

## BOOK REVIEW

*Dark Skies: Space Expansionism, Planetary Geopolitics, and the Ends of Humanity*, by Daniel Deudney. Oxford University Press, 2020. 464 pp. ISBN: 9780190903343.

*War in Space: Strategy, Spacepower, Geopolitics*, by Bleddyn E. Bowen. Edinburgh University Press, 2020. 288 pp. ISBN: 9781474450485.

China's recent purported test of a hypersonic weapon that significantly traversed through space before reentering the atmosphere with a nuclear-capable glide body further reinforces the deep relationship between ballistic missiles and the space domain. While this is generally acknowledged and occasionally limited by things such as the now-defunct Anti-Ballistic Missile Treaty, it is relatively uncommon to see ballistic missiles of any sort as a space weapon or an element of space warfare. However, the increasing belligerence in both the missile and space domains from Russia and China in recent years has only increased American focus and enhanced capabilities in both areas.

The relationship between missiles and space is certainly nothing new, but a new era of strategic competition between the United States, Russia, and China is once again highlighting the importance and danger of the space domain. In this sense, Daniel Deudney's and Bleddyn E. Bowen's recent books are timely entries into a still unsettled debate about the role of conflict in space and its relationship to more Earth-bound geopolitical strategy.

### A Darkening Sky

Deudney opens his book with a rather dark, dramatic depiction of coming "catastrophic and existential threats," including nuclear, biotechnological, informational, and ecological (climate change). While space has often served as a panacea to the potential calamities through technological development or a means of escaping Earth, Deudney begins with a powerful question: is space expansionism really something worth undertaking? Arguing that the question has neither been seriously considered nor answered, Deudney's book is a multipronged effort toward understanding why, for Deudney, the answer is no.

To be sure, Deudney does not undertake this lightly. He begins by identifying various "technopolitical alternatives" that he labels technology, humanity, nature and the Earth, society and politics, and knowledge (pg. 48). He follows with a thorough discussion of a framework through which to assess various space expansionist prospects, including their feasibility and desirability. The largest chunk of his book is then dedicated to unpacking the various ideas of space expansionism from military and technological to different forms of human colonization of space. Part of this unpacking is not just to point out the various forms in which

the space expansionist argument has been advanced but to note that “space expansionism is revealed to be deeply conflicted about the most significant actual and prospective human steps into Earth space” (pg. 301).

One core argument Deudney advances in *Dark Skies* is that developments in space technology have been far darker than space advocates have typically admitted. Much of this stems from the fact that space technology and its development have historically been linked to both weapons and nuclear war. Related to this is Deudney’s argument that ballistic missiles should be considered space weapons. Noting that ballistic missiles cannot possibly carry out their intended function *without* space, he writes, “Ballistic missiles are thus inherently space weapons because their basic features and functions as weapons intrinsically, not incidentally, depend on the unique features of space” (pg. 157). All advances in missile defense and technology since, according to Deudney, should rightly be considered space warfare. Arguing that these developments have made the world less safe, Deudney’s only conclusion is that space expansionism is a pernicious development.

Deudney’s definition of ballistic missiles as space weapons is contentious. He rightly notes that the term *space weapon* “has been nearly universally used to describe weapons that are either *based in orbital space* or *operate against objects in orbital space*” (pg. 156, emphasis in the original). In large part, his overall argument about the negative and dangerous nature of space technology and expansionism hinges on his definition of space weapons. However, there is another definition that is sorely lacking for both Deudney and the international community: where space begins. Depending on where this is assessed, lower flying missiles might not be considered space weapons at all by Deudney’s definition since they do not properly reach space. Of course, this is also why the global community has been hesitant in setting such a notion.

In addition to critiques about military space ambitions, Deudney also painstakingly identifies and discusses various types of space expansionist proposals in terms of humanity’s future in space. Predictably, he finds most of them short on details and optimistic in their predictions and assumptions, promising utopias without understanding the underlying political requirements. A final nail in the space expansionist coffin comes from Deudney’s argument that many of the geographical and geopolitical analogies often invoked in these debates are mistaken. In addition to pointing out some of the misleading applications, Deudney’s larger point is that many of these analogies fail the sniff test because they were not designed to actually describe conditions in space but, rather, are purposefully “designed to mislead” (pg. 270). For example, Deudney argues that the notion that space, simply because it is a “higher” domain, has typically implied that space is a

means of improvement, of moving onto higher and greater challenges and achievements.

Coming back to the initial question of whether space expansionism is a net positive and thus something to be pursued, Deudney describes a scenario of solar system colonization that he believes to be more likely based on his preceding analysis. He finds that, rather than alleviating existential concerns as advocates suppose, the space expansionist program only brings about new problems and “enlarges the probability and scope of catastrophic and existential risks confronting humanity” (pg. 357).

Deudney’s analysis is a tour de force to be sure. It is complicated and nuanced moving from philosophy to history to literature to technological and scientific possibilities within a single chapter. While this makes for a robust, well-rounded analysis, it also demands much of the reader in grappling with and thinking about Deudney’s argument.

### **Strategic Limitations**

Where Deudney is expansive and wide ranging in his analysis of space expansion, Bowen’s *War in Space* has a much narrower focus, preferring instead to examine how spacepower might be utilized in the very near future. While notions about spacepower and spacepower theory continue to be in flux, Bowen’s contribution is seven propositions about space warfare that make up his spacepower theory: space warfare is waged for the command of space; spacepower is uniquely infrastructural and connected to Earth; the command of space does not equate to the command of Earth; the command of space manipulates celestial lines of communication; Earth orbit is a cosmic coastline suited for strategic maneuvers; spacepower exists within a geocentric mind-set; and spacepower is dispersed and imposes dispersion on Earth (pg. 5).

After beginning his discussion with some preliminary analysis of previous spacepower theory as well as spacepower’s relationship to the larger study of international relations, Bowen fleshes out his seven propositions. Several important principles underlie Bowen’s arguments, one of them being that space is only important insofar as it affects the strategic situation on Earth. In other words, control of space does not matter if you cannot exploit its effects terrestrially—something that is not guaranteed to follow from control of space. Bowen views this as a necessary corrective to the high-ground argument espoused by Everett Dolman and others, which claims that whoever controls space controls Earth. This necessarily underpins several of his propositions, including the first that the object of space warfare is control of space, as well as proposition two, which focuses on spacepower’s direct connections to terrestrial warfare.

Another of Bowen's fundamental arguments concerns the appropriate analogy upon which spacepower theory should be constructed. Rather than the high-ground or blue-water seapower theories, Bowen argues that space is better analogized as an orbital coastline. This perspective emphasizes that "technologies and events on Earth's surface directly affect what happens in orbit in a way that land-based weapon systems or coastal craft could not impact the open oceans and fleets operating beyond the coast" (pg. 68). In doing this, Bowen highlights the role of ground-based systems and weapons as being important in future space warfare and thus the ability of non-spacefaring states to challenge command of space as well as the potential of a space hegemon at any time.

Given the adoption of a coastal analogy, Bowen's discussion necessarily shifts to how command of space may be utilized in terms of strategic maneuver, the introduction of astroeconomic warfare, and space's role as infrastructure and logistics. Bowen argues that space, particularly when viewed as a coastline, is really a "secondary theatre to terrestrial wars" (pg. 152). The view of space as a secondary or supporting theatre is further explored in proposition six, that spacepower exists within a geocentric mind-set. Bowen recognizes that seeing the space domain as a secondary theatre may make it difficult for military services to get the needed resources to protect it. That being said, he argues that the significant role that space plays in providing logistics and infrastructure to the ground-based fight could be the "ammunition" that space leaders need (pg. 170).

In a final section, Bowen puts his theory to work in describing a potential Chinese attack on Taiwan. The key question he seeks to answer is: which strategy may be the better one: a "space Pearl Harbor," wherein the Chinese preemptively attack American space assets, or a more delayed space attack that is more gradual and proportionate? Based on his analysis, Bowen argues that, because China will need its own space assets for intelligence, tracking, and communications in the early stages of any invasion, it makes little sense for it to attack American assets knowing that the United States would retaliate accordingly.

Unique among spacepower theories, Bowen emphasizes the pedagogic nature of his propositions. He writes, "Spacepower theory frames difficult choices through the seven propositions, and it does not prescribe which decision may be the correct one in a specific circumstance" (pg. 39). In other words, rather than argue for a particular notion of what spacepower is and how it is best used, Bowen prefers that his framework be applied case by case, "to improve the individual's intuitive and deliberate strategic thought about possible actions" (pg. 40). While this thwarts the possibility of easy answers, Bowen argues that this approach is much closer to the traditional writings of theorists like Mahan and Clausewitz. This also means that despite his conclusions about a potential Chinese space strike

in a Taiwan scenario, others may apply his propositions differently to conclude that China might rightly undertake a preemptive space strike.

At various points, Bowen writes that *War in Space* is a necessary corrective to “astrodeterminist” and materialistic accounts of spacepower like Deudney’s in that what happens in space does not necessarily determine the fate of Earth. Bowen writes “Spacepower does not herald an era of certain doom and destruction from above and its expense and difficulty will not provide easy solutions to problems on Earth” (pg. 32). To be sure, though these two books concern themselves with different objectives and even time frames, Deudney’s conclusion is not too far from Bowen’s mark—if space expansionism is indeed dangerous, then, precisely *because* it impacts Earth and humanity, it should be avoided.

Both *Dark Skies* and *War in Space* then concern themselves with the impact of space on Earth and humanity. In *Dark Skies*, Deudney portrays space warfare and weaponization as a self-defeating free for all. In the haste and carelessness that space warfare would bring on, we are one slippery slope away from destroying all of humanity. For Bowen, space warfare is only desirable insofar as it brings strategic advantage on the ground; if it does not, as he concludes in his Taiwan analysis, it too should be done cautiously with an eye toward generating strategic effect. Both books deserve attention as states increasingly conceive of space as a domain of competition.

**Dr. Wendy N. Whitman Cobb**

Dr. Whitman Cobb is an associate professor of strategy and security studies at the School of Advanced Air and Space Studies, Air University.

**Disclaimer**

The views and opinions expressed or implied in *JIPA* are those of the authors and should not be construed as carrying the official sanction of the Department of Defense, Air Force, Air Education and Training Command, Air University, or other agencies or departments of the US government or their international equivalents.