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Critical Comment

Reflections on Politics, Strategy and Norms in Outer Space

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INTRODUCTION

This article focuses on the underestimated discrepancy between recent optimistic theoretical attempts aimed at providing US policymakers with a coherent "astro-strategy" for space dominance, and the destabilizing consequences for international stability deriving from their implementation. Important intellectual references supporting US current space doctrine and strategy can be found in the US Air Force's élite School of Advanced Air and Space Studies – which develops and tests the Air Force's doctrines, concepts and strategies.

Accordingly, this article will begin by analyzing the central thoughts expressed in the book that, for the *Joint Force Quarterly* journal, is "the first book that can legitimately claim to present a comprehensive theory of space-power": Everett Dolman's *Astropolitik*: *Classical Geopolitics in the Space Age*.[1] This major work discusses and provides suggestions for an American grand strategy in outer space by explaining how the physical attributes of outer space and the characteristics of space systems ought to shape the application of space power. It is striking to see how close the steps taken by the US in devising an ambitious missile defense program and in revitalizing plans for space weaponization and dominance are to Everett Dolman's prescriptions for the "astropolitik plan". In conclusion, it is argued that US strategy *via* outer space should be critically reexamined and, without giving up the imperatives of national defense, states should work on an international legal framework avoiding an offense-defense spiral toward space dominance and, potentially, war.

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ASTRO-STRATEGY FOR SPACE DOMINANCE

Everett Carl Dolman, currently Professor at the US Air Force's elite School of Advanced Air and Space Studies, began his career as an intelligence analyst for the National Security Agency, and moved to the United States Space Command in 1986. During the Desert Shield/Desert Storm operations, he was placed in charge of a crisis-response team to find Iraqi Scud missiles. In 1991, he received the CIA's Outstanding Intelligence Analyst award. He thus provides the reader with insights on the debates that shape the US Air Force's policy and, moreover, that of the US space policy itself. The development of Dolman's "Astro-Strategy" can be structured across three essential lines: the traditional geopolitical foundations of space politics; a critical analysis of the current legal regime governing space activities; and policy recommendations toward United States space dominance.

The Traditional Geopolitical Foundations of Space Politics

The author proposes an interesting reconstruction of the intellectual path from geostrategy to astrostrategy and draws cautious and fruitful parallels between sea, air and space environments. He first outlines the classical concept of geopolitics provided by Friederich List (1789–1846), Alfred Thayer Mahan (1840–1914) and Sir Halford Mackinder (1841–1947). The common denominator linking these different authors, one of the pivotal concerns to his text, is that "the influence of emerging technologies on geography, in essence the practical shrinking of the Earth, is the foundation of the geopolitical strategist' thought".[2]

As a proto-geostrategist, the German economist Friedrich List's main contribution to the field has been the discussion of the influence of railways on the shifting balance of military power. He recognized that the full incorporation of this new transportation technology would fundamentally alter the political relations of the major powers. "Rail power has no clear parallel to space power, with the exception that as a new transportation and information technology, space assets deployments surely have the potential to alter the political and military relationships of the traditional world and regional powers."[3]

As the first true geostrategic advocate of sea power, Mahan believed that *naval* power was the key to great power *status*, and that this power was to some extent geo-determined. Dolman translates in his space power theory Mahan's belief that superior naval (space) power confers, upon the nation that possesses it, the ability to secure commerce – avoiding its enemies to secure it – and thus the ability to exercise command of the sea (space). Crucial to Mahan's theory is the concept of *chokepoints*: globally strategic narrow waterways dominated by point locations. It is not necessary for a state to have control of every point of the sea to command it. A small but highly trained and equipped force should be carefully deployed to control the bottlenecks of the major sea-lanes.[4] In a similar way, Dolman posits new lanes of commerce and critical chokepoints in outer space. These are: the Hohmann transfer orbits between stable spaceports (the first and most important astro-political strategic narrows);[5] the geostationary belt and the Lagrange liberation points; and the Van Allen radiation belts.

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Among the concepts Dolman translates from the geopolitics tradition within his space power theory, are those provided by Sir Halford Mackinder. This English geographer and geopolitican acknowledged the historical importance of sea power on the rise and demise of the great powers, but foresaw the end of naval dominance with the advent of the railroad. The key dynamic was the change in transportation technology and the importance of military mobility. As the railroad grew to transcontinental scope, Mackinder saw that the balance of power was shifting back again to land, specifically to the world's heartland – the Eurasian landmass. Mackinder's worldview in fact divided the globe into three primary regions: the Eurasian (heartland or pivotal area), the inner crescent (Western Europe, the Middle East, the Indian subcontinent, most of China) and the outer crescent (separated from the inner crescent by water).

Mackinder believed the history of civilization was, in fact, a cyclical tale of alternating dominance by land and sea powers, and that a change to land dominance was under way after the Second World War. Crucial to Mackinder's strategy for Britain was the notion that, if a state desired control of global affairs, but could not physically occupy the critical keys to geodetermined power, then it must deny control of these areas to its adversaries. "To astrostrategists the parallel is all too obvious. The vast potential resource base of outer space is presumably so enormous, effectively inexhaustible, that any state that can control it [or deny control of it] will ultimately dominate the earth".[6]

CRITICAL ANALYSIS OF THE CURRENT LEGAL REGIME GOVERNING SPACE ACTIVITIES

The second pillar of Dolman's argument is a critical analysis of the evolution of the outer space legal regime. He argues that the *apparent* Cold War co-operation between the superpowers in the establishment of the current outer space regime – that led to the declaration of outer space as a *res communis* – was, *de facto*, established on conflicting antagonistic bases. Paradoxically, the result of the Cold War competition was co-operation.

For the statesmen steeped in the tradition of balance-of-power politics and political intrigue, the practical value of declaring space a human commons was clear. The riches of space and the full advantages of space control were unknown. Since neither superpower could be sure of the coming capabilities of the other, it seemed prudent to do everything possible to hinder the domination of the other – specifically, to declare space the unilateral province of all peoples while working feverishly to acquire the technological means and legal justifications to gain dominant control of it. The rhetoric of space co-operation became a cover to buy time.[7]

The author blames this regime for having led to collective inaction because many incentives have been eliminated by international law. The "perverse consequence" of these international arrangements, he argues, is that states have been deprived of the possibility of assuming sovereign possession of new territories discovered and claimable on celestial bodies and in space.[8]

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POLICY RECOMMENDATIONS TOWARD AMERICAN SPACE DOMINANCE

In providing policy recommendations on the basis of the previous analysis, Everett Dolman states that just three critical steps are required for the US to emplace the "astropolitik plan".

1. Withdraw from the current space regime and use propaganda, touting the prospects of a new golden age of space exploration.
2. Seize military control of low-Earth orbit. From that height above the ground, "space-based laser or kinetic energy weapons could prevent other states from deploying assets there, and could most effectively engage and destroy terrestrial enemy Anti-Satellite Weapons (ASAT)".[9]
3. A national space co-ordination agency should be established to define and co-ordinate the effort of commercial, civilian and military space projects.

Astropolitik thus provides a military strategy and a legal-institutional blueprint that should ignite a new space race almost at once. However, "the ultimate goal of . . . Astropolitk is not the weaponization of space. Rather, the weaponization of space is a *means to an end*".[10] It is a means to space dominance. This study, written six years ago, is thus a remarkable attempt to adopt the political and legal tools provided by traditional geopolitical thought with the ambition to propose a coherent "space power theory" toward US space dominance. It offers a space grand strategy for US policymakers to build upon some of the founding concepts of geopolitics such as those advocated by List, Mahan and Mackinder.[11]

AMERICAN SPACE POLICY AND IMPLICATIONS FOR "EARTH DIPLOMACY"

Space Policy

Since the 2001 report of the Commission to Assess National Security Space Management and Organization, chaired by Donald Rumsfeld, the US is devising an ambitious missile defense program and revitalizing plans for space weaponization and dominance. It is striking to see how close are the steps taken by the Bush administration and Everett Dolman's prescriptions for the "astropolitik plan":

1. "*Withdraw from the current space regime and use propaganda, touting the prospects of a new golden age of space exploration*". In 2002, the US withdrew from the 1974 Anti-Ballistic Missile Treaty. By eliminating a long-standing limitation on missile defense systems an prohibition, this move has generated hostile reactions in Beijing and Moscow – the only powers, together with the US, possessing the ability to launch nuclear warheads on land-based ICBMs.
2. "*A national space co-ordination agency should be established to define and co-ordinate the effort of commercial, civilian and military space projects*." The same year, the Department of Defense created the Missile Defense Agency – which replaced the Ballistic

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Missile Defense Organization – responsible for developing a layered ground-, sea- and space-based defense against ballistic missiles. Always in 2002, President George W. Bush signed the National Security Presidential Directive 23, which outlined a plan to begin deployment of operational ballistic missile defense systems by 2004, the Ground-Based Midcourse Defense (GMD).[12]

3. "*Seize military control of low-Earth orbit. From that height above the ground, space-based laser or kinetic energy weapons could prevent other states from deploying assets there, and could most effectively engage and destroy terrestrial enemy Anti-Satellite Weapons*". The US has also revived concepts of placing kinetic-energy interceptors in space and has investigated the idea of space-based lasers.[13] The Space-Based Interceptor classified program, PE 0603891C Special Programs MDA, first appeared in the 2005 budget request.[14] According to MDA head Lt. Gen. Trey Obering, the Agency is starting to take "a hard look at developing a space-based layer".[15] In 2007, the US Missile Defense Agency (MDA) requested $45 million, to begin in FY 2008, to develop space-based ballistic missile interceptors that would attack ballistic missiles in boost phase.

Earth Diplomacy

Consistent with Dolman's "Astropolitik", since 2002, the US are setting up a radar system in the Czech Republic and ten interceptors in Poland. This third site (in addition to the ones in Alaska and California) is officially planned to counter "rogue states" (namely Iranian) Inter-Continental Ballistic Missiles. The majority of defense experts claim, however, that it "might undermine part of Russian strategic deterrence by intercepting the 18 to 25 Russian Intercontinental Balistic Missiles (ICBMs) – the SS-25 – based in Vypolzovo (Tver), north-east of Moscow to [Russian] strategic nuclear forces."[16] The resulting challenge for Russian security planners is to maintain deterrence stability while US capabilities are steadily improving. The more space-based systems reduce US concerns about the costs of using force, the more likely Russia is to seek asymmetrical, and potentially very destabilizing, ways to shore up its own deterrent. China too is concerned that the US missile defense network and program for space weaponization will undercut its strategic nuclear deterrent.[17] Beijing has an even more immediate problem than Russia because it has a much smaller nuclear deterrent and a core security issue – Taiwan – that could cause a near-term conflict with the United States. Since China has only about 20 single-warhead ballistic missiles that could reach the United States, it is concerned about even a rudimentary US missile defense system, especially in the context of the coercive prevention strategy.

International Stability

The problem is that the aggressive, unilateral tone of these policies and military doctrinal documents has promoted consideration of counter-measures and space-related weaponry by the potential targets of these policies – namely Russia and China. "In other words, the United States finds itself on the horns of the classic security

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dilemma with regard to space: the more the United States seeks 'hard power' means to both protect itself in space and ensure that others cannot use space against it, the more threatening US intentions seem and the more others will seek to counter US actions".[18] The posture of American policies has encouraged Russia and China to consider counter-measures. Russia's plan of deployment of *Iskander* missiles in the Kaliningrad region – in reaction to the planned missile defense deployment in Poland and the Czech Republic – and China's test of an anti-satellite weapon in 2007 are two cases in point. It seems, therefore, that US aggressive deployment of a ballistic missile defense system and its unilateral policy seeking space weaponization is fostering potential conflict among great powers and international instability. It is crucially important for both astrostrategists and policymakers to attentively analyze the consequences of theoretically appealing expansionist strategies for the stability of international relations.

AVOIDING WAR IN OUTER SPACE

Because of the close relationship between ballistic missiles and space launchers and the possibility that missile defense programs will pave the way for the full-fledged weaponization of space, control of missiles and missile defenses is intimately interlinked with the prevention of the weaponization of outer space. Space security pre-eminently being an issue of global security, it is crucial to avoid an escalating offence-defense spiral and to accurately define "acceptable" and "unacceptable" uses of space through international legal instruments.

Several state and non-state actors have long been calling for the prevention of an arms race in outer space, seeking to strengthen international space law and arms control by introducing provisions against the weaponization of space.[19] In February 2008, at the Conference on Disarmament, Russia and China jointly presented a draft treaty on the Prevention of the Placement of Weapons in Outer Space that was rejected by the United States.[20] Distrust, instability and ultimately violence would be considerably increased with advanced space weapons, such as maneuverable space mines, micro-satellites, kinetic kill vehicles, chemical and nuclear explosives, or particle, microwave and laser beams.[21] Transforming space from the "common heritage" of mankind into a "high frontier" for space warfare where weapons are used "to, from, in and through" space, contains considerable risks for all states, including the United States.[22]

To avoid these risks, the transition from the militarization to the weaponization of space needs to be prevented.[23] Comprehensive space arms control would seek to ban weapons against objects in space and from objects in space against any target, and would prohibit development, testing, and deployment of such systems altogether before more advanced weapons are tested or become operational. The Russian-Chinese proposal for a blueprint for co-operation might, for instance, be adopted. It would be based on three basic obligations:

1. Not to place in orbit around the Earth any objects carrying any kind of weapons, not to install such weapons on celestial bodies, and not to station such weapons in outer space in any other manner;

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2. Not to resort to the threat or use of force against outer space objects;
3. Not to assist or encourage other states, groups of states or international organizations to participate in activities prohibited by this treaty.

Since the beginning of the twenty-first century, US political and military elites have invested massive economic and diplomatic resources in implementing a missile defense system and in investigating opportunities to enlarge (traditional land- and sea-based) delivery platforms into outer space. The reactions of the United States' major potential rivals – Russia and China – have highlighted the destabilizing potential of such ambitions. Accordingly, US strategy via outer space has to be critically re-examined and, without giving up the imperatives of national defense, states should work on an international legal framework to avoid an offensive-defensive spiral toward space dominance and, potentially, war.

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NOTES

1. E. C. Dolman, *Astropolitik: Classical Geopolitics in the Space Age*, London: Frank Cass, 2002.
2. The determining geographical factors have respectively been: wind and current in the age of sail; gradient in the rail age; and, today, gravity in the space age.
3. E. Dolman, *op. cit*.
4. He specified the straits of Dover, Gibraltar and Malacca, the Cape of Good Hope, Malta, the Suez Canal, and the St Lawrence Seaway.
5. What is important in space-faring terms is the propulsive effort required to change a velocity vector. Because of the unseen undulations of the outer space terrain, the gravity wells, geostrategy must minimize the total velocity effort, Delta V, by taking into consideration gravity and the quantity of fuel required. The Hohmann Transfers Orbits (HTO), is a two step maneuver that minimizes Delta V: first the engine is accelerated into a higher (or decelerated into a lower) elliptical orbit; then the spacecraft fires again to circularize and stabilize the final orbit. This specific maneuver conserves fuel and increases the productive life of the spacecraft. Therefore, according to Dolman, the future lanes of commerce and military lines of communications will be the HTO between stable spaceports.
6. In 2004, the *Counterspace Operations Doctrine* document clearly showed what the US actually intend to do: that is, to achieve and maintain *space superiority* – the "freedom to attack as well as the freedom from attack" – in space. See, Air Force, *Counterspace Operations Doctrine Document*, AFDD 2-2.1, 2004.
7. E. Dolman, *op. cit.*, p. 170.
8. *Ibid.*, 139.
9. *Ibid.*, p. 157.
10. *Ibid.*, p. 182.
11. The greatest weakness of this work is the scope that this strategy pretends to have. The book aggressively overflows into the political realm, positing what the overall political aim of the US in outer space should be. In line with Carl Von Clausewitz's thought, he states that "strategy is ultimately political in nature, that is to say the *ends* of national strategy are inextricably political" (p. 146) and should thus be subordinated to politics. Nevertheless, his theory of space power is much more than a coherent *ensemble* of teachings for present and future space-strategists. Dolman's ambition for US dominance in space *is* rooted in a moral justification. In his words, the US "can advance a broad moral argument for space domination", in that, he argues, if the US could seize control of outer space, this would place as guardian of space "the most benign state [that] has ever attempted hegemony over the greater part of the world" (pp. 157–158). The implications of Dolman's attempt is to provide

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a moral justification for military expansionist strategies into space and, thereby, to contradict the teachings of Carl Von Clausewitz.

12. "Missile defense is only a small component of much more ambitious programs for militarization of space, with the intent to achieve a monopoly on the use of space for offensive military purposes" (Chomsky, 2004). In fact, GMD relies heavily on satellite communication. Washington planners know that rivals of the US could therefore destroy those satellites with (cheaper) anti-satellite weapons rather than trying to shoot down missiles. The link between GMD and militarization of space lies exactly here: offensive space-based weapons could, among other functions, protect satellites or even launch preventive attacks. The weaponization of outer space is intimately connected to the development of GMD. Lawrence Kaplan concludes in the *New Republic* that "missile defense isn't . . . meant to protect the US. It's a tool of global dominance". L. Kaplan, *op. cit*. On the relation between space weaponization, missile defense and nuclear warfare, see Meijer, 2009.
13. See the Space Weapons Spending Analyses by the *Center for Defense Intelligence*, available at http://www.cdi.org.
14. http://www.globalsecurity.org/space/systems/sbi.htm.
15. T. Hitchens, M. Katz-Hyman and V. Samson, "Space Weapon Spending in the FY 2007 Defense Budget", *Center for Defense Information*, 2006.
16. Y. Zaitsev , "BMD Games And The Caucasus Crisis Part One", *United Press International*, 28 August 2008. Also "Russian Official Says New US Space Policy Will Lead to Military Confrontation", *Moscow News*, 30 November 2006., http://www.mosnews.com/news/2006/11/30/spacecritic.shtml; also, Associated Press, "Russia Warns US About Weapons in Space: Minister Vows Retaliatory Steps over Technology Threat", 2 June 2005, http://www.msnbc.msn.com/id/8073961.
17. The major threat for the Chinese is the risk that this system would allow preventive action against its 20 nuclear weapons deployed on long-range missiles that can reach the continental United States. This would obliterate Beijing's nuclear deterrent. See, H. Gusterson, "Tall Tales and Deceptive Discourse", *Bulletin of the Atomic Scientists*, November/December 2001.
18. T. Hitchens, *Weaponizing Space: Is Current US Policy Protecting Our Security?*, testimony before the National Security and Foreign Affairs Subcommittee, US Congress, Washington DC, 23 March 2007.
19. For a preliminary overview of the evolution of the legal system concerning outer space, see Meijer, 2007a. Official reports on the legal framework governing the use of space can be found at http://www.disarmament.un.org. For a critical assessment of the current legal framework and proposals to reform it, see: J. Nye Jr. and J. Schear (eds), *Seeking Stability in Space: Anti-Satellite Weapons and the Evolving Space Regime,* University Press of America, 1987. T. Hitchens, "Multilateral Approaches to Preventing the Weaponization of Space", *Disarmament Diplomacy*, No. 56, April 2001; P. E. Coyle and J. B. Rhinelander, "Drawing the Line: the Path to Controlling Weapons in Space", *Disarmament Diplomacy*, Vol. 66, September 2002; M. Krepon and M. Heller, "A Mode of Conduct for Space Assurance", *Disarmament Policy*, No. 77, May/June 2004; D. Wolter, "An International Law Perspective on Common Security in Outer Space", *Disarmament Policy*, No. 81, Winter 2005; and D. Wolter, "Common Security in Outer Space and International Law", *United Nations Institute for Disarmament Research*, UNIDIR/2005/29, 2006. Available at: http://www.unidir.org.
20. The draft treaty is available at http://daccess-ods.un.org/TMP/2813319.html. On the Russian–Chinese co-operation see P. Podvig and H. Zhang, *Russian and Chinese Responses to US Military Plans in Space*: *A Report Reconsidering the Rules of Space Project*, Cambridge: American Academy of Arts & Sciences, March 2008.
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22. J. Scheffran, "Missiles, Missile Defense, and Space Weaponization", Working Papers from the Nuclear Non-Proliferation Treaty Preparatory Committee, 30 April–11 May 2008,

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Vienna. Available at: http://www.reachingcriticalwill.org/legal/npt/NGOpres02/6.pdf. See also Theresa Hitchens, *Weaponizing Space: Is Current US Policy Protecting Our Security.*

23. Space has been "militarized" since the earliest communications satellites were launched into orbit (in fact, since the first Sputnik). Space "weaponization" is generally understood to refer to the placement in orbit of space-based devices that have a *destructive capacity*. Therefore, while satellites may be used for aggressive measures, such as GPS navigation of fighter jets or precision-guided missile delivery, satellites themselves have no destructive capacity and their support of military operations would not be considered weaponization. H. L. E. Meijer, "Unifying Europe Through the Militarization of the Outer Space? Threats and Perspectives for the ESDP", *Safe Paper*, n.1/07, The CIPI Foundation, Brussels, November 2007.