Power Up: Leadership, Character, and Conflict Beyond the Superhero Multiverse
Edited by Steven Leonard et al. Casemate Publishers, 2023, 320 pp.

Since antiquity, humankind has sought to better understand its collective experience and to explore ethical and moral challenges through the sharing of myths and legends. In *Power Up: Leadership, Character, and Conflict Beyond the Superhero Multiverse*, the editors present an anthology of essays that critically analyze topics relevant to today's leaders—especially military leaders—through the lens of a modern mythology that includes popular heroes and villains from comic books, films, and television series. Lead editor retired US Army Colonel Steven Leonard is a member of the faculty at the University of Kansas School of Business, and he is best known in defense communities as the creator of the Doctrine Man blog. He previously published a similar anthology, *To Boldly Go: Leadership, Strategy, and Conflict in the 21st Century and Beyond* (2021), in which the collected authors examine military themes through the analysis of science fiction. Over the course of 35 essays grouped into six distinct themes, authors in this anthology discuss the nature of heroism and leadership, team building, character and morality, and the ethical employment of technology in modern conflict. One of the significant strengths throughout this collection is the authors' ability to make the stories of superheroes with extraordinary powers relatable to the moral, ethical, and interpersonal challenges that regular human beings face.

On playing Superman in film, Christopher Reeve once stated that "[what] makes Superman a hero is not that he has power, but that he has the wisdom and the maturity to use the power wisely." Similarly, each author in this work presents discussions that focus less on superheroes using their powers to solve problems and more on how those heroes' character traits influenced their decision-making, which often enabled the heroes to prevail in difficult situations.

An excellent example of this perspective can be found in Eric Muirhead's essay, "They Only Lack the Light to Show the Way," in which he analyzes how Clark Kent's human vulnerabilities did more than his superpowers to shape Superman's approach to leadership and heroism. Muirhead explains that Superman's story—especially as depicted in the 1978 *Superman* film directed by Richard Donner—is "a brilliant allegory for the power and importance of transformational leadership in our contemporary society" (107).

Muirhead elaborates that as shown in the film, young Kent struggles with being "torn between respecting his concerned parents' desire for secrecy and his own desire to use his amazing abilities for personal gain" (110). As an adolescent, Kent was confronted by his human father who impactfully told him, "You are here for a reason . . . but I do know one thing, it's not to score touchdowns" (110). Muirhead discusses how this shaping of Superman's character at an early age drove him to use his abilities to serve others instead of himself.

Superman stands in stark contrast to the subjects of Kayla Hodges' essay, "Boys Will Be Boys." Hodges discusses how the superpowered characters from the television series, *The Boys*, abuse their abilities for personal gain because they lack a moral compass to guide them in the way that Superman was guided. Their newfound powers only magnify their character flaws instead of directing them to realize their potential to help others.

A key takeaway, especially for military leaders, is that there are often points in one's career during which one will be granted unique and significant power, authority, and freedom. When placed in these positions, a leader's character—good or bad—is on full display, and both their positive and negative tendencies will be amplified. It is important to develop character in younger leaders through mentorship and to vet them appropriately for positions of greater authority in the future.

Failure to do so will result in leaders who abuse power instead of those who responsibly use power for the good of the people and the mission.

Other compelling themes throughout *Power Up* include leading diverse teams and the ethical employment of technology in modern warfare. In his essay, "Call it, Captain," Cory Hollon analyzes how Captain America rapidly and adroitly applies his knowledge of his team members' unique experiences and abilities to assign them appropriate tasks through mission command. It was not Captain America's super soldier strength but rather his human leadership ability that enabled his team to achieve success during the Battle of New York in the 2012 film, *The Avengers*.

Additionally, in her essay, "I've Come to Save the World," Kera Rolsen contrasts the characters of Vision and Ultron—both powered by artificial intelligence—and argues that Vision's ethical restraint built in by his creator differentiates him as a force for good compared to Ultron, who is an unchecked destructive power. Rolsen's discussion on the need for ethical oversight of technology is particularly pertinent to today's pursuit of artificial intelligence and machine learning in military applications. Both essays are fantastic examples of the insightful level of analysis throughout this anthology.

Power Up has little areas that require improvement, but there are a few essays that seemed to stretch to connect the superhero story with the analysis of the intended topic. Additionally, while it is a strength to examine lesser-known characters, one particular section presented two different essays on the Unbeatable Squirrel Girl, which caused this reader minor confusion because they explored slightly unrelated topics while using the same context. Lastly, there are recurring mentions of Russia's war with Ukraine along with discussions of the current political divide in the United States. While this content is meaningful in the early 2020s, it may date this collection, which could potentially cause readers to dismiss this work's relevance in the future.

Overall, *Power Up* is an outstanding anthology of relevant and timely essays written by a collection of some of the brightest military-connected writers of the post-9/11 generation. By examining military leadership through the lens of the superhero genre, this collection provides a fun and insightful vehicle to explore important topics through popular stories to which a broad audience can relate. This thought-provoking anthology is worth reading for any student of leadership.

Lieutenant Colonel Carl R. Chen, USAF, DBA

Networked Nonproliferation: Making the NPT Permanent

Michal Onderco. Stanford University Press, 2022, 224 pp.

In *Networked Nonproliferation*, Michal Onderco examines a critical event in the history of arms control and nonproliferation: the indefinite extension of the Treaty on the Non-Proliferation of Nuclear Weapons, commonly referred to as the NPT. Though other scholars have examined the impact of the NPT, Onderco provides the first book to examine the diplomatic maneuvering of the 1995 NPT Review and Extension Conference to explain why the treaty was indefinitely extended despite initial opposition by a majority of states.

A professor of international relations at Rotterdam's Erasmus University, Onderco specializes in the study of nuclear politics and authored this book utilizing newly available evidence from national and diplomatic archives, as well as oral history interviews with conference participants. In his work, Oderco argues that the United States leveraged its unique position at the center of multiple diplomatic networks to partner with several influential states to gather support—and neutralize opposition—to indefinite extension.

Negotiated in the midst of the Cold War and entered into force in 1970, the NPT is one of the most successful international arms control agreements, adopted by over 190 countries to prevent the spread of nuclear weapons and ultimately pursue global nuclear disarmament. A critical period during the treaty's history occurred in 1995, when a review mandated by the treaty was held to determine if it would be extended indefinitely or only for fixed periods of time, to be decided by a majority of the treaty's members. Most observers doubted the review conference would succeed in extending the treaty indefinitely, yet it achieved this end and did so without requiring a vote.

Onderco tackles why this happened and proposes a new theory to explain this outcome: that the United States' unique central position in an international network of nations allowed it to utilize its partners to persuade doubters, secure side deals, and neutralize opposition to indefinite extension.

The principal obstacle to indefinite extension centered on global disarmament. When the NPT entered into force in 1970, it contained a "deal" to secure the support of non-nuclear states. While they would agree to forgo nuclear weapons, the existing nuclear armed states committed to eventual disarmament of their own nuclear weapons stockpiles, though the precise time frame and mechanism were left ambiguous.

As the 1995 review conference approached, many non-nuclear states grew increasingly frustrated at the lack of progress on global disarmament. Although they agreed with the United States and other major powers on the value of nonproliferation, they sought to use the review process as a way to pressure nuclear weapons states to uphold their end of the deal and make concrete steps toward disarmament.

Onderco argues that the United States ultimately succeeded by leveraging key states to influence three primary blocks of potential opposition: newly independent post-Soviet states in Eastern Europe, countries in the Non-Aligned Movement (NAM)—founded during the Cold War by states that sought to remain neutral rather than formally align themselves with either the United States or the Soviet Union—and multiple Middle Eastern countries. Rather than rely solely on pressure and side payments, the United States utilized its relationships with the European Union (EU), South Africa, and Egypt to leverage their outsized influence with these opposition blocks to gain support or neutralize opposition.

Eastern European states were eager to join the EU and exercise their newfound sovereignty, so the United States used the EU's carrot of membership and integration to secure support for indefinite extension. Similarly, South Africa was a leader in the NAM and able to influence whether the NAM would collectively block indefinite extension. The relationship between US Vice President Al Gore and South African Vice President Thabo Mbeki secured South African support for indefinite extension over the opposition of South African bureaucrats and successfully prevented a consensus NAM opinion against the US proposal.

Finally, the long-standing US-Egypt relationship allowed the United States to use Egypt's leadership position in the Middle East. The United States wanted to secure indefinite extension without a formal vote, so was able to convince Egypt, and thereby other Middle Eastern states, to refrain from calling for this vote, ultimately allowing the motion to proceed.

Given Onderco's access to primary documents and first-person recollections of these events, his three case studies provide compelling evidence that the US strategy relied on several key actors and used their unique positions to influence broader blocks of countries. He discusses specific meetings, negotiating positions, and strategies of the relevant players, and produces a convincing narrative of how relationships and network position convey power and influence in international diplomacy.

His work also reveals the complexity of diplomacy, and that while it is tempting to focus solely on the 1995 conference, a significant amount of negotiation and diplomatic maneuvering occurred well before this conference began. This is a welcome reminder that negotiations, deals, and agreements often precede publicized gatherings, and that in many cases, these preparatory sessions and one-on-one engagements are where diplomatic successes are truly and quietly earned.

Yet the complexity of these negotiations can also challenge readers of this book. At times it is difficult to keep track of all the different meetings and changing versions of documents. Each reveals an interesting aspect of how positions changed over time, but it can be a lot for readers to digest who do not possess a baseline familiarity with the ecosystem surrounding the NPT. This makes *Networked Nonproliferation* an important book for scholars of nonproliferation or diplomatic history but will likely be of less interest to the casual reader or military practitioner.

Finally, the book forms a welcome reminder of a time when arms control agreements commanded the support and cooperation of adversaries like the United States and Soviet Union. The NPT sat alongside treaties like the Strategic Arms Reduction Treaty (START), START II, and the Chemical Weapons Convention as markers of a "golden age of arms control" (4). Sadly, it is difficult to imagine gaining a similar consensus among geopolitical rivals today in the pursuit of arms control or other measures to preserve strategic stability.

In sum, Onderco's *Networked Nonproliferation* provides an important contribution to scholarship surrounding the NPT and outlines a compelling case for the importance of networks and relationships in international politics. It fills an important role in depicting the diplomatic maneuvering of the 1995 NPT Review and Extension Conference and offers an example of why the United States should prioritize its relationships with Allies and partners as a continued source of power in an ever-changing world.

Lieutenant Colonel Craig Neuman, USAF, PhD

Eagles Overhead: The History of US Air Force Forward Air Controllers, from the Meuse-Argonne to Mosul

Matt Dietz. University of North Texas Press, 2023, 368 pp.

Eagles Overhead is a history book that offers a timely perspective on the US employment of airpower, tracing the story of the forward air controller (FAC) program from its scrappy formation on the battlefields of World War I through to its equally scrappy positioning within the US Air Force today. Author Matt Dietz, a career Air Force officer and aviator currently serving as head of the history department at the Air Force Academy, informs his prose with a warfighter's credibility in a manner that can be easily understood by a general reader.

In forming his thesis, Dietz posits that foundational US Army Air Corps and US Air Force thinkers and advocates articulated a philosophical preference for air superiority and strategic bombing-oriented airpower operations that permeate through to the service leadership's thinking today. Subsequently, he argues FACs—and the close air support (CAS) mission they have duly upheld for decades—have been continuously under-resourced, underrepresented in historical studies, and largely ignored doctrinally. Ultimately, Dietz is writing to commit the FAC program's contributions to the record through this academic work while examining if its treatment and organizational standing reflect the natural evolution of warfare or inherent organizational bias.

Through an introduction, seven chronological chapters, and a conclusion, Dietz wrestles with these questions from a place of respect for his subjects. He does a particularly good job conveying their culture through personality sketches of notable individuals, recognition of significant units, and a sharing of stories, symbols, and songs developed over decades of service on battlefields as diverse as Italy and Iraq. In addition to these qualitative inputs, Dietz effectively employs quantitative data and thorough primary and secondary sources to contextualize the program's contributions within the wider view of the conflicts and eras being supported.

For example, examining the opening operational stages of the Global War on Terror, Dietz notes the parallels between Vietnam—arguably the FAC's heyday—and Afghanistan insomuch as both conflicts "featured light infantry units and special forces teams, supported by air power, engaged in close combat with insurgent forces distributed among civilian populations," in a manner that should have served as the ideal conditions for a FAC capability. But he then observes that "tightly constrained resources and extreme flight distances effectively left Forward Air Controllers off the battlefield," resulting in only eight FAC missions flown between October and December 2001 out of more than 2,300 close air support sorties in total (178).

Ever the Airman, Dietz excels at threading in how continual technological innovations—various airframes, advanced guided munitions, and increasingly sophisticated communication capabilities—also shaped how the Air Force approached and supported CAS, both through and ultimately beyond the FAC program. This even-handed approach lends credibility to Dietz when he describes battles like 2002's Operation Anaconda in Afghanistan and concludes that "the battlefield desperately needed the Forward Air Controllers' skills," while also noting that the last deliberately planned FAC mission in Iraq or Afghanistan was flown by a pair of A-10s long before combat ended in either place on April 16, 2003 (185).

That mid-2000 era marks a turning point in the FAC program and *Eagles Overhead*. Prior to this, the "triad" relationship between the ground-based embedded tactical air controller and tactical air control party to/from the air-based FAC was presented as having evolved—with steps backward in peacetime and forward during conflict—since its ad hoc creation on a European battlefield in April 1944. Subsequently, Dietz explains how the triad became obsolete as advancements in networked communication capabilities and unmanned aerial platforms allowed senior commanders the ability to bypass both Joint terminal attack controllers and FACs for an eye-in-the-sky view of the battlefield accurate enough to allow them the ability to centralize command and control of operations from a distant strike cell or air operations center.

This answers one of Dietz's primary research questions: Yes, the nature of at least the American way of conducting war has changed to the extent that the concept of an airborne FAC is now as anachronistic as the grease pencils those pilots used on their glass cockpits. As a result, Dietz notes that despite a review and brief resurrection of CAS training for F-16 fighter pilots by Air Combat Command between 2018 to 2020, the prestige of and institutional support for FAC training is dormant outside of the A-10 community. This answers Dietz's second primary research question: Yes, the US Air Force continues to value and resource air superiority and strategic bombing operations over other mission-sets like CAS.

In his conclusion, Dietz places his thumb on the scale with a valiant argument for the continuation of some form of a FAC program, potentially using the F-35. This seems fantastical given current technologies on hand, likely future battles, and historic trends as laid out by Dietz in the preceding chapters. And it also takes space from a more interesting discussion on the US Air Force's continued preference to centralize command and control of operations, a topic Dietz is

well-qualified to engage in given his recent deployment as director of operations for the Ninth Air Force (Air Forces Central). That Dietz leaves the reader desiring more and not less of his perspective is a generous critique.

In conclusion, *Eagles Overhead* excels as a complete but approachable history that pays proper homage to its topic but also transcends it. It is worthwhile reading for anyone interested in how a program or capability survives—and sometimes thrives—within a larger bureaucratic system that invests in what it perceives as higher priorities. And it offers an informed view of the application of airpower past, present, and potentially into the future.

Lieutenant Colonel Phil Ventura, USAF

Britain's Secret Defences: Civilian Saboteurs, Spies and Assassins during the Second World War

Andrew Chatterton. Casemate Publishers, 2022, 205 pp.

Andrew Chatterton's *Britain's Secret Defences* is a historical account of Britain's secret plans for the recruitment and training of civilians to counter an anticipated German invasion during World War II. Chatterton, a World War II historian, wrote this book after 12 years of researching the most clandestine British efforts of that period. This book fills a gap in the historical literature on Britain's anti-invasion efforts during the war by adding the largely unknown story of a secret civilian force.

Britain's Secret Defences describes how the British government recruited, trained, and equipped civilians to spy on the enemy, spoil invasion attempts, and execute a post-defeat insurgency as an organized resistance. Chatterton has collected compelling stories of the people who were involved in these secret operations, and he also provides archaeological and archival research to accompany their stories. Chatterton's narrative challenges conventional perspectives on Britain's post-occupation plans, offering new insights into this historical episode. Since there was never an invasion, the civilian programs were never used as intended, and the two chapters that detail their eventual irrelevance fail to provide significant insights to the historical record.

This book is divided into three parts, each of which narrates the history of a different secret civilian defense program. Part 1 is about civilian saboteurs. Chapters 1 through 3 offer insightful stories of civilians who trained to be saboteurs during an invasion. Chapter 4 is an account of how British leadership did not close the civilian saboteur program when it no longer had a purpose; the program continued even though the threat of an invasion had become unlikely, and the program changed/deteriorated in response to the lack of a mission. Chapter 5 tells how the program's ideas were used elsewhere with other unofficial groups and individuals. Instead of secret patrols, however, civilians were used for covert missions akin to modern-day special forces missions.

Part 2 is about civilian spies. Chapter 6 tells the story of civilians training to assist the military as an anti-invasion intelligence network, including housewives, teenagers, clergy, and even dogs, using dead-drop letters, wireless sets, and secret bunkers. Chapter 7 is about the logistics required to operate a civilian force with circumstances that were different than a traditional military intelligence network. Like their saboteur counterparts, the civilian spies were never put to use because Germany never invaded England. Similar to chapter 4, chapter 8 is an uninspiring account of how the civilian spy program fell into decline and eventually dissolved when the invasion never happened.

Part 3 is about civilians who trained in both sabotage and spy craft to be ready to serve as underground resistance after a successful German invasion and the defeat of the British military.

Chapter 9 details how they were trained as saboteurs and spies like those civilians described earlier, but the group in part 3 had orders to wait until after the invasion and a British military defeat to then begin their work and carry out an insurgency-type resistance.

Chatterton effectively demonstrates that Britain creatively prepared for an invasion based on what they saw during the fall of France, British civilians willfully accepted secret responsibilities to resist a German invasion, and the British government provided these civilians with significant training and resources. In addition to the body of literature on Britain's use of its military and its Home Guard—an armed, uniformed civilian militia—for its defense, Chatterton's narrative changes the conventional understanding of Britain's foresight, resolve, ingenuity, and ruthlessness, revising the common perception that British resistance preparations were poorly planned, last-minute, and weak.

One of the work's limitations is its relative paucity of resources; however, this is no fault of the author. By the time the secret programs were declassified, many of the people who were involved had already died without telling their stories, so Chatterton was limited in his sources. Despite this, he has compiled an impressive collection of primary sources from interviews and testimonies, archival records, and secondary (corroborating) literature.

Perhaps the greatest limitation is that Chatterton does not discuss the ethical implications of the British using civilians in spy and sabotage roles, although he does assert that the civilian participants and their families would have been hunted and killed for doing this. Instead, Chatterton acknowledges his bias that he is proud of Britain's reputation for standing alone and strong in the face of German conquest, and this pride is seen throughout the work.

Britain's Secret Defences challenges the narrative that England was woefully unprepared to resist a German invasion after Dunkirk and the fall of France in 1940. It provides intriguing insight into how Britain was willing to use nonmilitary means to resist German aggression—organizing civilians into a covert force for military intelligence, designing spy and saboteur operations, and training them to be an insurgency—all prepared and in place prior to an invasion and occupation.

Chatterton describes the personalities that came up with the innovative ideas for clandestine civilian operations and how they made things happen despite significant obstacles and incredible uncertainty. He states that had Britain's military failed to stop Germany, these trained civilian guerillas would have been able to wreak havoc to thwart an invasion attempt or would have proved to be a formidable force of opposition during a German occupation.

Granted, it might be optimistic of him to assert that these unproven civilians would have had more success than the rest of Europe, which failed to thwart German invasions in their countries. Britain's civilian operatives did receive weapons training and were told to be ruthless. Decades later they shared their stories of how brutal they would have been if the invasion had happened and they were called upon to serve. Still, they were never given the opportunity to actually prove that they could perform well under hostile conditions.

This book offers a new piece of history that revises the conventional understanding of Britain's national will and home defense efforts during World War II to include governmental efforts to give civilians tremendous defense responsibilities. *Britain's Secret Defences* is worth reading for those who want to expand their understanding of World War II history to include Britain's use of civilians in clandestine combat roles. Military leaders and their civilian oversight may also find this book interesting, because it illustrates how British leaders modified their political-military efforts during a time of great uncertainty and limited options.

Colonel Robert W. Sturgill Jr., USAF, PhD

Small Armies, Big Cities: Rethinking Urban Warfare

Edited by Louise A. Tumchewics. Lynne Rienner Publishers, 2022, 328 pp.

As this review is being written, hundreds of thousands of Israeli troops are positioned along the border of Gaza, foreshadowing a massive urban military operation that pits Israeli forces against Hamas militants. Although the forces arrayed on each side are considerable, they pale in comparison to history's best-known urban fight at Stalingrad, where millions of men clashed over control of the southern Russian town. Still, the scale and nature of the Gaza fight make Louise Tumchewics' collection of essays, *Small Armies, Big Cities: Rethinking Urban Warfare*, timely.

The work approaches urban fighting through the lens of militaries who had significantly fewer troops to fight than the Germans and Soviets at Stalingrad—militaries defined by the book's categorization as division-sized or less (< 10,000 troops), in counterinsurgency operations and major combat operations that occurred within the past 75 years. *Small Armies, Big Cities* looks at the logistical constraints, firepower problems, and military-civilian relations issues that bedevil modern urban operations. Its pages examine several lessons on how and why small armies fight in the urban environment.

The book is a sound contribution to the growing literature on urban warfare. Tumchewics is a senior research fellow at the British Army's Centre for Historical Analysis and Conflict Research and specializes in aiding the UN and international non-governmental organizations with military-civilian interfaces in urban areas. Her expertise is on display as she guides the reader through 13 essays investigating theoretical discussions on what a city is and how to influence it during a war, as well as case studies into more obscure urban battles that can provide insights for military leaders and national decisionmakers.

An early essay by Paul Latawski provides a basic primer on the evolution of urban warfare, but the overall work is not meant to be a history of urban conflict and assumes that readers already have a basic understanding and context of urban warfare. The work is also ground- and army-centric but provides valuable lessons and "food for thought" for anyone interested in broader martial issues. The work acknowledges the axiom that modern armies should avoid urban conflict but also recognizes that the world continues to urbanize, and combat will take place in cities whether or not militaries wish it. As Tumchewics notes, "Armies may find themselves confronting the myriad difficulties of urban operations more often because urban battles may become more common as a greater percentage of the world's populations moves to cities and towns" (2).

The content, structure, and writing of each essay naturally differs, so readers are free to pick and choose the content that is most appealing to them. The work is at its best when Alex Neads describes how cities and locations may take on "totemic" significance to combatants that far outweighs the actual strategic, political, or even cultural importance of the place. He uses the battle for the Donetsk Airport in the initial period of Russia's war in Ukraine as a fascinating case study where both sides fought for the passenger terminal long after the airport served any tactical or strategic purpose.

Another highlight comes from Tyrone Groh's examination of "surrogate warfare," where he examines the promises and pitfalls of the US-led coalition support of Iraqi forces to remove ISIS from Mosul. John Spencer of the Modern War Institute at West Point also provides a highly relevant look at the US Army's need to rapidly adjust its forces from countering insurgents in Baghdad to conventional operations that could support the construction of a concrete wall around Sadr City. Each of the essays provides lessons that will likely be witnessed or relearned in Israel's upcoming Gaza campaign.

The ground-based approach to the book leaves the overall work lacking in a few areas. There is too little discussion for the "support" side of urban operations. There are few references to artillery or air support except for when the operations caused unnecessary damage or where their use was critical to success. The simple fact that only extreme examples are mentioned reveals how much the essays overlook such support. A more nuanced approach could provide readers, particularly Air Force readers, with new considerations for how to support all aspects of operations in the urban environment.

One essay regarding drones written by Paul Lushenko and John Hardy contributed to the larger discussion on drone warfare but did little to apply it to urban combat with any satisfaction. Drones and other autonomous systems are likely to change the tactics of urban operations, yet their discussion focuses more on targeted killings and disruption operations carried out by expensive systems like the US Predator, while failing to address the growing proliferation of smaller systems that are changing battlefields around the world. In the authors' defense, the book was published in 2022, which left little if any time to consider applicable lessons learned from Ukraine; however, their analysis still seems outdated by nearly a decade.

The collection also does not attempt to fully address space or cyber considerations in the urban environment. Several authors note that the two domains are critical, but none elaborate on how to exploit or defend either. Those domains may have landed outside of Tumchewics' intended scope, but the book suffers from their exclusion. The contributors often point out that small armies need to be creative in the urban environment to fight, win support, and meet political objectives, so serious thought is still needed on how to apply all of warfare's domains.

Still, the book is interesting, and the authors provide little-known and often overlooked case studies that any serious practitioner of war should consider. Anyone interested in urban combat should read it to help evolve their own thinking or at least understand urban operations when conducted with limited resources. Perhaps the best praise that could be given to this collection is that Tumchewics should pursue a second volume of the work and expand the scope to seriously consider how small armies can use airpower, fire support, cyber, and space support to achieve their objectives. In the meantime, readers will not regret the time they dedicate to the existing work.

Lieutenant Colonel Ian Bertram, USAF

Forging Wargamers: A Framework for Professional Military Education

Edited by Sebastian J. Bae. Marine Corps University Press, 2022, 266 pp.

Forging Wargamers: A Framework for Professional Military Education is a diverse collection of essays edited by research analyst Sebastian J. Bae with contributions from both practitioners and scholars in wargaming. As acknowledged by Bae in the preface, he "never envisioned [the volume] as a textbook or definitive manual for wargaming education" but rather as something "to help raise the next generation of wargamers—to provide the necessary tools and skills for the advancement of our field" (xiii). His goal, then, is to respond to an often-repeated question and more practical problem from wargamers, "How do we establish or improve wargaming education, including sponsors, participants, and future designers?" (xiii).

Bae, a research scientist and senior game designer at the Center for Naval Analyses, teaches wargaming courses at the Center for Security Studies at Georgetown University as well as at the US Marine Corps Command and Staff College and US Naval Academy. He is perhaps most

famous for serving as faculty advisor to the Georgetown University Wargaming Society, which hosts a very popular wargaming YouTube channel.

In *Forging Wargamers*, Bae has edited a collection of nine chapters, plus an introduction and conclusion. The chapter authors are recognized experts from the uniformed military and DoD-affiliated education centers, and academics often with both education and practical wargaming experience in the national security field. The different perspectives provide value, and each chapter seeks to answer a foundational question on the future of wargaming.

In chapter 1, lecturer Natalia Wojtowicz of the Hague University of Applied Sciences explores the current perception of wargaming as often an ad hoc and informal pursuit rather than a recognized profession or academic discipline. She notes that today's wargaming education pathways include professional military education, civilian universities, or think tanks. She provides ideal competencies for each wargaming role with the conclusion that more structure and standards will help lead to the legitimization of wargaming as a profession.

Chapter 2 by RAND Corporation's Kyleanne Hunter, formerly with the US Air Force Academy at the time of book release, examines wargaming in pre-commissioning education. Hunter argues for integrating wargaming into military training earlier and more often, as this will lead to a more agile force. In chapter 3, Office of Naval Intelligence analyst Timothy J. Smith discusses its Simulation-Based Analysis and Training program. In essence the program combines computational modeling and simulation, tabletop wargames, historical scenarios, and the utilization of critical thinking and structured analytic techniques.

Intelligence analysts, even those with no Naval background, will be aware of the use of analytic tradecraft including standards from the Office of the Director of National Intelligence. An addendum to chapter 3 provides an annotated guide, including a syllabus and forms from a SimBAT course on Global Strategy in World War II. Wargaming educators will find the information useful for incorporation in classes.

In chapter 4, Paul M. Kearney, an active-duty army strategist and wargamer, focuses on building wargame designers through the promotion of on-the-job training. Kearney outlines the initial problem that currently there is "no pipeline to train wargamers." He argues, "Instead wargaming talent with the Department of Defense relies on self-motivated hobbyists who find their way into wargaming positions as civilians (general schedule or contracted wargamers) or by vagaries of the military human resources processes" (102). The chapter includes best practices and advocates for the use of commercial wargames and professional wargaming associations.

Chapter 5, written by Australian active-duty officers Scott Jenkinson and Jo Brick, explains Australia's experience in implementing wargaming at the Australian Defence College. The focus of the chapter is the utilization of wargaming for the purpose of education and building upon Australia's limited wargaming history and nascent ability. Chapter 6 provides an interesting overview from Ian T. Brown and Benjamin M. Herbold on how the US Marine Corps has begun to institutionalize educational wargaming across the College of Enlisted Military Education, Expeditionary Warfare School, Command and Staff College, and School of Advanced Warfighting. While the effort is still in process, they provide many lessons learned in the chapter.

In chapter 7, Jeff Appleget and Robert Burks, two well-regarded wargamers from the Naval Postgraduate School, shift the conversation away from operationalizing wargames into military forces to working with wargame sponsors. The chapter includes an overview of the school's efforts to engage sponsors, interact with them, and scope the process. Interwoven within this chapter are

efforts to minimize bias when working with sponsors. This chapter provides practical tips for current wargamers designing a policy or practice to engage with wargame sponsors.

Chapter 8 explores the inclusion of social science principles into analytic wargames. Benjamin Jensen and Brandon Valeriano note, "With a rising concern about the impact of emergent technologies (such as cyber, artificial intelligence, and unmanned vehicles) on the battlefield, there is a corresponding renaissance in the use of wargaming to evaluate interdependent decision making in a strategic setting" (198). The authors reference the University of California–Berkeley's Project on Nuclear Gaming, which uses experiments on decision-making, and the increasing number of wargames that incorporate escalation in the use of cyber methods.

The most unique chapter in the volume is chapter 9, provided by Brooke Taylor, the creator and principal investigator for the Air Force Global Strike Command National Nuclear Strategy and Global Security Workshop for Practitioners. It pertains to expanding participation in wargames to policymakers. Specifically Taylor advocates "for the Department of Defense to provide Congress with a seat at the wargaming table [to] create a pathway that focuses not on what Congress should be thinking about national security, but instead hones into how Congress should be thinking about national security" (222–23). Taylor promotes the idea for an educational nuclear wargame for freshman congressional orientation. While the idea is novel, it presents potential problems in the areas of funding bias or impacts on jobs located in congressional districts.

Bae has edited a work that meets his stated original goal by providing multiple perspectives from chapter authors. Individuals looking for a one-size-fits-all approach to wargames to answer the volume's initial prompt will find disappointment. Yet while the collection speaks to improving wargaming education from diverse viewpoints, the volume is not without fault.

Although it includes perspectives of active designers, instructors, and wargamers, *Forging Wargames* would benefit from direct testimonials. While there are issues with citing or building a case from one data point or source, the perspective of non-wargamers or officials who were originally hesitant to wargaming could be added to enhance its appeal and validity. Additionally, the inclusion of quantitative studies or class surveys showing individual quantification of improvement in knowledge, skills, and abilities related to critical thinking and wargaming would build a successful case based on evidence.

Any future second edition of the text would benefit from additional interdisciplinary perspectives from experts from education, curriculum and instruction scholars, social scientists, or individuals from other federally funded research and development centers with wargaming knowledge. While the focus of the text is professional military education, the CIA, State Department, and other US government agencies within the interagency have histories of wargaming for planning, education, and experiential learning, and their perspectives would improve any second edition.

Bae makes a brave effort to provide a cogent and well-researched passionate appeal to wargamers in an easy-to-read volume of less than 300 pages. The work includes an excellent thorough bibliography of wargaming articles, books, monographs, and texts. Graduate students or those new to wargaming can utilize the bibliography as an entry-level starter list of wargaming resources. The volume concludes with a section that provides ample contributor bona fides. Hobby gamers and entry-level wargamers will find useful nuggets in the edited volume, and it will serve as a good desk reference.

At the same time, the edited volume is an ideal centerpiece for analysts, intermediate wargamers, and defense officials who have a deep interest and passion in wargaming. Readers looking for a more introductory overview text on the history of wargaming should start with Matthew B. Caffrey Jr.'s

On Wargaming: How Wargames Have Shaped History and How They May Shape the Future (2019) from the US Naval War College Press.

While Bae argues *Forging Wargamers* is not intended to be a textbook or definitive manual, he is far too modest. The volume is a solid primer and contribution to wargaming scholarship as the concept and field of wargaming will continue to adapt and change.

Bradley Martin

Oppenheimer **(film)**

Written and directed by Christopher Nolan, Universal Pictures, 2023, 3:09 hrs.

Despite the hype, my expectations for the Oppenheimer movie were low. But even with low expectations, I was disappointed. The official movie trailer was uninspiring and led me to expect rather cheesy special effects—it turns out the trailer showed the best of the not-so-special effects in the movie. It would have been easy enough, for instance, to work with historical footage of the actual Trinity test from July 1945 when depicting the test in the movie. Instead, after a blindingly bright flash—so far so good—the screen fills with images of flames of the sort produced by a chemical fire.

One need not be a physics expert or to have seen video of nuclear tests to know that the blast of a fission bomb looks nothing like being parachuted into a forest fire. Most of the other special effects were just plain weird and overdone; they tended to distract and detract from the film rather than communicate anything intelligible. I saw the IMAX version of the movie, and long before any of the scenes of explosions I wished I'd brought earplugs. Too much of the film just seemed like gratuitous noise and strange, incongruous visuals.

I've yet to read *American Prometheus* (2005), the biography of Oppenheimer on which the movie is supposedly based. I say "supposedly" because it is difficult to imagine a book being as choppy, achronological, and kaleidoscopically confused as the movie. Still, I knew a good bit about Oppenheimer's life story before watching the film. I knew about his flirtations with communism and long association with communists, his role leading scientists in the Manhattan Project, his subsequent clashes with Edward Teller and others over the making of the hydrogen bomb or "superbomb," and the later revocation of Oppenheimer's security clearance, removing him from any influence on future US weapons work or policy. Most of what I knew came from reading Richard Rhodes' *The Making of the Atomic Bomb* (1987), and his subsequent *Dark Sun: The Making of the Hydrogen Bomb* (1996).

But that was years ago. More recently, I got a refresher when reading Jim Baggott's 2010 book *The First War of Physics: The Secret History of the Atom Bomb: 1939–1949*. Yet even with the high points of Oppenheimer's story fresh in mind, it wasn't always easy to follow what was going on in the movie, and one suspects several scenes were confusing or lost entirely on viewers who hadn't previously read about "Oppie."

Notwithstanding those critiques, the movie wasn't without merit. Nolan clearly got the history of the Manhattan Project mostly right, and the military and senior policymakers were portrayed seriously and relatively fairly, without the all-too-common Hollywood disparagement of high-ranking officials. The acting was quite good, especially the dramatic scenes toward the end of the film, bouncing back and forth between the fates of Oppenheimer (played by Cillian Murphy) and

Lewis Strauss (Robert Downey Jr.), who once headed the Atomic Energy Commission when Oppenheimer was one of its leading scientific advisers.

The actor Matt Damon reportedly put on 30 pounds to bulk up for his role as Major General Leslie Groves, the hard-charging director of the Manhattan Project, but remained about 50 pounds shy of a convincing physique to match the general's. Damon's character came across as gruff but loyal to Oppenheimer, and even likable—a softer image than most descriptions of Groves.

I wasn't very familiar with Strauss and had to do some homework after the movie. The movie's treatment of Strauss hews closely to *Esquire*'s version of the man. That image of Strauss is rather darker and more conspiratorial than other biographical sketches. A more recent piece in *Esquire* suggests that Downey knew quite a bit about Strauss and challenged Nolan's revisionist, negative portrayal. Again, the drama and acting toward the end of the movie are first rate, even if Nolan's license with the facts seems suspect.

At bottom, the movie is a jumble—a complicated story told poorly, more impressionistic cinematographic stunts than intelligible storytelling. It jarringly jumps back and forth across decades, sometimes in black-and-white, sometimes in color. The only constancy is Oppenheimer's complex character and his moral trepidations over nuclear weapons—themes that could certainly have been better explored much more coherently and in under three hours. Given the hype, positive reviews, and box office success, the movie will almost certainly win awards. Just be careful about buying what the movie is purportedly selling—the true story of Robert J. Oppenheimer, finally being told, at long last.

Without a coherent narrative or storyline, it's difficult to refute or point out factual flaws in the movie. By hiding its message in an impressionistic, full-on sensory assault, the movie conveys feelings about Oppenheimer, nuclear weapons, and Strauss while remaining mostly immune to critical analysis. Viewers are likely to emerge from *Oppenheimer* somewhat shellshocked and with a feeling of now knowing some things that have a questionable basis in historical fact. And, while distracted by the sound and fury of the film, they'll have been unknowingly force-fed messages deserving of more careful consideration than the movie allows. For me, *Oppenheimer* bombed, but it wasn't "the bomb."

Mark A. Bucknam, PhD

Euromissiles: The Nuclear Weapons That Nearly Destroyed NATO

Susan Colbourn. Cornell University Press, 2022, 408 pp.

In August 2019, the United States and Russia withdrew from the 1987 Intermediate-Range Nuclear Forces Treaty. Under the treaty, the two powers had agreed to eliminate all short- and intermediate-range missiles and on-site monitoring to assure their decommissioning—an agreement widely seen as pivotal to Euro-Atlantic security. Pundits immediately set to work retracing the treaty's origins and how it might be resuscitated. Susan Colbourn's *Euromissiles* is her vivid account of the path not only to the treaty itself but also to the states' deployment of the nuclear-tipped intermediate missiles at the heart of the treaty: the Soviet Union's SS-20 and the United States' Pershing II and Gryphon ground-launched cruise missile (GLCM).

NATO's European countries first played host to the nuclear-tipped missiles in 1983, thanks to the Carter administration's 1979 "dual-track" decision. The intent of the decision was to put pressure on the Soviet Union to cancel its SS-20 program first through diplomatic pressure and then

through the deployment of the US-made missiles once the former failed. None of this was easy for NATO and its 16 countries, which leads to Colbourn's central premise: This was not a Euromissile crisis but a string of crises for the ever-embattled Alliance, beset by the "structural dilemmas woven into [its] very fabric" (8).

Although *Euromissiles* is primarily a historical intervention, any reader interested in national security will find it informative. First, Colbourn has provided a fundamental understanding of NATO's crucial pivot points in the final decades of the Cold War. In that regard, this book debunks any notion that the Alliance faced possible breakup only *after* the Soviet Union's dissolution. A common enemy at the gates did not hold the Allies together nearly as much as intra-Alliance devotion, empathy, and careful diplomacy.

Second, *Euromissiles* adds to a growing reexamination of the Kennedy administration's "flexible response" strategy by paying particular attention to the issues at the tactical nuclear level. As one scholar has argued, this 1960s-era strategy to deter across a broader spectrum was more of a rhetorical strategy focused on balancing geopolitics and not a radical departure from President Dwight Eisenhower's "massive retaliation" strategy. Even if readers disagree with this assessment of NATO military strategy, it is worth understanding as similar misnomers exist today. Third, this book offers a thorough look into the politics of nuclear weapons—an alien realm to many outside US Strategic Command.

For Colbourn, the crises surrounding the Euromissiles did not begin with the Soviet's deployment of the SS-20, as the predominant narrative holds. Rather, she agrees with the former chancellor of West Germany, Helmut Schmidt, and his belief that the problems arose in the 1960s following the Cuban Missile Crisis. While the world breathed a collective sigh of relief, the crisis stirred anxiety within NATO that the United States could not live up to its promise of "extended deterrence."

This fear would underpin Alliance politics throughout the Cold War. In this case, it came to a head as NATO's military strategists worked to incorporate flexible response, which proved highly ambiguous. While it allowed elasticity to accommodate each nation's political concerns, military strategists worried deeply about when and under what conditions leaders would resort to escalation.

Citing these concerns, France withdrew from its NATO military commitments in 1966. By then, concerns over Vietnam and the budget prompted the United States to begin talks with Britain and West Germany to redeploy some of its 400,000-plus American forces in Europe. These tense negotiations, known as the "offset crisis," became emblematic of one particular strand of the European predicament: its concern over America's commitment to fight if the time ever came. America's nuclear arsenal seemed to be the unwavering element of Alliance security; yet, at the same time, these weapons, if ever employed, would spell its destruction.

The second strand of this predicament grew throughout the 1970s as a wave of remarkable new military capabilities emerged. Unfortunately, the same breathtaking pace of modernization occurred in the Soviet military, leading to nuclear parity between the superpowers. Europeans felt exposed by this parity and the resulting bilateral negotiations between Washington and Moscow, known as the Strategic Arms Limitations Talk (SALT). "SALT neutralizes their strategic nuclear capabilities," Schmidt warned in a famous 1977 speech. "In Europe this magnifies the significance of the disparities between East and West in nuclear tactical and conventional systems" (66).

Hence, tactical nuclear systems mattered greatly to European leaders. Unfortunately, with each round of NATO's military modernization, a fresh round of political concerns arose. These concerns pushed Alliance politics to the edge during the dual-track decision and its eventual missile

deployment. The Soviet Union first deployed its mobile SS-20 in 1976, and because its range was under treaty limits, the weapons seemed purpose-designed for Western Europe.

The following year, the *Washington Post* exposed the United States' neutron bomb development, a weapon meant to extinguish human life while leaving infrastructure intact. The ensuing public debate created the framework that would underpin dual-track, and—as Colbourn insistently notes—it all happened under the Carter administration. While the neutron bomb had moved off the table, it taught negotiators that they could seek balance by deploying limited numbers of new technologies and threatening to deploy more unless the Soviets made concessions on their vast conventional forces. The key was to overcome the neutron bomb's sticking point: European public opinion.

NATO leaders faced a titanic challenge in deploying the Pershing II and GLCM while surviving the diplomatic skill of Soviet leader Mikhail Gorbachev. By filling the tactical ground-based nuclear strike role, these missiles served as both an answer to the military's counter-SS-20 problem and a bargaining chip for the Reagan administration. Between 1979 and 1983, Moscow tripled its SS-20 deployments, lending urgency to the problem. But the arrival of American-made nuclear weapons in Western Europe displeased a powerful pacifist movement that had arisen out of the ashes of World War II. Britain's parliament and street demonstrators tried to shame the decision.

Were Europeans more concerned about nuclear-tipped blackmail from the Warsaw Pact or the nuclear age itself? Gorbachev's subsequent proposals to cut the Soviet's arsenal seemed to answer that question. His relentless bargaining drove a wedge into intra-NATO politics, as anti-missile campaigners warned that American weapons undermined European sovereignty and raised the prospects of war. Colbourn quotes Margaret Thatcher to sum up the dilemma: "I want a war-free Europe. A nuclear-free Europe I do not believe would be a war-free Europe" (196). Colbourn ultimately credits the Italian parliament and West Germany's Bundestag for agreeing with Thatcher, accepting the missiles, and holding the Alliance together.

If for none of the reasons above, members of the US defense community would benefit from Colbourn's view on how the Cold War ended. A lingering belief exists that the United States "won" the Cold War thanks to an intense military buildup in Europe, with its Pershing II and GLCMs forming a crucial element. It was, after all, those missiles that pervaded the negotiations between President Ronald Reagan and Gorbachev. In other words, there is some justification in saying that US military readiness and innovation played a crucial role in presiding over the Soviet Union's demise.

Euromissiles challenges that position. Colbourn paints a picture of the Warsaw Pact and NATO both in a "race to the bottom" in which US weapons brought the latter's downward plunge (266). Open dialogue and continual outreach to the East allowed NATO to persist as the Pact crumbled. Hence, it was the Alliance's unity that enabled its military power—not the other way around. Because Colbourn deals directly with this three-way relationship between military power, Alliance politics, and success in superpower competition, *Euromissiles* is worth the read.

Lieutenant Colonel Daniel P. Gipper, USAF

Original Sin: Power, Technology and War in Outer Space

Bleddyn E. Bowen. Oxford University Press, 2023, 256 pp.

In his speech at the February 1957 astronautics symposium, US Air Force General Bernard Schriever detailed a vision of the important role outer space might play in the United States'

national security. "In the long haul," Schriever predicted, "our safety as a nation may depend upon our achieving 'space superiority.' Several decades from now the important battles may not be sea battles or air battles, but space battles." At the time, Schriever's comments appeared to challenge then-existing Eisenhower administration policy, which emphasized peaceful uses of space and sought to address potential Soviet space threats through diplomatic and international channels. A mere eight months later, the Soviet launch of Sputnik 1, the first human-made satellite, altered the political landscape. As Schriever reflected years afterward, "Suddenly, everyone got space-minded."

We have reached a new point in history in which the global public is once again becoming more space-minded. The recent formation of the United States Space Force; the private space missions by SpaceX, Blue Origin, and other commercial space companies; the widely-reported uses of space systems in Russia's ongoing war in Ukraine; and the myriad ways in which space-based technologies are incorporated into modern life have all increased public awareness of outer space technologies' invaluable role in both civilian and military operations. In examining our increasingly space-focused present, Dr. Bleddyn Bowen—space policy expert and University of Leicester associate professor of international relations—uses *Original Sin* to turn a critical lens on the past and to raise prescient concerns about the future.

Original Sin is premised on a damning idea: because outer space systems were initially pursued to "meet military-political objectives," the entire history of space technology development has been tarnished by the "original sin" of space militarization (7). Bowen asserts that broader recognition of space technology's dark origins and the ways in which military use and geopolitical competition continue to influence the space environment is a prerequisite to pursuing global political reform to create a safer, more stable space environment.

The first of the book's three parts, "The Original Sin of Space Technology," examines Bowen's central theme by returning to the beginning of the Space Age. In chapter 1, Bowen describes the origins of early rocketry and its fruition in Nazi Germany's pursuit of rocket-weapons; the role of nuclear weapons and the need to deliver them at speeds and distances impossible for existing long-range bombers in post-World War II rocket development; and the influence of both nuclear weaponry and intelligence collection on Cold War space competition between the United States and the Soviet Union.

Military interest in outer space was not, however, unique to the Cold War superpowers. Chapter 2 examines the space program development of China, France, India, Japan, and the United Kingdom, among others, demonstrating that each of these nations pursued space technology development for military and national defense purposes. According to Bowen, the original sin of space technology "does not just taint the dreams of Americans and Russians . . . but every major space power in the twenty-first century" (108).

In part two, "The Maturation of Space Power," Bowen turns to space-based technologies themselves. Chapter 3 provides readers with a deep-dive into the world of outer space intelligence collection, detailing the history of satellite development for collecting signals intelligence, imagery intelligence, geospatial intelligence, and other forms of space-to-Earth intelligence. Satellite early-warning systems, such as the United States' space-based infrared system, and their critical role in preserving international stability as "national technical means" of arms-treaty verification are also discussed.

In chapter 4, Bowen examines space technology within the orbital environment itself. Satellite constellations—including global navigation satellite systems like the United States' global positioning system, space situational awareness and space domain awareness systems, and the

critical military and economic uses of these space system subsets—are the main topics of this chapter.

The third and final part of *Original Sin*, "Strategy in the Global Space Age," is the most fascinating portion of Bowen's work. Comprising the book's last three chapters, part three focuses on the theory and practice of space warfare as it exists today and as it may exist in the near future. In addition to describing the systems and mechanisms of space warfare, many previously discussed in his earlier chapters, Bowen examines the tension between entanglement and independence in the space environment. Is a nation's security better protected with open space systems that integrate easily with those of its Allies? Or is independence—building one's own space systems to ensure access and control—a better, though costlier, strategy?

Key to *Original Sin* is Bowen's analogy of orbital space as a "cosmic coastline." This idea, a central part of his previous work—*War in Space: Strategy, Spacepower, Geopolitics* (2020)—cuts to the heart of military debate over the space domain's nature and significance. Whether military space forces ought to be "brown water" (concentrating their efforts on littoral, terrestrially-focused operations) or "blue water" (emphasizing wider-ranging operations focused on the protection of space commerce) has been argued by a wide range of space strategists. Bowen persuasively contends that treating orbital space as a coastline and organizing both military and political space policy accordingly is prudent for the foreseeable future.

Bowen's book is well-researched, his discussions of space technology and its uses thorough and informative, and his arguments regarding space warfare and Earth orbit as a cosmic coastline compelling. This reviewer's only criticism is the book's underlying theme that a militaristic original sin blights space technology in unique and pervasive ways.

There is no denying the military origins of rocketry, the crimes of some of spaceflight's original geniuses—including Werner von Braun in his former role as Nazi rocket scientist—or the connection between space technology and nuclear weapons. Nevertheless, the idea that space technology as a whole is tainted by German and post-World War II American and Soviet military interests seems an oversimplification.

As mentioned, early space technology development was perceived differently by America's civilian and military leaders. Schriever and other American military theorists certainly foresaw space growing into a warfighting domain. But on multiple occasions before and after the Sputnik launch, US civilian leadership—President Dwight Eisenhower and senior members of his administration and diplomatic corps—publicly proposed restrictions on military uses of space and various schemes of inspection to ensure that space launches were taking place for exclusively peaceful purposes. Though these proposals were rejected outright by the Soviet Union and, as a result, quickly abandoned by the United States, they show that early American policy related to space technology was multifaceted, rather than purely militaristic.

Further, the idea that a technology born of military interest or with prominent military application could be forever tainted seems to apply so widely and to so many varied fields that singling out space technology development for *Original Sin*'s titular opprobrium is almost banal. Other writers have also noted the symbiotic relationship between scientific development and military application. Should we consider the original sin of the sciences of astronomy, mathematics, or optical physics? Of computing? Of quantum technology?

To echo Bowen's biblical reference with another, does not the story of Cain and Abel also suggest all human technology is tainted—since, at least within the tradition of the three Abrahamic religions, one of the earliest reported uses of a tool is murder? This reviewer believes—and does

not think Bowen would disagree—it is humanity's nature, rather than some inherent predisposition from space technology's development, that drives geopolitical discord in outer space. The original sin of space technology, as with all human innovations, lies not in militarized technological determinism, but in ourselves.

Regardless of quibbles over Bowen's theme, *Original Sin* is an impressive work, providing readers a wealth of information on a critical topic in an accessible and, in comparison to many academic works on space law and policy, affordable way. Bowen's comparison of orbital space to a cosmic coastline is a creative—and welcome—evolution of military space scholarship. This work should have pride-of-place in the book collections of Guardian and other military space operators, outer space enthusiasts, and space-minded members of the general public. To echo Schriever, as space becomes ever more important and we become increasingly space-minded, works like *Original Sin* will become even more significant.

Major Jeremy J. Grunert, USAF