

The Case for Weapons in Space:

A Geopolitical Assessment

Dr. Everett Carl Dolman

Prepared for the APSA Annual Meeting,

September 2010

The coming war with China will be fought for control of outer space.

The stakes are high. The side that prevails will have a clear path to domination of the international system. Although its effects will be far-reaching, the conflict itself will not be visible to those looking up into the night sky. It will not be televised. Most will not even be aware that it is occurring. It may already have begun.

And yet, this new kind of remotely-controlled proxy war will not be so different that it is unrecognizable. The principles of war and the logic of competition remain as they always have. Only the context has changed. When perceived through this mind-set, via the tenets of traditional realist and geopolitical theories that have survived millennia in their basic forms, the unavoidable conclusion is that the United States and the People's Republic of China are on a collision course for war.

Such determinist theory is quickly countered by those who find its implications abhorrent. Inevitability is a crass and unsubtle divination. Because a thing has always happened does not mean that it always will. Nor does the reverse hold—because a thing has never happened does not mean that it cannot be so. The realist paradigm of power politics does not *have* to hold sway. The cruelly consistent narrative of history *need* not be eternally retold. Nothing is inevitable, counter the idealists. The world can be made different, the world today *is* different.

The power of possibility is tantalizing, but the brusque strength of probability, for a decision maker, usually holds sway. The past foreshadows the future—and it is the calculation of probability over time combined with risk that is more persuasive than platitudes. If an event is *likely*, its outcome perceptible, and its influence measurable, the prudent state must make preparations to mitigate its effects. If an event is *unlikely*, even if its impact is serious, actions necessary to mitigate it are often deferred to the future—though this form of political gambling tends to magnify the deleterious effects of the event when it eventually comes to pass. If the state's *sovereignty* is at risk, however, no matter how unlikely the event, it must be dealt with directly.

On the surface, it may seem as though geopolitical forces are currently in dynamic balance. The US is the overwhelming sea and air power, offensively oriented and favoring maneuver and precision strike for advantage in war. The PRC is potentially the greatest land power the world has ever known, defensively established and reliant on masses of infantry as its core strength. Neither has a globally significant advantage vis-à-vis the other. There is no plausible near-term scenario in which the US could invade and sustain an occupation of the Chinese mainland. Likewise, the US is currently impervious to any invasion and occupation by Chinese forces. Neither state's sovereignty appears in doubt due to actions by the other. At the level of grand strategy neither mass or maneuver, offense or defense, has a transformational advantage. From this perspective, war, inevitable though it may be, is not imminent.

Less venerable theories of conflict and cooperation are more favorable toward long-term peace. Economically, the US and PRC are tightly bound. Chinese markets are opening and the productivity of PRC manufacturing has allowed the US to move into a post-industrial economy. Trade is increasing substantially, and much of America's foreign debt is held by China, to the point that it is not to either state's fiscal advantage to engage in a conflict that will sever or (even just weaken) these ties. Culturally and historically, the Chinese and American people are inclined toward mutual admiration and respect. Despite the political differences between Chinese Communism and Western Liberal Democratic Capitalism, human connections and government rapprochement are valued by both sides. An appreciation of American

technological innovation and Chinese work and spiritual ethics imbues the still-developing relationship. Both sides seem willing to work together and sustain a world system in which each nation-state has its place and its independence.

In every sphere but one, it seems, the two great powers are building toward peace. In every sphere of competition, with one exception, there is room for negotiation and mutually beneficial outcomes. That one incompatible, uncompromising realm is outer space.

A Twenty-First Century Great Wall in Space:

No state relies on space power and space support more than the US. Since at least the mid-1980s, its armed forces have undergone a radical transformation. Space intelligence and observations, high bandwidth communications, and navigation support have created the most deadly combat force in history. America can engage targets anywhere in the world, in all weather, day or night, with extraordinary precision and lethality, and with a minimum of collateral damage. The progress of this transformation has been stymied with the continuing emphasis on ground forces occupation duties in Iraq and Afghanistan, but the American military is operating more effectively and efficiently today with the smallest percentage of its population actively engaged in military service since the post-WWII demobilization.

Just over two years ago—and perhaps again earlier this year as part of a ballistic missile defense system test—China successfully engaged one of its own derelict satellites in space. This was an extraordinarily provocative action. The United States simply has no defense against such a capability, and China's anti-satellite (ASAT) test was intended to remind the world of this weakness. Moreover, its use of an MRBM (which the PRC produces in mass) to propel the kill vehicle indicates a potential ASAT weapons capability sufficient to target the entire US low-earth orbit inventory.

The US responded in kind, engaging and destroying one of its own de-orbiting satellites with a modified surface-to-air missile interceptor launched from an Aegis cruiser. While this response demonstrated an enhanced American capability to engage low-earth orbiting (LEO) satellites

from a mobile platform, the message sent was straight-forward. There is no current defense against a satellite attack, and the only option available to US or PRC strategists is retaliation. If deterrence fails, LEO will become a global no-fly zone. Both sides will engage and destroy any and all satellites within range, cheaply and effectively.

China's ultimate goal appears to be to assert its regional supremacy and achieve co-equal (if not dominant) status as a global power. Control of space is a critical step in that direction. Without its eyes and ears in space to provide warning and real-time intelligence, the United States would be in a painfully awkward situation should the PRC put direct military pressure on Taiwan.

A robust space program, aimed at achieving dominance in LEO, prompts a comparison to traditional large-scale government projects in China. Its monumental Great Wall was intended to keep the barbarians out, and while never impermeable, when fully manned it stymied the mobile bands of steppe cavalry that had pillaged northern regions for centuries. But defense was only one of its purposes. Such works were needed to enhance security and also to bolster trade and spur economic growth. In turn, these massive public works gave legitimacy to the ruling power. Awe-inspiring achievements were a source of pride, and clear evidence of the superiority of the state. Moreover, they were a way to slough off excess economic capacity, keeping the population industriously engaged while limiting the amount of capital that could be accumulated by private interests.

China's current space program is readily imagined as a New Age Great Wall. Competing with the West in the highest technological endeavors, and doing so despite significant capital disparities, enhances the legitimacy of the communist party. China's domestic population rationalizes lower per capita income as the state completes its rise among nations to superpower status. International audiences are awed by the accomplishments, conveying further legitimacy to the state. They acknowledge China's domestic right to self-determination, but more importantly give credence to the capacity of Chinese manufacturing to produce quality high technology goods. This perception helps to increase the sale of advanced Chinese-made products abroad.

While its comprehensive space program enhances foreign and domestic perceptions of legitimacy, and raises awareness of Chinese industrial and manufacturing acumen, its military space efforts directly threaten the relatively stable international system. It is this latter issue that presents a wicked problem for strategists.

Western Action / Eastern Timing:

The Western mind sees transparency and openness as the surest way to peace. When one state can effectively monitor another, fears of surprise attack are mitigated and the tendency to overestimate a potential opponent's capacities and intentions are minimized. With transparency, the security dilemma is obviated and cooperation is possible.

But transparency as a confidence-building measure is a purely Western mode of thought. To an Eastern strategist, the idea that an opponent might know precisely one's strengths and weaknesses merely invites attack. The key to stability in this view is uncertainty—not knowing how strong or how weak an opponent is, and never, under any circumstances, revealing one's own intentions and capacities. The more sure the knowledge, the more crafty the countervailing plan, the more likely its success.

Hence the essential disconnect between West and East in the conduct of war is in the difference between action and timing. The Western strategist seeks to force change through positive steps. Analyses focus on the likely response to specific events, and assessments of whether more or less force is necessary to accomplish change. The future is constructed wholly through the effort and interplay of action.

Lao Tsu said, when describing a ceramic storage jar, it is the clay that gives the jar its shape, but it is the hole that is its purpose. Therefore, he insisted, *utility is determined from what there is, but value and meaning derive from what there is not*. And so it is in the distinction between West and East, between a tactically dominant mindset and a strategy-dominant one. The former concerns itself with reality, in determining *what is*. From this comes utility. Strategy is instead a search for *what there is not, for what there could be*. Tactics seeks solutions, *the end-*

state of thought. Victory is sufficient in itself. Strategy seeks questions, the commencement of thought. For the strategist, an answer is the debarkation point for a better question. Victory and defeat are understood in the aggregate, merely as pebbles on a long and endless path.

Just as the one is meaningless without the other—each is a necessary part of the definition—a combination of utility and value, tactics and strategy, is vital to our view of and place in the world. In the Western *way of War*, tacticians-cum-strategists traditionally match means to ends so to maximize utility. In such a worldview, utility is efficiency-maximizing, and the most cost-effective matches of available means to ends results in victory. In the Eastern *Tao of War*, strategists prepare for and await the moment of advantage. Through intense study, preparation and training, and patience, victory emerges. In this essay I describe the dialectic of tactics and strategy, and the linkage between them called operations. It requires a rather counter-intuitive foundation—Lao Tsu’s jar.

To the Eastern strategist, proper war-making is a matter of *timing*. Balance of force is a not a single calculation, but a continuing one. Power is a function of capabilities, position, and morale—just as it is in the West—but it is predicated on the interplay of numerous immutable and sometimes unknowable forces. Structure dominates agency. Rather than force a change through positive actions, the Eastern strategist bides time until the moment to strike is ripe. Indeed, the gardening analogy is a strong one in Chinese military writings. No matter how much effort one puts into growing a crop—in learning how to garden, preparing the soil, and tending the plants—there is no benefit in harvesting too early or too late.

Patience is the preeminent military virtue. When Chinese generals are told that their advantage is in long-term planning, they are liable to chuckle. “I do not know what will happen tomorrow,” he or she will respond, “how can I know what will happen in years or decades?” What the Eastern strategist does is study, prepare, and wait. Through study and reflection, the strategist learns about the opponent’s forces and one’s own, as well as the terrain, technologies, and socio-political contexts that shift in time. Through preparation and training, military forces required by the strategist are available when needed. By awaiting the proper moment for action, success is guaranteed.

Western hubris and Eastern inscrutability thus dominate their security relations. When Douglas MacArthur famously stated there is no substitute for victory, he was affirming an agent-centered dictum. His meaning was clear. Who prevails in war need make no excuses for the manner in which the battles were fought. History is written by the victor. Alternatively, when Sun Tsu claimed the acme of skill is to win without fighting, he did not refer to a passive or inactive strategy. He averred that following the study-prepare-wait model one comes into a position where the outcome is obvious to all parties, and a capable opponent will choose to negotiate the best terms rather than fight to a foregone and disastrous conclusion.

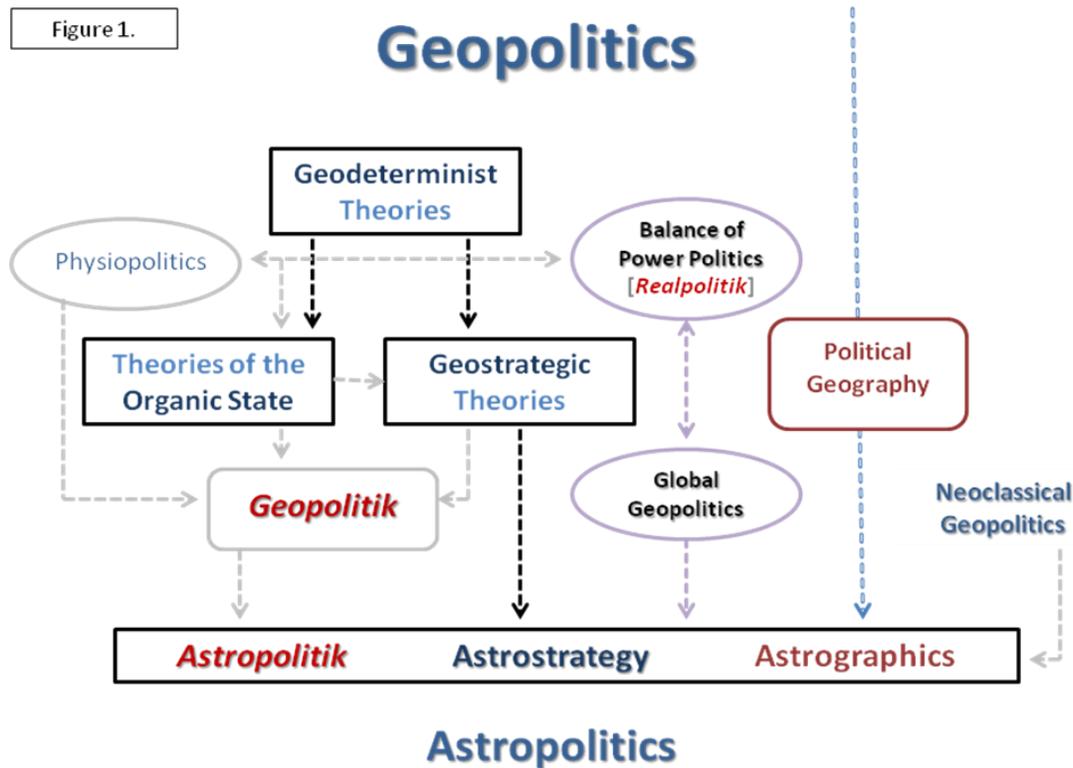
To contrast then merge the disparate perceptions, I turn to a deep-rooted if not quite venerable mode of analysis.

Neoclassical Geopolitics:

The resurrection of geopolitics as a valid body of military theory is ongoing. By applying the tenets and dictums of geopolitics to the current age with a focus on space activities, I hope to contribute to its revival. That classic geopolitical thought should require resurrection means that it has gone through a period of disfavor and decline, a history that will require further examination. For now it is enough to assert that geopolitics collapsed of its own weight, of the misuse and abuse that followers subjected it to by taking its less defensible precepts to their extreme ends. Just as Neo-Liberalism, Neo-Realism, and Neo-Marxism seek to return to founding theories for their inspiration and avoid the perversions and misapplications of often well-meaning but logically off-track followers, so too does Neo-Geopolitics seek a reaffirmation of basic principles and an explanation for the misuse of them in history.

Geopolitics looks to geographic or earth-centered physical and spatial characteristics for its explanatory power. The unit of analysis is the state. Its location, size, resources, and population are placed in the context of political ideology, socio-cultural values, and technology to assess the dominant forms of war in a given time. The manipulation of this knowledge is *geostrategy*—accounting for the geo-spatial bases of power in plans or strategies for continuing military, economic, diplomatic, and socio-cultural advantage.

Figure 1.



Geopolitics as a unified body of theory was not apparent until the later nineteenth century, but its inherited lineage is clear in retrospect. To the extent that the strong do what they will and the weak suffer what they must, as Thucydides had the imperial Athenians tell the neutral Melians in his celebrated dialogue on state power and pride, *realpolitik* has always focused on manipulating the extant balance of power for its persuasiveness.

Geopolitics describes the sources—the what—of state power; geostrategy explains the how. Neither provides the underlying rationale—the why. That requires a broader theoretical perspective. The one that dominated the architects of geopolitical thought clusters under the rubric of realism.

If state power, expressed in terms of capacity for violence, is the *ultima ratio* of international relations, then geopolitical theory is extremely useful.

Realism as such is a self-perpetuating ideology. Humanity and its politico-social interactions are immutable. The conditions that animate it are repeated. Only at the edges of state power, where ambiguity allows for self-optimization through negotiation, manipulation, and deception is there room for shifting morality and reliance on others—and then only as set up for a more rewarding payoff in the endgame.

Under these assumptions, the martial capacities of the state undergird all else.

The earliest geopolitical arguments were determinist in nature. The landscape provided tactical, then strategic advantages to one side or another in conflict. The high ground was always advantageous. Broad, open plains favored maneuver warfare and offensive actions, whereas mountainous or forested terrain privileged infantry and the defense. The form of the state could be determined as well by these characteristics. Open land favored large empires; mountainous or other difficult access terrain gave rise to smaller, more diverse forms of governing. Moreover, certain positions or locations on the earth were more desirable than others. Fertile river systems concentrated populations. Deep harbors with access to the seas fostered naval cultures and trade economies. As valuable resources are not distributed evenly across the earth, longer-range trade routes developed to maximize wealth, and a location along these routes—especially where these routes funneled into bottlenecks—allowed for pirates and highwaymen, then predatory states, to skim profit then martial power from the entrepreneurial spirit.

Thus, all manner of determinist reckoning flourished. The most egregious of these, though perhaps the most enduring, were those that endowed geographically identifiable populations with cultural or racial superiority. Such notions, that a people occupying a certain location were somehow provided with advanced physical, intellectual, or moral prowess, have never been objectively proven—or even substantiated by anything other than tortuously flawed teleological reasoning. For the population that is somehow preferred, however, the logic is seductive and affirming. When a people desires affirmation, usually when it is in an oppressed condition and seeks confidence or morale, or when it is in an oppressing position and desires moral justification, such theory is often embraced.

Once the argument of geopolitically-determined superiority is accepted, a common output is the necessity or even *duty* to dominate or control those lesser-endowed peoples—quite often for their own good. This is especially palpable when one accepts the geodetermined notion of the state as an extension or mirror of the Spencerian organism. In a corruption of Darwinian thought, Herbert Spencer argued that only the fittest of a species survives; more bluntly, that nature determines only the fittest *should* flourish. The state—as a meta-organism competing against other such competitively constituted entities—has a mandate to dominate and expand, or to wither and die.

This perverse application of an otherwise defensible body of theory achieved its apex in the Nazi-supported school of *geopolitik*. This effort, which existed solely to demonstrate the superiority of the so-called Aryan race and then to justify German expansion and domination of its neighbors, was a pseudo-scientific farce that could become prominent only under the protective and paranoid National Socialist government. After World War II, the German school had so disgraced the study of geopolitics it all but disappeared in its traditional form in Western schools and universities. Political geographers, who study the effects of human-defined boundaries (for example, state borders and urban-rural distinctions, to include the manipulation of this information for ulterior goals such as gerrymandering) on social and political development flourished, but to this day still disassociate themselves from their more rancorous geopolitical cousins.

Those of us who wish to resurrect geopolitics as a valid and valuable school of international theory cannot wish *geopolitik* away or downplay its significance. If we do, we leave the door open for the next generation of Social-Darwinian justification, and we may have no defense against it. So I use the term *astropolitik* freely, and openly, as a constant reminder of the pitfalls and corruption to which this line of theory is susceptible. Only if we try to hide the horrors of the past do they come back to haunt us. *Astropolitik* is thus the extreme view of *realpolitik*-based geopolitical reasoning, a theory that is susceptible to perversion but is separable from the intellectually-corrupt school of German *geopolitik*.

In an environment of relative scarcity, the interests of states overlap, and conflict can be expected. Prudent leaders will recognize the geographically advantageous positions and capacities that enhance state power, and will attempt to control those positions—*or at a minimum deny control of those positions to an opponent*—to ensure the continued health and growth of the state.

For example, Alfred Thayer Mahan argued that in the modern era, great power required the possession of a navy capable of projecting influence globally. It was time, he asserted near the end of the nineteenth century, for the United States to develop a maritime force equal to its economic clout, throw off its cloak of isolationism, and take its rightful place at the forefront of nation-states. Mahan was an American nationalist, to be sure, but his theories applied to *any* state in a similar position. Great power leads to great responsibility, he reasoned, and America was abrogating its obligations by failing to lead.

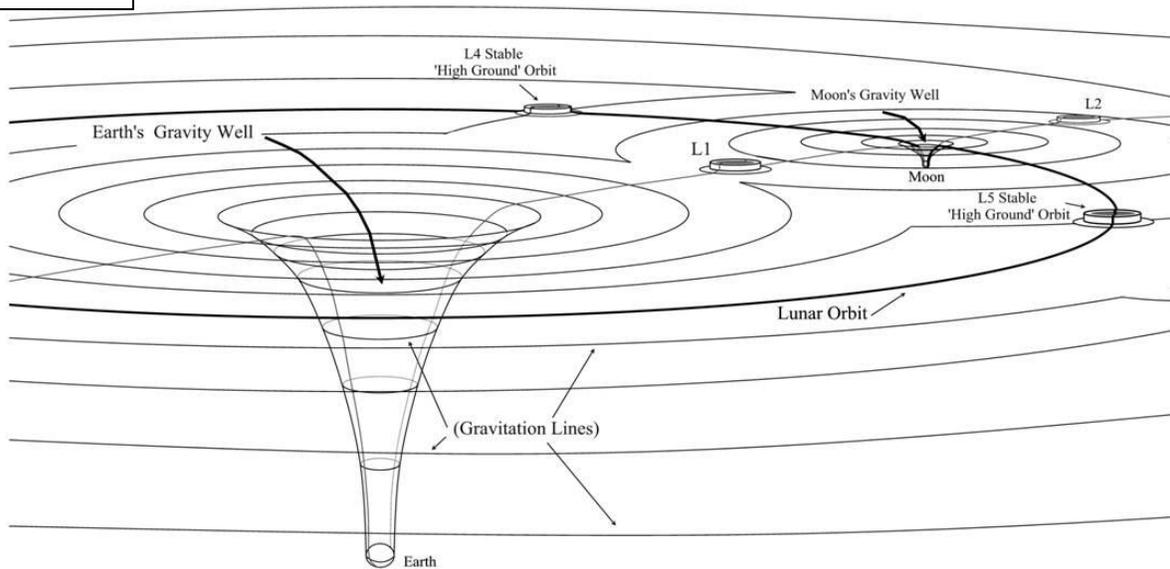
The first truly *global* geostrategist, Sir Halford Mackinder, described a cyclical clash of land and sea powers through history, a view that coincides with other prominent theories of recurring rivalries such as the interplay of offensive or defensive technologies or capacities for maneuver or mass that tend to dominate the battle space in a given era. Sea power, Mackinder argued, in ascendance with the development of reliable ocean-going shipping after 1500, was by the beginning of the twentieth century ceding maneuver dominance to mass-force land power as the technology of the railroad created relatively fast and inexpensive internal lines of supply and communication.

As technology developed, the details of geostrategic theory morphed toward actionable decisions, but the essential logic persisted. Control the most vital locations and lines of communication (LOC) if possible, deny those advantages to an opponent. Similar arguments were made for air and missile power, and are currently in vogue for space power.

When space is perceived as terrain, it can be mapped and studied geopolitically (see figure 2). Gravitational isobars are analogous to elevation lines, and both high-ground and lines of

communication stand out. The key feature for understanding the importance of LEO is its dominant position near the top of the earth's gravity well.

Figure 2.



Earth-Moon (Cislunar) Space Showing Gravitational Terrain

A satellite in stable LEO circles the earth every 90 minutes, and does so without any expenditure of fuel. A network of about 300 interconnected satellites armed with kinetic or directed energy weapons could provide continuous coverage of the earth and, according to scaled back Strategic Defense Initiative estimates from the late 1980s, could engage 100 simultaneous missile launches from anywhere on the earth. While this does not protect against a massive attack from a major nuclear power, it does give some defense against the most *likely* nuclear missile events—an accidental launch, a terrorist or rogue state launch, the so-called mad boat captain scenario, or a limited strike by third party states (e.g. India vs. Pakistan or Israel vs. Iran). A network of just three laser or other directed energy satellites in geostationary orbit (24,000 miles above the earth) would provide near-instantaneous coverage of 70 percent of the earth's surface.

The advantageous position atop the gravity well is extraordinary. Satellites there are travelling at hyper-velocity, about 17,500 mph, making them extremely fleeting and difficult to target from the bottom of the well, that is, from the surface of the earth. The velocity of even a tiny projectile hitting the earth at this speed magnifies the damage potential. A non-explosive heat-shielded metal rod could penetrate several meters of hardened concrete, for example. A needle-sized projectile travelling at this speed would smash a missile lumbering up from the bottom of the gravity well to bits.

If one state (or entity) could quickly saturate LEO with several dozen micro-satellites, each with a complement of small, hyper-velocity kinetic rods, it could dictate the terms of entry into outer space. Such satellites would be too small to detect from the earth (the optical distortion of looking from a more-dense to a less-dense medium obfuscates all but the largest satellites; think of the difference in clarity between looking into a swimming pool from the atmosphere and looking out at the atmosphere from underwater) and could begin operations by clearing LEO of all adversary satellites. Any state attempting to repopulate LEO would have to take the risk of having its space launch vehicle (SLV) destroyed in the boost phase, at terrific expense. ASAT missiles or SLVs launched from the earth have easily detected heat signatures, and would be readily engaged *before* they could reach LEO.

Indeed, space is the *only* location that would allow a state intent on preventing opposing weapons from reaching space to do so comprehensively and efficiently. Ground-based interceptors engage in the unpowered mid-course, where they are vulnerable to decoys and other counter-targeting deceptions, or worse, in the re-entry phase. Moreover, such systems must be placed along expected lines of approach (they are not adaptive), and are vulnerable to conventional and terrorist attacks. Sea and air-launched anti-satellite weapons can engage SLVs in the boost phase *if* they are already operating close to a launch point at the time of attack. Destroying an enemy's rockets and missiles in the boost phase has many additional advantages, to include ensuring that any debris caused by the engagement falls onto the launching state. Doing so effectively, over the entirety of the earth's surface, is a capacity best based *in* space.

The Essential Logic of Strategy:

Military matters are necessarily subordinate to political objectives, as the underlying logic of war is exogenous to them. Left to its own grisly calculations of destruction and casualties, the military objective is always geared toward victory. The most efficient means for winning are best; and when victory is assured then war *ought* to follow. If I can win, then I should fight. This is what Clausewitz meant when he said that war has its own grammar, but not its own logic. Sometimes, he insisted, it is necessary to fight in the sure knowledge that one will lose. For Clausewitz, only politics could determine the *rightness* of the fight, the meaning of the *good* fight.

As military power is of concern here, definitions are required that fit within the broader schema of geopolitical and realist theory. Definitions that are merely descriptive of military power, what constitutes military power (utility), or that attempt to convey all the potential uses of military power (value) are insufficient. To limit its scope, to bound and separate it from the other forms of power, and to avoid entangling a confounding logic separate from that given by the higher political authority, the definition of *military* power is derived from its purpose: *To prepare for, and, at the discretion of the governing political authority, to maximize violence within the constraints placed upon it by that governing authority.*

The purpose of military power is not to achieve or become, it is *to prepare*, and if called upon, *to do*. Its logic is external; its function unending. The military organizes, trains, and equips its forces to carry out maximum violence in any situation for which it may be faced. To the extent the military is visible, strong, healthy, and *controlled*, the state may use the threat of force as either a deterrent or an active defense. This requires the military strategist to plan for a variety of contingencies, but does not provide any role beyond an advisory one in the decision to go to war or how best to prosecute war once it is underway. Note that purpose is specifically *to prepare* for war, and to make war when ordered. It is not to fight war, certainly not to *win* war, for that would mean any time the military is not actively engaged in war it is not fulfilling its purpose. Military strategy would then have to concern itself with ensuring perpetual war to fulfill its aims. Moreover, that which defines winning is determined by the political authority. It

is measured in political results, and these are rarely simple calculations of cost-utility benefits or grisly summations of casualties and budget expenditures.

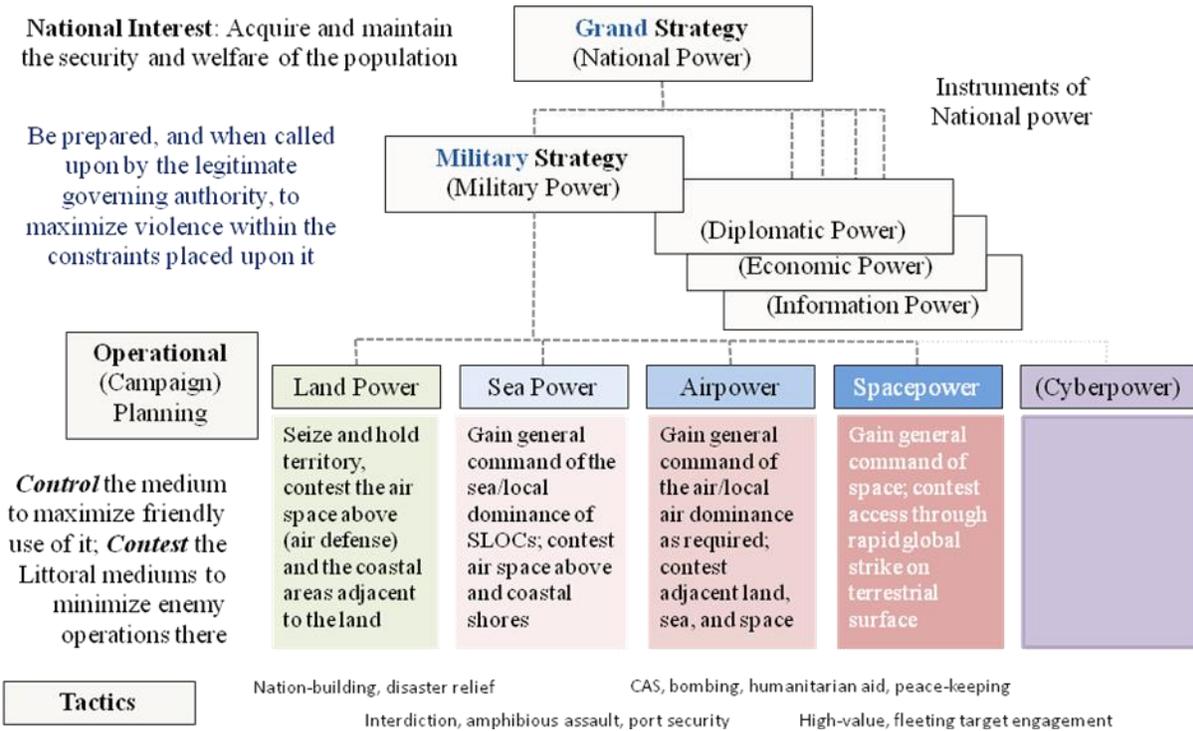


Figure 3: Strategy-Operations-Tactics

Preparing for war, and not necessarily going to war, enhances the influence of other state capacities. Diplomatic power, for example, has more options—certainly more leverage—when the state is militarily secure. In the modern era, *deterrence*, the threat of unacceptable retaliation should another state attempt to act against one’s national interests, is conveyed explicitly by diplomatic and informational interchange and tacitly by extant military power.

Thus, *the military strategist must discard any notion of victory, for strategy is not about winning*. The effective strategist must *learn to think differently*. Indeed, it may be impossible to think both as a strategist and a tactician at the same moment. Tactical thinking is concerned

with individual *actions and decisions*; strategic thinking with aggregate *interactions and conditions*. Any socio-political dispute in which a beginning or end *can* be discerned, and a culmination of events (an end-state or condition) is desired, is not strategy.

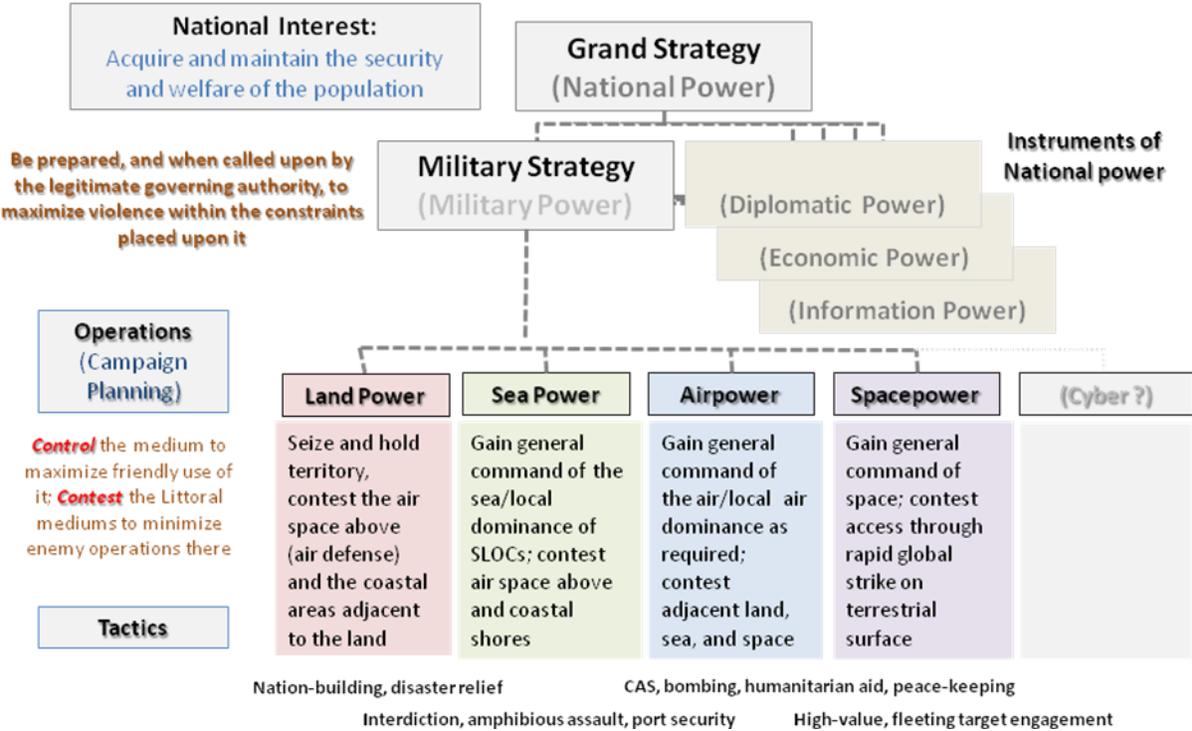
Strategy links policy and military power; it connects the *conduct* of war with the *intent* of politics. Therefore, strategy is not about matching means to ends; it is about shaping and guiding means for an array of possible coming conditions. In previous works, I have used this essential rationale to define strategy concisely—*strategy is a plan for continuing advantage*.

Again, the purpose of strategy is not to culminate events, to establish finality in the discourse between states, but to influence states' discourse in such a manner that it goes forward on favorable terms—for continue it will. One can no more have a meaningful strategy for winning than one can win strategy. On the contrary, the acme of tactical skill *is* victory, to cut off all options for the opponent except surrender or die. Tactical thinking is therefore not the complement of strategy, but it's opposite. Strategy and tactics form a dialectical whole. Strategy is about *increasing* options—for *all* parties. When a strategist perceives a situation in which there are no options, he or she is not thinking like a strategist. For the strategist, there is *always* another option.

This notion of military strategy fits well with the broad concept of grand or national strategy. The *purpose* of the state, in this schema, the reason for which it exists, is to defend the security interests of its constituting population and to promote the general welfare. Broadly construed, the state maintains a monopoly on the legitimate use of force both internally (via police) and externally (through military power) as deemed necessary. No matter what the extent of security provided or general welfare achieved, the state cannot declare victory (or success) and move on to other matters. These are *continuing* requirements.

Figure 4.

Purpose of Military Power



To provide these benefits, the state has a variety of means at its disposal. In foreign relations these typically include military, diplomatic, economic, and informational options. Each has, or should have, an independent yet complementary strategy that provides continuing advantage to the state. As this essay is centered upon force, and the issue at hand is war, I will return to the *purpose* of the military to make the case. Indeed, if my argument above is correct, for the military to use force *to do* anything specific would be an exercise in tactical thinking—albeit at the grandest scales. To be ready and willing to use force *no matter what ends* are exogenously provided by the state requires the focus of military strategy to be on the organization, training, and equipping of its units for whatever contingencies arise.

Each of the other means available to the state for systemic interaction, the diplomatic, economic, and informational, should have equivalent strategies that support the logic or aims

provided to them by the political authority. It is to the advantage of each to reciprocally understand and coordinate with military capabilities, but it is also necessary that each provide the state with unique options for use in any given situation—even (perhaps especially) when the best option is to forego that use. It is not *proper*, however, for one means to perform the function of another means, or to guide that other means as a subordinate. To the extent that the military runs diplomatic or economic strategy, all are diminished in potential, even though in various circumstances it is recognized that only one or a few means are available for use. What actually *does* limit or enable actions in the real world should not determine what roles and responsibilities *ought* to be.

The definition clearly separates legitimate military activity from domestic or internal legitimate violence, a capacity that belongs to the police power of the state. The dialectical way of thinking applies here, too. Police and military power are logically opposed. It is the purpose of the state police to *minimize* violence in a given area or context, even if doing so requires an exercise of violence or force. This is more aptly termed *management* of violence. Striking a balance, using military forces for both war-making and peace-keeping, ensures that neither mission will be done *well*.

The *proper* use of military force eschews such core capacities as crisis stability, nation-building, forced democratization or market building, those activities suited to large scale policing and territorial occupation. Indeed, a study of history affirms that military units that are organized, trained, and equipped as long-term occupation forces or, worse, are incorporated as routine components of an internal police power, fare poorly in war.

Within military strategy are *operational* categories of violence or force that are separated by domain. This is more than an economizing or efficiency categorization of force. It is recognition that strategies for each realm are *unique* and have individual requirements for tactical proficiency. It is also the operational concept that links the logic of strategy with the grammar of tactics.

Military strategists understand the requirements of organizing, training, and equipping for war. As such, they prepare force structures and establish an overall plan for continuing health and proficiency. As a function of this organizing practice, it is useful to divide the domains of war into land, sea, and air for the purpose of assigning service authority (to the army, navy, and air forces, respectively). Today space is widely recognized as a separate domain, and some state militaries have separate services for it—Russian Rocket Forces, for example. To the extent that these domains are merely delineations of organizational convenience, it is thought that strategy applies equally across all even though tactical expertise may be quite diverse in different realms. As such, how forces are divided is merely a preference, subordinate to an overall theory of war. In order to have a separate and meaningful strategy for each domain, their unique purposes must be discerned. To have a strategy for space, that is, a theory of space war, it is necessary to distinguish the unique military roles and missions of the space domain. If there is nothing unique, then a distinction does not add value.

Moreover, the distinct realms or domains of land, sea, air, and space (and perhaps cyberspace) need to be more than physically and conceptually separable, they must be of complementary value—otherwise they should be subordinate to another domain—nested within the proper role of military power. When two (or more) domains are assigned to a single service, an inherent assumption is that activities in one domain are subordinate to and intended for support of the other. When a new domain is opened for military use, it is common to assign responsibility for that domain to another service, as a steward for a future service not yet fully mature.

Typically, domains are separable by physical characteristics or platform operations. In the former case, ground territory is the domain of land power, oceans and waterways define sea power, and the aerodynamic properties of the skies or orbital characteristics of the heavens define air and space power. In the latter, if it walks or moves on the earth it is land power and properly under the control of the army; if it floats or operates in the water it is the navy's responsibility; and if it flies through the air or space it is—for the US—properly controlled by the air force. This causes problematic overlap when assigning domain responsibility, however.

Can the navy use aircraft to patrol the oceans? To whom should a submarine-launched ballistic missile, that begins in the ocean but travels through the air and space and targets a city on the earth, be owned and operated? Does the source or origination define the authority in the submarine case (sea power), or should the target be the discriminator (land power)? Taken to an extreme, all sea, air, and space operations begin on the land; should navies and air-space forces exclusively engage in support activities for the army? This, too, creates more problems than it solves. If I discriminate by target, am I conducting economic warfare when I destroy a factory, regardless of the means? If I bomb a school with an airplane, am I conducting educational warfare? That is absurd. Fortunately, the model for power discrimination has already been defined; as with military force as a means of state power, domain authority is best understood as a function of *purpose*. When defined this way, the conundrums above disappear.

The *military* purpose of land power is to take and hold territory. This is understood as *control*, and is the mission properly assigned to armies. The *military* purpose of sea power is to control the sea. Navies do this. The *military* purpose of air power is to control the air. Likewise, the *military* purpose of space power is (or ought to be) to control space. In classic geopolitical terms, *if control cannot be achieved or sustained, then it is vital that control cannot be achieved or sustained by an adversary*. This is called *contestation*. Land forces should thus be organized, trained, and equipped to control and contest the ground; naval forces the seas; air forces the sky; and, critically, if space is a separate war fighting domain, then space forces must be prepared and capable of controlling and contesting space.

Control provides the capacity to *use* the domain to create effects. In other words, what one *does* with land, sea, air, or space power is entirely dependent on the capacity to operate from or through the land, sea, air, or space. In the air power case, the capacity to bomb, move supplies, or do observation with aircraft requires that one can get into the air and then to the target. Just as with military power, however, gaining control so that the domain can be used does not necessarily mean constant or pervasive application of military force throughout the domain. In an *uncontested* environment, access is based entirely on the capacity to get and use the resources necessary to move from one point to another and the extent to which legal rules

that de-conflict operating in congested areas (e.g. airport flight control regimes) are followed. However, the continuing presence of an uncontested domain has historically been due to the existence of a military or police capacity held in reserve to ensure that rules compliance is obeyed, and that unauthorized inhibiting of movement through the domain is punished. This is the current case for the global sea and air commons. It is primarily the US Navy that ensures the currently recognized extension of national sovereignty into the oceans is not exceeded (as with its actions in the Gulf of Sidra viz Libya), or that vital narrows in sea lanes of commerce are not blocked (e.g., the Straits of Hormuz), and that non-state criminal activity is prevented or punished (such as the current efforts against Somali pirates in the Indian Ocean). Without the ability to apply force *on* and *in* the seas, however, to board and inspect suspicious or rules-defying vessels, to escort and defend innocent passage, and more, the US Navy cannot defend or deter on the seas without violating other states' sovereignty or relying on non-naval assets for deterrence and punishment.

For these reasons, an army or land force is required to gain military control and then make use of territory in a contested environment. This is the much vaunted concept of the need for boots on the ground. To the extent that territorial control is needed, boots on the ground (or wheels, tracks, etc.) are compulsory. To the extent that air control is desired over enemy territory in order to bomb targets there, boots on the enemy ground may be immaterial. Let's call this the wings in the air dictum, and make another one for hulls in the water. To *use* the domain, one must be *able* to operate in the domain.

In space, no state has yet attempted to gain general control, and nations capable of operating in space have for the most part done so only with legal or treaty obligations. This is the model that air followed in its initial development (and probably sea access, at some time in prehistory). Until World War I, contestation of the air did not occur. Unfettered access was a function of desire, technology, aerodynamics, weather, law, and money. Such is the case with space today. No state has yet acted militarily to contest any *other* state's use of space (that we know of; unless one counts electromagnetic jamming efforts). The geostationary belt is regulated and various rules exist limiting the placement of weapons of mass destruction in

space (specified as nuclear, chemical, biological, or radiological), registration and liability rules have been crafted and generally accepted, and the effects available from spacecraft and the use of space are generally available to all—and yet the exploitation of space is suboptimal. No US Navy equivalent is lurking ready to ensure that rogue states *cannot* extend their sovereign territory beyond generally accepted limits of air-powered flight, or to stop illegal activities if and when they occur. Military and civilian activities occur that create debris and other navigational hazards, yet there is no equivalent of a mine-sweeper to clear out unwanted detritus. And if some state or organization should desire to contest or control space, denying the fruits thereof to another state, there is simply no *defense* against such an action—there is only deterrence through the threat of asymmetric retaliation.

And here is the immorality of the no-weapons-in-space position. If an attack on American satellites does occur, the only military response available to decision-makers is an attack on terrestrial targets. Better to have war on earth, where people live, than to sully the heavens with the threat of violence.

Contestation is the ability to block or deny *access* to a domain. Critically, contestation does not give the capacity to *use* a domain; it only inhibits. This is why, to a military strategist, control is a vital concept. Control may be general or limited to specific times and places, but without the ability to get *into* the domain and operate there, she or he cannot *use* the domain to create effects. And this is a universal tenet. For every military domain, *control is possible only from within the domain*. This is obvious when the domain is contested, but also must be exercised in an uncontested domain when illegal or harmful activities are occurring there.

An extension of the need to control a domain (to be able to use it) is the understanding that to *maintain* control a military planner must be able to contest the littoral or peripheral areas of those domains that are adjacent to it. The land force that is occupying or controlling territory will not be able to maximize use of the domain if the air space above it is uncontested. The land force must block access to opposing air forces, or accept the free light of enemy aircraft over its positions. The latter may be a necessity, if the means to contest the air are not available, but is an undesirable operational condition. For this reason, land forces generally have anti-air

artillery and missiles. Land forces also properly construct coastal defenses to prevent sea-borne attacks and invasion. Since the purpose of these actions is to contest the littorals of the land domain, they are properly assigned to and integrated into army operations and doctrine. For their part, navies maintain land forces—marines and shore police—to contest beaches, board and seize vessels, and protect ports. Navies also have significant anti-air capabilities on their ships, and maintain fleets of aircraft to contest anti-shipping efforts of opponents. Air forces must secure bases as well, and contest the anti-air efforts of armies and navies. Space forces likewise *should* have the capacity to deny ground, sea, and air based anti-space activities *from* space.

There may be some instances where a state does not need or desire domain control or contestation. A land-locked state may see no need to develop a naval force for sea control, and likely will not acquire specialized sea contestation capability. Most states will attempt to acquire air contestation capabilities, such as advanced surface-to-air missiles, but many will not be able to afford air control assets. Their military strategies will develop with an understanding that effects delivered from or through the air, such as close air support or aerial resupply, are not option. Moreover, military plans will be designed to operate *despite* persistent enemy air presence; that is, with the deleterious effects of uninhibited enemy activities in the air domain factored in.

If space is a military domain, and I am convinced that it is, then it should follow this logic. A state that relies on military support from space—the effects it achieves from having assets in space—must plan to gain at least limited control of space in times of conflict. And, as is obvious from the description of analogous domains above, *control is possible only from within the domain*. If the state is *unwilling* to put weapons into space, then it cannot hope to *ensure* effects from space when another state attempts to contest its position. Its logical recourse is to wean itself quickly from space support, enhancement, and enablement, and move to a pre-space military force structure. It must then stop wasting procurement money, production, and personnel on military space. If it is likely the military will fight without space support, then it should train to do so. The most efficient military in a space-denied environment will be the one

that does not require the use of space at all. Of course, if a military force is proficient in fighting without space, why should it spend scarce resources to organize, train, and equip itself to fight any other way? It is the height of folly for a commander to rely on a capacity that may or may not be available when needed. With military power preparing to fight without space, government funding for continuing military space support will be scaled back, and ultimately cut. Without a military presence to protect fragile space assets and ensure treaty compliance in space, along with drastic reductions in space industry as military contracts end, commercial space development will be drastically curtailed. It would be absolutely prudent to develop ground, sea, and air-based anti-space weapons, so that an opponent cannot use space freely against it, but to waste capital and effort on a nice-to-have capacity in space that is not needed to conduct operations on the earth would be ludicrous.

Following this logic, denying oneself the capacity to put military force in space is tantamount to giving up on the military (and probably civil) *value* of space. Lao Tsu's jar is broken.

With the purpose of domain operations defined, the proper role of the tactical use of military force is discernible—with serious implications for the militarization of space. Any activity that contributes to the essential mission, preparing to control or contest the domain within the limits assigned by the political authority, and doing so when called upon, is appropriate.

Although the US military is *willing* to take on any mission the political authority assigns it, and will do its best to carry that mission out, many roles are simply inappropriate for its purpose. They do not add value. Specifically, American military force is currently engaged in occupation duties around the globe that are more properly diplomatic or policing than war fighting.

The primary issue here is that diplomatic and police authorities have a different focus of effort; their purposes are to *minimize* or *manage* violence. When military personnel become good at occupying foreign lands, rooting out crime, building political institutions, and sponsoring markets, they are not increasing the skills needed to survive and prevail in the battlespace. This is not to say that all non-war activities are improper. Many of the functions necessary to war proficiency *are* simulated in non-war activities. Delivering humanitarian aid, for example, in a hurricane or earthquake ravaged terrain is excellent training for moving logistics into restricted

access or contested territories in times of conflict. In many crisis situations, legitimate governing authority is unable to deliver goods because of lawlessness and threats to civilian personnel. In these situations, military forces carry an implicit threat of violence should bandits try to disrupt distribution activities.

As an *ad hoc* or temporary crisis response, all such activities have merit. They increase the capacity of civilian authorities to care for distressed populations, and they add valuable real-world training opportunities for legitimate military support functions. Serious problems emerge when these activities become routine, however.

For example, long duration support and logistics activities become ensconced over time as scheduled military functions, and drain away personnel and support that should be conserved for military operations. This increases the size of the military in terms of personnel and budget, and to the extent these actions become permanent (or at least long-term fixed requirements) they detract from the war fighting capacity of the services as these assets are not retrievable and mobile should another conflict occur.

Also, the perception of the US military as an occupying and imperial force grows the longer it is engaged in even humanitarian operations in a given locale. Americans generally believe their military is helping the people in Iraq, Afghanistan, and elsewhere, and I like to think that is the intent. Nonetheless, I can certainly understand that Afghani or Iraqi citizens would be suspicious of America ever returning control of their country after more than eight years (and counting) of significant presence.

The preceding is based on the notion that military occupation is not going well, thus its continuance is needed. This is a rather perverse military notion; perpetually reinforcing failure. It is the equivalent logic of the excesses of attrition warfare in WW I, or the body count mentality that extended America's military involvement in Vietnam. It is the sunk cost dilemma. And it is accurate, to the extent the US has adopted a policy of 100 per cent success—victory—in the so-called War on Terror. The refrain that persists is that America cannot leave, for what is the price of failure?

It is just as important to ask the parallel question, what is the cost of success? Imagine that the US is wildly successful. Five or ten years from now, say, both Iraq and Afghanistan have viable liberal democratic governments with growing economies and friendly attitudes toward America. A few military personnel remain on permanent military bases fairly negotiated and welcomed by the local population. These two states become models for the Muslim world to emulate. What will it do then with this wonderful, state-building military force? Will America move on to the next authoritarian state, North Korea or Iran, perhaps? Why not Venezuela, or Cambodia? Name the state where corruption or oppression exists, the US military can fix it.

What if, in light of its extraordinary capacity to minimize violence, restore order, build governing institutions and markets, and establish popular governance, a few Americans start disagreeing with their own government's policies? Imagine a disastrous natural event, an epoch-defining earthquake in the Mississippi basin, perhaps. Add in an economic downturn that pushes unemployment above twenty percent and an irresponsible or bumbling president and congress. No military professional today would answer the call for a military coup—but would the veterans of successful state-building in Iraq and Afghanistan be able to avoid helping their fellow citizens if they came begging for aid?

It is a slippery slope, to be sure, and not a danger that looms on the event horizon. But it crystallizes the propriety of use to which America's military is being put today, and the preference that many anti-weaponization proponents have for a conventional response on earth for an attack on assets in space. It suggests a value for placing weapons in space that goes beyond military logic, and confronts the moral high ground claims of those who would avoid weaponizing space in all cases.

The fiduciary and social costs to weaponize space effectively will be immense. These are necessary costs if America, or any other state, is determined to have a military force structure that relies on space support and enablement to operate as it does now, increasingly so for the future. And it *will* have benefits for the military that may not be readily apparent; for where will the money come for this space weapons capacity? It will not come from school budgets or foreign aid programs. It will not come at the expense of health care reform or corporate

bailouts. It will come from existing or planned military budgets, from the capacity of conventional military capabilities on the land and sea and in the air. There will be fewer aircraft carriers and high dollar aircraft fighters and bombers. If space weapons capable of targeting the earth are deployed, relatively slow moving ships and aircraft will be conceptually obsolete, instantly vulnerable to them. As money is scrounged for space lasers and exotic kinetic kill satellites, the systems these space weapons make defenseless will be scrapped. More funding will come from current ballistic and anti-ballistic missile development and deployment, as *global* ballistic missile defense from space is more cost and practically effective than comprehensive ground or sea-based systems. And most importantly, it will come from personnel reductions, from ground troops currently occupying foreign territory. In this way, America will retain its ability to use force to influence states around the world, but it will atrophy the capacity to occupy their territory and threaten their sovereignty directly. The era of US hegemony will be extended, but the possibility of US global empire will be reduced.

Maybe. The future is not determined or even determinable. I have argued elsewhere the practicality of controlling space. I will not add to that argument here. I have also pointed out that the theory that animates these conclusions is precise and well-developed, but the real world is too complex to mirror theory. The political will necessary to weaponize space and follow up with a regime capable of ensuring commercial and cooperative development of space is not yet evident, and such a pure *astropolitik* vision is not currently viable. But support for the common or collective good that could come from a properly weaponized space force may change that. There are some potential missions for space weapons that do not detract from their primary purpose but complement the goal of space control that may justify its expense. The desire to clean up debris from high traffic orbits could theoretically be done by nuclear-powered space-based lasers—good target practice for their operators. Assured access to space provided by a robust space control force could pave the way for clean, permanent nuclear and toxic waste disposal, as such items currently stored on earth could be sent into the sun. These scenarios are more likely with the monitoring and protection provided by a space-based military or police power.

It is an even more difficult dilemma for those who oppose weapons in general, and space weapons in particular. Ramifications for the most critical *current* function of the Army, Navy, and Marines—pacification, occupation, and control of foreign territory—are profound. With the downsizing of traditional weapons to accommodate heightened space expenditures, the ability to do all three would wane significantly. At a time when many are calling for *increased* capability to pacify and police foreign lands, in light of the continuing commitments to the occupation and stabilization of Afghanistan and Iraq, space weapons proponents must advocate *reduction* of these capabilities in favor of a system that will have no *direct* potential to do so.

Hence, the argument that the unilateral deployment of space weapons will precipitate a disastrous arms race is further eroded. To be sure, space weapons are offensive by their very nature. They deter violence by the omnipresent threat of precise, measured, and unstoppable retaliation. But they offer no advantage in the mission of territorial occupation. As such, they are far less intimidating to the international environment than any combination of conventional weapons employed in their stead. What would be more threatening to a state in opposition to American hegemony: a dozen lasers in space with pinpoint accuracy, or (for about the same price) a dozen low-tech infantry divisions massed on its border? A state employing offensive deterrence through space weapons can punish a transgressor state, but it is in a poor position to challenge that state's sovereignty. A transgressor state is less likely to succumb to the security dilemma if it perceives that its national survival is not at risk. Over time, the world of sovereign states may recognize that the United States could not and would not use space weapons to threaten another country's internal self-determination. The United States would still maintain the capacity to challenge any attempts to directly intervene in the politics of others, and it would have severely restricted its own capacity to do so. Judicious and non-arbitrary use of a weaponized space eventually could be seen as a net positive, an effective global police force that punishes criminal acts but does not threaten to engage in an imperial manner.

Hegemony and Stability:

Almost 2,500 years ago, Thucydides foresaw the inevitability of a disastrous Peloponnesian war due to “the rising power of Athens and the fear it caused in Sparta.” Indeed, whenever an extant international order is challenged by a rising power, the dominant power in the system is obligated to respond. Such conditions are relatively rare in history, but when they occur, the resulting war is not for minor spoils or border modifications, but for leadership of a new world order. It is a great war, a *hegemonic war*.

This is the context in which the world now exists. The relatively stable global hegemony of US dominance since 1945, punctuated by limited wars and shifting balances of opposition, has relied on technology-dominant global power projection. Today, that technology is wholly integrated and inextricable from space support, and no state relies more on space power for its economic and security well-being than the US. Any effort to deny space capabilities would be a direct challenge to its hegemonic power, and the United States must confront the usurper or abdicate its leadership position.

To be sure, China’s increasing space emphasis and its cultural antipathy to military transparency suggests that a serious attempt at seizing control of space is in the works. A lingering fear is the sudden introduction of an unknown capability (call it Technology X) that would allow a hostile state to place multiple weapons into orbit quickly and cheaply. The advantages gained from controlling the high ground of space would accrue to it as surely as to any other state, and the concomitant loss of military power from the denial of space to America’s already-dependent military forces could cause the immediate demise of the extant international system. The longer the United States dithers on its military responsibilities, the more likely a potential opponent could seize low-earth orbit before America is *able* to respond.

And in such circumstances, the US certainly would respond. Conversely, if America were to weaponize space, it is not at all sure that any other state or group of states would find it rational to counter in kind. The entry cost to provide the necessary infrastructure is still too high—hundreds of billions of dollars, at minimum. The years of investment needed to achieve a

comparable counter-force capability—essentially from scratch—would provide more than ample time for the United States to entrench itself in space and readily counter preliminary efforts to displace it. The tremendous effort in time and resources would be worse than wasted. Most states, if not all, would opt not to counter US deployments *directly*. They might oppose American interests with asymmetric balancing, depending on how aggressively it uses its new power, but the likelihood of a hemorrhaging arms race in space should the United States deploy weapons first—at least for the next few years—is remote.

This reasoning does not dispute the fact that US deployment of weapons in outer space would represent the addition of a potent new military capacity, one that would assist in extending the current period of American hegemony well into the future. Clearly this would be intimidating, and America must expect severe condemnation and increased competition in peripheral areas. But such an outcome is less threatening than another, particularly non-liberal authoritarian state doing so, as the necessity of a response in kind is compelling.

Placement of weapons in space by the United States would be perceived correctly as an attempt at continuing American hegemony. Although there is obvious opposition to the current international balance of power, the majority of states seem to regard it as at least tolerable. A continuation of the status quo is thus minimally acceptable, even to states working toward its demise. As long as the United States does not employ its power arbitrarily, the situation would be bearable initially and grudgingly accepted over time.

Mirror-imaging does not apply here. An attempt by China to dominate space would be part of an effort to break the land-sea-air dominance of the United States in preparation for a new international order. Such an action would challenge the status quo, rather than seek to perpetuate it. This would be disconcerting to nations that accept, no matter how grudgingly, the current international order—including the venerable institutions of trade, finance, and law that operate within it—and intolerable to the United States. As leader of the current system, the United States could do no less than engage in a perhaps ruinous space arms race, save graciously decide to step aside and accept a diminished world status.

Seizing the initiative and securing low-Earth orbit now, while the United States is dominant in space infrastructure, would do much to stabilize the international system and prevent an arms race in space. The enhanced ability to deny any attempt by another nation to place military assets in space and to readily engage and destroy terrestrial anti-satellite capacity would make the possibility of large-scale space war or military space races *less* likely, not more. Why would a state expend the effort to compete in space with a superpower that has the extraordinary advantage of holding securely the highest ground at the top of the gravity well? So long as the controlling state demonstrates a capacity and a will to use force to defend its position, in effect expending a small amount of violence as needed to prevent a greater conflagration in the future, the likelihood of a future war *in* space is remote.

Moreover, if the United States were willing to deploy and use a military space force that maintained effective control of space, and did so in a way that was perceived as tough, non-arbitrary, and efficient, such an action would serve to discourage competing states from fielding opposing systems. It could also set the stage for a new space regime, one that encourages space commerce and development. Should the United States use its advantage to police the heavens and allow unhindered peaceful use of space by any and all nations for economic and scientific development, over time its control of LEO could be viewed as a global public good. In much the same way the British maintained control of the high seas in the nineteenth century, enforcing international norms of innocent passage and property rights, and against slavery, the US could prepare outer space for a long-overdue burst of economic expansion.

There is reasonable historic support for the notion that the most peaceful and prosperous periods in modern history coincide with the appearance of a strong, liberal hegemony. America has been essentially unchallenged in its naval dominance over the last 60 years and in global air supremacy for the last 15 or more. Today, there is more international commerce on the oceans and in the air than ever. Ships and aircraft of all nations worry more about running into bad weather than about being commandeered by a military vessel or set upon by pirates. Search and rescue is a far more common task for the Navy than forced embargo, and the transfer of

humanitarian aid is a regular mission. The legacy of American military domination of the sea and air has been positive, and the same should be expected for space.

Conclusions:

There is little reason to believe the United States will forego the capacity to influence decisions and events beyond its borders, with military force if necessary. Whether that capacity comes from space as well as the other military domains is undetermined. But, the operational deployment of space weapons would increase that capacity by providing for nearly instantaneous force projection worldwide. This force would be precise, unstoppable, and deadly. At the same time, the United States would forgo some of its ability to intervene directly *in* other states because the necessary budget tradeoffs would diminish its capacity to do so. A space-heavy American military would structurally limit potential American imperial ambitions while simultaneously extending its global leadership role. The need to limit collateral damage, the requirement for precision to allay the low volume of fire, and the tremendous cost of space weapons will ensure they are used for high-value, time-sensitive targets. An opposing state's calculation of survival no longer would depend on interpreting whether or not the United States desires to be a good neighbor; whether it will invade and occupy its territory. Without sovereignty at risk, fear of a space-dominant American military will subside. The United States will maintain its position of hegemony as well as its security, and the world will not be threatened by the specter of a future American empire.

Geopolitics is in ascendance because it provides practical guidance to those who perceive the world in realist terms. The primary tenet of geostrategy is simple. In order to dominate the battlespace, it is necessary to control the most vital positions. If the most vital positions cannot be controlled, then they must be contested. The opponent cannot have uninhibited access to them. This simple dictum, known by every strategist and tactician but articulated so clearly by Mackinder, is the essence of the geostrategist's logic. Control is desirable, contestation is imperative. This dictum applies to every medium and theater of war.