

"The Vanishing Horizon: Will The Asymmetric Battlefield Make Space-Based Weapons a Reality?"

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"How strange. . . that this secret sanctuary should be forsaken by one who had found in it such happiness! For indeed less than an hour later, they halted breathlessly at a curve of the track and saw the last of Shangri-La."²

I. Introduction

Space has been our modern, threatened "Shangri-La." While eager to compete in a race to the moon, both the United States and the Soviet Union were hesitant to escalate the Cold War arms race to the heavens. Both sides recognized that seeking military advantage by placing weapons into outer space would be costly and could upset the delicate system of mutual nuclear deterrence in place below. Even with the organized exploration and use of space in its infancy, the superpowers joined with other nations to fashion a system of treaties to limit the future military use of space. While tottering, that treaty system largely succeeded in keeping weapons out of orbit and fostered peaceful, state-sponsored exploration and later private commercial activity.

With the demise of the Soviet Union and the easing of nuclear tensions, the old underpinnings of the treaty system governing space has disappeared. And the sole surviving superpower has increasingly found itself faced with new pressures and new enemies in the following decade. In places such as Somalia, Kosovo and Afghanistan, the United States and its allies have faced loosely organized warlords, terrorist organizations and other non-state actors, who employ unconventional or "asymmetric" tactics to negate the inherent advantages of well-equipped conventional armies. At the same time, the brutality of recent conflicts and outcry for a permanent war crimes tribunal has increased the attention paid to the enforcement of the law of armed conflict. To counter these

asymmetric threats while complying with the demands of the law of war, the United States must rely increasingly on technology—specifically space-based technology. Although it has no publicly announced intention to do so, the United States may be enticed to finally field weapons in space to counter the new threats while remaining in the bounds of the law of armed conflict. If this were to happen, the old treaty system governing outer space would not likely prove to be much of a legal obstacle.

Part I of this paper introduces "asymmetric" warfare and explores the problems of fighting modern wars by looking at the American experience in recent conflicts. Part II recounts the demands placed on modern combatants by the international law of armed conflict. Part III examines the potential of space-based weapons to offer advantages on the asymmetric battlefield while satisfying the obligations of the law of war. Finally, Part IV examines how these weapons would fare under the old space law treaty regime.

II. Part I: The Challenge of Modern War

A) What is "Asymmetric Warfare"?

While an increasingly popular concept with defense officials, journalists and other military experts, the term "asymmetry" lacks a definite, widely accepted meaning. In 1999, the Office of the Joint Chiefs of Staff in the Pentagon published the *Joint Strategy Review*. This document defined asymmetric warfare as "attempts to circumvent or undermine US strengths while exploiting US weaknesses using methods that differ significantly from

the United States' expected method of operations . . . Asymmetric approaches often employ innovative, nontraditional tactics, weapons or technologies and can be applied at all levels of warfare- strategic, operational, and tactical- and across the spectrum of military operations."³ However, some observers have commented that the official perception of asymmetry is precisely backwards. They argue that Americans wrongly label foreign threats as "asymmetric" when in fact the United States military is perhaps "the most asymmetric force on earth"; the American military has been wildly successful in exploiting the weaknesses of its enemies through non traditional means of warfare- usually based on superior and innovative technology.⁴

To avoid delving further into this debate and outside the scope of this paper, I will assume that the American way of waging war- exemplified by massed formations of infantry and armor supported by artillery and air power (e.g. Desert Storm)- constitutes the norm (or "conventional" warfare). By contrast, asymmetric warfare encompasses the range of tactics used by an opponent that falls outside of this narrow norm. Recent conflicts such as Somalia, Kosovo, and Afghanistan provide ample illustration of asymmetric warfare in these terms.

B) Characteristics of the Asymmetric Threat

Operation Desert Storm in 1991 demonstrated the futility of trying to match the United States military in kind with conventional forces. The Iraqi Army, the fourth largest in the world at the time, fielded more men and equipment than the German Army fighting in Normandy during the Second World War did.⁵ Despite being outnumbered, the Americans with their coalition partners fought a nearly flawless campaign, liberating Kuwait in less than 100 hours of ground combat fighting. Although outnumbered, the Americans made up for lack of numbers through superior intelligence gathering, communication, and

firepower. Allied forces could quickly identify targets, disseminate that information to their units and bring tremendous fire upon the enemy- all with minimal exposure of their own forces. America's new asymmetric opponents absorbed these lessons of the Persian Gulf War; in subsequent conflicts, these foes have attempted to minimize their exposure to American firepower and instead draw these conventional forces into combat on their own terms.

New enemies have presented as small a target as possible. Small groups have the advantage of being extremely hard to identify and harder still to pinpoint or track for targeting. On the other hand, dispersed units are more difficult to command and control. Nevertheless, small units acting with minimal guidance from a central authority have been the recurring pattern for recent asymmetric enemies. In Somalia, UN forces failed to subdue the roving bands of clan militia who disrupted relief efforts and eventually killed 25 UN peacekeepers.⁶ Hence the Americans targeted the Somali warlords, the driving force behind the clans, in hopes of stopping the attacks. During Operation Allied Force (1999), the Yugoslav Army quickly had to adjust their tactics after the NATO air campaign began. Fixed targets such as roads, bridges, and headquarters buildings were quickly destroyed by NATO aircraft. As such, the Yugoslav Army had to widely disperse their remaining units in the field and force them to operate in smaller and smaller groups.⁷ While these units became more difficult to detect and destroy from the air, the effectiveness of their operations was greatly diminished. On the ground, the surviving Yugoslav units proved more susceptible to ambush by the Kosovo Liberation Army (KLA) and less able to carry out their ethnic cleansing mission.⁸

The recent war in Afghanistan presents a mixed picture. With support from American air power and special forces, the opposition Northern Alliance quickly

overpowered the Taliban government and military forces on the ground. While the Taliban armed forces were sequestered into strongholds and forced to either surrender or be killed, al Qaeda fighters operating in small cells quietly slipped away into the mountains of East Afghanistan to continue their fight.⁹

Unconventional warriors make the most of the local environment. The Somali gangs operated in the densely packed urban areas of Mogadishu; this maze of narrow winding streets, run down buildings and back alleys made coordinating the efforts of and transporting mechanized forces very difficult. However, these same passages gave the local militiamen an infinite number of places to hide and shielded their movements from view. The Somalis also used crowds of civilians for concealment.¹⁰ Without uniforms, the Somali gunmen had only to hide their weapons to blend into the crowds of sympathetic locals; western forces would have a hard time distinguishing friend from foe.¹¹ Outside of the cities, the al Qaeda in Afghanistan resorted to the mountains. The al Qaeda cells quickly moved into an elaborate system of caves and tunnels to survive American bombardment, hide from surveillance, and cover up their movements.

Beyond escaping detection and surviving American firepower, an asymmetric opponent will seek to draw conventional forces into close combat. On October 3, 1993, Somali gangs shot down two American UH-60 Blackhawk helicopters.¹² By isolating the surviving crews, they drew an American relief column into their neighborhood and attacked it from the streets and buildings.¹³ Although the American task force eventually rescued some of the aircrews, the Somalis killed 18 US servicemen. With the deaths of those soldiers, the Clinton administration subsequently withdrew all American forces from Somalia. In the Shahikot Valley, al Qaeda fighting from the mountain caves attempted (less successfully) to isolate and

destroy American ground combat troops sent to root them out.¹⁴ By contrast, the Yugoslav Army was never able to draw NATO ground forces into Kosovo and withdraw after a devastating 78-day air campaign.

III. Part II: The Demands of the Law of War

While the tactics of potential enemies have changed, so have the demands placed on the United States by her allies and the international community at large. The devastating regional conflicts of the 1990's prompted a renewed interest in the enforcement of international humanitarian law and the law of armed conflict. Special ad hoc tribunals were convened to root out and punish war criminals and human rights abusers in the former Yugoslavia and Rwanda. After these tribunals began to enjoy relative success, the international community pushed for the creation of a permanent International Criminal Court (ICC) under the Rome Accord of 1998. While cooperating with the Yugoslavia and Rwanda tribunals, the United States balked at participating with the ICC. Nevertheless, in prosecuting the war in Afghanistan, American practices on the battlefield have, of late, come under more pressure and scrutiny from the international community, as evidenced by the outcry over treatment of al Qaeda detainees at Guantanamo Bay, Cuba.

At the same time that renewed international interest in the enforcement of the law of war has created pressure on future combatants, the United States government has created its own internal pressure. A Department of Defense Directive mandates, "[t]he Heads of DoD Components shall . . . [e]nsure that the members of their respective Components comply with the law of war during all armed conflicts, however such conflicts are characterized, and with the principles and spirit of the law of war during all other operations."¹⁵ Thus the Defense Department has circumscribed the range of potential American military activities more

tightly than what the body of treaties and international legal custom require by extending those norms to all operations. Let us examine generally what the law of war requires of a combatant.¹⁶

The customary international law governing the behavior of combatants once involved in combat can be distilled to four principles: military necessity, humanity, proportionality and discrimination.¹⁷ "Military necessity" limits attacks by belligerents to targets which are not otherwise prohibited and which will confer a military advantage if the attack is successful. For example, a belligerent may not burn out a building for no good reason- there must be some military advantage gained by destroying that building (e.g. an enemy observer was in the top floor of that building). Moreover, if the building has some protected status (e.g. a civilian hospital which contains no enemy troops), that building may not be destroyed whatever the military advantage to be gained. The principle of humanity seeks to limit the kind of weapons that can be used to kill or wound an enemy. Certainly, in legitimate combat, seeking to kill or wound an enemy is not against norms of international law. What the "humanity" principle seeks to limit are the methods which would exacerbate an enemy's wounds or suffering beyond the force required to place that enemy out of combat. In various treaties, certain types of weapons which cause unnecessary harm or suffering have been proscribed including expanding bullets, glass and other non-detectable fragments and blinding lasers. The principle of proportionality requires a belligerent to conduct a balancing test relative to the amount of anticipated collateral damage. Specifically, an attack is "proportional" in the legal sense if the loss of life/destruction to property, incidental to goal of the attack, is not excessive in relation to the concrete and direct military advantages gained by the attack.¹⁸ Finally, the principle of discrimination requires belligerents on both the offensive and

defensive to carefully differentiate between combatants and non-combatants as well as between military objectives and protected people/places in launching attack

IV. Part III: The Potential Advantages of Space Based Weapons

Faced with the new pressures of asymmetric threat along with the continuing demands of the law of war, the United States must adapt its strategy to meet the new security demands placed on it. But how? What are the new requirements? Will space based weapons provide the necessary answers?

A) The New Requirements

To defeat an enemy that is tied to no geographic location or particular country but can strike from anywhere, against any target, the United States will need the ability to project force worldwide. In future fights against a stateless enemy, the United States and its allies will not enjoy the luxury of a six-month, Desert Shield-like period in which it can mass conventional forces in relative safety for a strike. While adept at projecting force with land-based and carrier-based aircraft, the American military has had difficulty in getting sufficient conventional forces to far-flung battlefields as evidenced by the Kosovo campaign.¹⁹ In response, the American Army has struggled to reconfigure its force structure to allow for the fielding of lighter, more readily deployable units. If the United States chooses to pursue unilateral, preemptive strikes as mentioned by the Bush administration, the US might not even have the luxury of operating from forward-deployed bases in friendly nations because of increase political tensions. To carry out the wishes of the White House, the US military will need weapons platforms that are capable of global reach without having to operate from the territory or airspace of a third party nation. Once on the battlefield, the American military needs the ability to linger over the area for much greater periods of time. An enemy that operates in small

units/cells and waits passively in hiding also leaves few clues as to its whereabouts and intentions. As such, American intelligence gatherers must be able to focus intently on a suspected target for increased periods of time to detect enemy movement or activity. In Afghanistan, the fielding of unmanned aerial vehicles (UAVs) and use of special forces units to conduct reconnaissance patrols with minimal support underscores the need for a sustained intelligence gathering presence in dealing with the asymmetric enemies. When an enemy position is revealed, the American military needs an extremely responsive weapons platform that can successfully mount an attack during the narrow window of opportunity when these kind of opponents are exposed. During the fighting in Afghanistan, armed UAVs discovered senior al Qaeda and Taliban leaders on the move from one hideout to the next; however, the command and control element of these weapons were not responsive enough to successfully engage these targets before they got away.²⁰ In addition to hunting down the enemy fighters in the open, the American military must have the capability to engage these asymmetric fighters in the places where they hide. The Americans must deny their enemies sanctuary, even if it means being able to shoot into the slum buildings of Mogadishu or penetrate the caves of Eastern Afghanistan. To these ends, the US Air Force continues to refine its precision guided munitions (PGMs) and to experiment with new weapons such as the thermobaric bomb. If enemy cells cannot be identified and engaged, those units must be further isolated. As demonstrated in the Kosovo campaign, small, dispersed units are very difficult to communicate with and control. If the US military can sever communications and coordination between these cells, the units may become ineffective. Finally, all of these tasks need to be accomplished with minimum exposure of US forces and assets. The American military must avoid being drawn into combat if possible on conditions

favorable to an enemy as in Somalia. Not only will American casualties be lower but also, as the al Qaeda terrorists have demonstrated, there is a tremendous psychological value to being able to attack with impunity, to strike without presenting a target for the enemy to strike back at. Perhaps regaining the ability to "shoot without getting shot at" will be so psychologically devastating to an enemy as to deter further asymmetric attacks.

At the same time, any new technology must adhere to established legal standards. New American forces must be able to discriminate between non-combatants and combatants, between military objectives and protected places. New weapons systems must be used in a way so as to minimize collateral damage. Any new weapon must not cause unnecessary harm or suffering to any enemy in its employment.

B) A Tempting Alternative

Despite the daunting nature of added operational requirements for American military forces to successfully counter future asymmetric opponents, space based weapons may offer some solutions. What form would these weapons take? What advantages would these weapons offer? What would be their practical limitations?

1) Star Wars Revisited

Most of the proposed space based weapons systems are not new but instead byproducts of the Cold War era thinking. Typically, these weapons fell into two types of categories: anti-satellite weapons (ASAT) and ground attack weapons (i.e. weapons that could deploy from space to hit a target on the earth's surface or flying through the earth's atmosphere).²¹ The latter type of weapons, originally designed to attack Soviet ICBMs in flight or in their reinforced silos in the ground, would probably have the most direct relationship to the demands of the modern battlefield. Development of lasers as weapons began in the early 1960's and spurred tremendous interest in the

1980's as part of the Strategic Defense Initiative; the basic idea involved trying to destroy a satellite or missile in space with a laser beam fired from the ground. However, the US Air Force has been experimenting with an Airborne Laser System (ABL) as an interim measure in the development of a comprehensive Ballistic Missile Defense System in the 1990's. The ABL program called for a laser to be mounted in a Boeing 747 aircraft and for this laser to track and engage targets (in this case, ballistic missiles) while the 747 was in flight. Conceivably then, a Space Based Laser (SBL) could be placed on a platform in orbit and be able to strike targets on the earth's surface. Another proposed "directed energy weapon" would be a space based particle beam. Rather than using light as a vehicle to transfer energy to a target, a particle beam weapon would transfer energy by giving off a focused flow of accelerated electrons, much like a bolt of lightning. Related to the laser and particle beam, a Radio Frequency weapon (RF) would rely on a power source and large antenna to broadcast tremendous energy within certain bands of the electromagnetic spectrum in order to disrupt radio communications or destroy sensitive communications equipment over a given targeted area. A second general type of space-based weapons consists of kinetic energy weapons (KE). Originally conceived of as a potential ASAT, KE weapons consist of accelerating a projectile to hypervelocity speeds and destroying a target through the kinetic energy released upon collision. In theory, rods made of extremely resistant materials such as depleted uranium could be accelerated to great speeds in space and directed to strike targets on earth. These rods would be gradually worn away by friction upon reentry into the earth's atmosphere; however, enough of the projectile would strike the target with extreme force (and pressure on the lead end of the rod) so as to penetrate deep into the earth or into a hardened bunker. A final general type of space based weapon involves

a vehicle stationed in space, but capable of reentering earth's atmosphere and flying as a conventional aircraft. Such a vehicle could be kept in orbit until needed; when deployed, the vehicle might function in similar fashion to the Predator UAVs operating in Afghanistan- conduct reconnaissance missions, keeping suspected enemy positions under constant surveillance and then engaging enemy target rapidly with conventional missiles when the opportunity arises.

2) The operational advantages of Space Based Weapons

The most readily apparent advantage of placing these systems in orbit is their global reach. With any of these types of weapons in orbit, the United States would have the ability to strike an enemy at any point on the globe without having to buildup a large conventional force or maneuver aircraft into range. Not only could these weapons quickly be in a position ready to fire, but also these weapons, launched from directly above a target, would not have to fly in the airspace of or operate from a third party nation, which might intervene politically to prevent such a strike. The "directed energy" weapons (lasers and particle beam weapons) have the further advantage of being able to strike targets almost instantaneously. Provided that American intelligence could quickly relay targeting information, commanders would be better able to strike an agile enemy moving to and from concealed locations. As with surveillance satellites, individual weapons platforms in geosynchronous orbit could only stay over a given target area for a limited amount of time before moving out of range. A constellation of these types of weapons though could provide some continuous coverage of a particular theater of operations. Considering the reliance of recent opponents on hardened bunkers and caves to provide protection and conceal, the kinetic energy type weapon would be ideal to penetrate these sanctuaries. Furthermore, RF type weapons would be ideal to isolate

asymmetric opponents operating in small cells/groups. A RF weapon which could disrupt or destroy a cells' communications equipment would further exacerbate the problem of communicating with or coordinating the action of these units. Imagine isolated al Qaeda cells or small units of the Yugoslav Army completely cut off from each other and their higher echelons of control; these units would be rendered practically ineffective. Finally, given the current technological and financial disparity between the United States and its potential foes, the United States would regain or increase its ability to strike its foes without warning and with minimal exposure of its own forces. The US would be able to strike from even greater distances with virtual impunity and with no signs of a buildup of conventional forces. Once again, the psychological advantage would revert back to the Americans rather than to their opponents.

These space-based weapons could be operated within the limits of the law of war. To field such weapons requires that they have very precise guidance and fire control systems to ensure extremely accurate firing. In theory such weapons would be more precise than the "smart" bombs used in the Persian Gulf, Kosovo and Afghanistan; the highly accurate nature of these space weapons would make it even easier to destroy only the designated target and thereby further reduce the amount of unintended collateral damage. Unlike more "clumsy" conventional bombs that rely on a high explosive charge and/or metal fragments to destroy a target, most of these space weapons deliver massive amounts of energy directly to a target. Especially with directed energy type weapons, the amount of energy delivered could be altered to merely disable targets (in other words, to achieve a "soft" rather than "hard kill"). For example, a RF weapon could be used to damage communications or navigation equipment. As such, the proponent of these types of weapons can vary and control their level

destructive force and potentially prevent unnecessary suffering. For example, space weapons could be used only to penetrate and expose a bunker; once the target has been "softened" up, the actual attack could be carried out by more conventional weapons such as aircraft or ground troops. Finally, with better surveillance and increased ability to gather intelligence, space weapons may make it easier to discriminate between legitimate targets and protected persons/places. A UAV deployed from space may be able to linger over a suspect area of a city or cave complex, observe the level of activity in that area and make it possible to determine if that activity is the benign or the work of terrorists preparing to launch an attack.

V. Part IV: The Weak Restraint of Space Law

Space based weapons appear to offer some promising solutions to the types of difficulties experienced in recent campaigns. In addition, these weapons arguably fall inside the limits of use prescribed by the law of war. The remaining question to be examined is whether the weapons are proscribed by the system of treaties and customary international law governing outer space.

A) The Limited Test Ban Treaty

Entering into force on October 10, 1963, the Limited Test Ban Treaty²² was the first arms control treaty of the Cold War. In relevant part, Article I of the treaty bound each of the parties, "not to carry out any nuclear weapon test explosion, or any other nuclear explosion, at any place under its jurisdiction or control: (a) in the atmosphere, beyond its limits, including outer space . . ." ²³ Article I goes even further to ban a nuclear explosion in any environment if the explosion causes radioactive debris to be outside the territorial limit of a state party. In light of the types of space based weapons described earlier, the terms of the Limited Test Ban Treaty would not have much of an impact; however, the treaty would prohibit a

category of directed energy weapons that relied on a nuclear explosion for energy. For example, a weapon that could generate an electromagnetic pulse (via a nuclear explosion) and direct that pulse towards a target on earth would be banned under the terms of the treaty. Similarly, a laser that harnessed the energy from a nuclear explosion to direct a beam toward a target on earth would similarly be banned.

B) The Outer Space Treaty

The Outer Space Treaty²⁴, entering into force on October 10, 1967, is the seminal document of space law. Most relevant to this discussion, Article IV of the Outer Space Treaty prohibits state parties from placing nuclear weapons and "any other kind of weapons of mass destruction" in orbit. Article IV also states that the moon and other celestial bodies be used only for "peaceful purposes" and specifically bans all military bases, weapons testing and maneuvers from all celestial bodies. As mentioned previously, space based weapons functioning on a nuclear explosion principle would be banned. But would all types of these weapons be banned as "weapons of mass destruction?" The term "weapons of mass destruction" is never defined in the Outer Space Treaty. However, in 1948, the UN Commission for Conventional Armaments defined weapons of mass destruction as "atomic explosive weapons, radio active material weapons, lethal chemical and biological weapons, and any weapons developed in the future which have characteristics comparable in destructive effect . . ." ²⁵ Under this definition, the aforementioned space based weapons would not qualify as weapons of mass destruction. These new weapons would engage in pinpoint, precision attacks against limited numbers of personnel, equipment or facilities; these weapons would not have the potential for unlimited, indiscriminate attacks producing the large scale of casualties and destruction cause by a nuclear weapon. What about the limitation of activities in space to those of "peaceful

purposes?" Strictly speaking, the treaty only requires that the moon and other celestial bodies be used for peaceful purposes- saying nothing at all about activities on orbit. Even if this requirement were taken to encompass all activities in outer space, the ambiguous nature of the "peaceful purposes" language would defeat any attempt at a meaningful restriction. Looking to subsequent state practice as a guide for determining "peaceful purpose," the signatories of the International Space Station Agreement allowed each member supplying an element of the station "[to] determine whether a contemplated use of that element is for peaceful purposes."²⁶ As such, the state of the law is that the affected nations have simply agreed to let everyone abide by their own definition of peaceful purposes.

C) Other Treaties and Customary International Law

The Anti-Ballistic Missile Treaty²⁷, which entered into force on October 3, 1972, might have severely restricted the types of space based weapons the United States could decide to deploy. Article V of the ABM Treaty committed the US and the successor states to the old Soviet Union not to "develop, test or deploy ABM systems or components which are sea-based, land-based or space-based, or mobile land-based."²⁸ An ABM system under the treaty was a "system to counter strategic ballistic missiles or their elements in flight trajectory..."²⁹ Directed energy or kinetic energy weapons capable of striking a target on earth could in theory also be used to intercept ballistic missiles in flight. This prohibited dual use might have caused a significant legal barrier to the deployment of such weapons. However, on December 14, 2001, the United States announced its intentions to withdraw from the ABM treaty under the provisions of Article XV effective June 2002.³⁰

Lastly, the self defense provisions found in the United Nations Charter and in customary international law would allow for the fielding of space based weapons. Article III of the Outer Space treaty binds state

parties to follow international law, including the United Nations Charter, in all activities in space. While the Charter binds all member states to peacefully settle disputes (Article 2(3)) and to refrain from the threat or use of force (Article 2(4)), the Charter allows for broad exercise of the right of self-defense under Article 51.³¹ Principles of customary international law go even further recognizing a right of anticipatory self-defense under which force could be used under threat of imminent attack.³² Within this umbrella of self-defense measures, the United States could find plenty of latitude to field and operate space-based weapons.

VI. Conclusion: The Vanishing Preserve?

"It came to him that a dream had dissolved, like all too lovely things, at the first touch of reality . . ."³³ As the conflicts of the past decade demonstrate, the United States and its allies face a far different reality than that of the Cold War, a reality fraught with uncertain enemies and vastly different pressures, politically and militarily. If the technological sophistication were achievable, space-based weapons systems would offer an effective means of countering new types of enemies, employing unconventional, asymmetric tactics. Moreover, these weapons could be successfully deployed and utilized within the bounds of the law of war and the law of outer space. Will these types of space-based weapons be deployed? The answer is unclear. While these weapons may offer one solution, the United States may be able to achieve the same results through conventional land and air forces at a much lower price, politically and economically. The cost of developing the technology for such weapons and then placing them in orbit could be high. Should such a weapons program pass domestic political scrutiny, the United States would still have to wrangle with the disapproval of international allies and neighbors alike. Lastly, should these types of weapons be deployed and thus bring to an end the four decades of sanctuary

in space? That question lies beyond the scope of this paper and must be taken up in a different venue.

¹ Georgetown University Law Center, JD (2000); Harvard University, AB (1997). The views and opinions expressed in this paper are solely those of the author and do not represent the official policy of the United States Government, any of its agencies, or the United States Army. No classified material was used or referenced in researching or writing this paper.

² James Hilton, *LOST HORIZON* 246 (1933).

³ Steven Metz, *Strategic Asymmetry*, US Army Command and General Staff College (2001) <<http://www-cgsc.army.mil/milrev/English/JulAug01/met.htm>>.

⁴ See Timothy L. Thomas, *Deciphering Asymmetry's Word Game*, US Army Command and General Staff College (2001) <<http://www-cgsc.army.mil/milrev/English/JulAug01/thomas.htm>> ("The United States may be the most asymmetric force on Earth, but Americans do not see themselves that way. They view others as an asymmetric force or threat when, in fact, they are not. US citizens should be proud to be on the right side of the asymmetric ledger.").

⁵ Robert H. Scales, *et. al.*, *CERTAIN VICTORY: THE US ARMY IN THE GULF WAR* 116 (1994).

⁶ Federation of American Scientists, *Operation Restore Hope*, <http://www.fas.org/man/dod-101/ops/restore_hope.htm>; Mark Bowden, *BLACKHAWK DOWN* 71 (2000).

⁷ Federation of American Scientists, *Operation Allied Force*, <http://www.fas.org/man/dod-101/ops/allied_force.htm>.

⁸ *Id.*

⁹ See generally Barton Gellman and Thomas E. Ricks, *US Concludes Bin Laden Escaped at Tora Bora Fight*, *WASHINGTON POST*, April 17, 2002 at A01.

¹⁰ See e.g. Mark Bowden, *BLACKHAWK DOWN* 111 (2000).

¹¹ *Id.*

¹² Federation of American Scientists, *Operation Continue Hope*, <http://www.fas.org/man/dod-101/ops/continue_hope.htm>.

¹³ Mark Bowden, *BLACKHAWK DOWN* 125 (2000).

¹⁴ See generally Bradley Graham, *Bravery and Breakdowns in a Ridgetop Battle*, *WASHINGTON POST*, May 24, 2002 at A01.

¹⁵ DODD 5100.77, paragraph 5.3.1 (9 December 1998) <<http://www.dtic.mil/whs/directives>>.

¹⁶ The Hague Conventions collectively regulate acceptable methods of conducting war while the Geneva Conventions spell out appropriate treatment for persons with special status. Both the Hague and the Geneva Conventions elaborate in greater detail

these general principles of the law of war. I did not go into treaty specifics because of limited space and the fact that such a discussion would carry me beyond the scope of this paper.

¹⁷ For a good discussion of this, see Robert A. Ramsey, *Armed Conflict On The Final Frontier: The Law Of War In Space*, 48 AIR FORCE L. REV. 1, 34-44 (2000).

¹⁸ Imagine a bombing strike that destroys a bridge but damages some nearby homes as well. That strike is arguably "proportional" if the loss of the bridge prevents a large enemy force from escaping across the river (i.e. advantage outweighs incidental damage). If the enemy escaped across the bridge hours earlier and the bombing achieves nothing, then the strike is likely not proportional.

¹⁹ See interview of LTC Ralph Peters in *Frontline The Future of War*

<<http://www.pbs.org/wgbh/pages/frontline/shows/future/experts/taskforce.html>>.

²⁰ See Paul A. Rahe, *Bureaucrats vs. Warriors*, National Review Online (October 29, 2001) <<http://www.nationalreview.com/comment/comment-rahe102901.shtml>>.

²¹ See generally Ramsey *supra* note 17, at 18-27. See also William L. Spacy II, *Does The United States Need Space-Based Weapons?* Ch. 2 CADRE Paper Air University (1999) <<http://research.au.af.mil>>.

²² Treaty Banning Nuclear Weapon Tests in The Atmosphere, in Outer Space, and Underwater, Aug. 5, 1963, 14 U.S.T. 1313, 480 U.N.T.S. 43 (entered into force Oct. 10, 1963)[hereinafter Limited Test Ban Treaty].

²³ *Id.*

²⁴ Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space Including the Moon and Other Celestial Bodies, Jan. 27, 1967, 18 U.S.T. 2410, 610 U.N.T.S. 205 (entered into force Oct. 10, 1967)[hereinafter Outer Space Treaty].

²⁵ Resolution of the Commission for Conventional Armaments, August 12, 1948 <<http://www.yale.edu/lawweb/avalon/decade/decad253.htm>>.

²⁶ Agreement Among the Government of Canada, Governments of the Member States of the European Space Agency, the Government of Japan, the Government of the Russian Federation, and the Government of the United States of America Concerning Cooperation on the Civil International Space Station, Jan. 29, 1998, art. 9(3)(b) <http://www.nasda.go.jp/lib/space-law/chapter_4/4-2-2-16/4-2-2-169_e.html>.

²⁷ Treaty on the Limitation of Anti-Ballistic Missile Systems, May 26, 1972, U.S.- U.S.S.R., 23 U.S.T. 3435 (entered into force Oct. 3, 1972) [hereinafter ABM Treaty].

²⁸ *Id* at art.V(1).

²⁹ *Id* at art II(1).

³⁰ US Dept. of State, Diplomatic Note Sent to Russia, Belarus, Kazakhstan, and the Ukraine, December 13, 2001 <

<http://www.defenselink.mil/acq/acic/treaties/abm/ABMdiptnotes1.htm>>.

³¹ U.N. CHARTER (entered into force Oct. 24, 1945).

³² See discussion of the *Caroline* case. <<http://www.yale.edu/lawweb/avalon/diplomacy/britain/br-1842d.htm>>(In a series of letters to Lord Ashburton, Secretary of State Daniel Webster lays out the requirements for anticipatory self defense. "It will be for that Government to show a necessity of self-defense, instant, overwhelming, leaving no choice of means, and no moment for deliberation.").

³³ James Hilton, LOST HORIZON 244 (1933).