on how the *MILAMOS* and *Woomera* manuals can and should be utilized once published. Nevertheless, this is a laudable effort to contain in a single volume such a variety of views and topics.

Christopher D. Johnson
Space Law Advisor
Secure World Foundation
Email: cjohnson@swfound.org

