"The Pen May Be Mightier Than the Sword… But What About a Laser Weapons System?"

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The twentieth century saw incredible advancements in technology in a very short period of time, and much of that technology was expressly developed to explore and discover what was beyond the outer boundaries of Earth. What we once thought only to be a product of imagination or fiction quickly became reality before our eyes. We saw Sputnik cross the night sky and we held our breath as humankind took its first steps on the moon. The seemingly limitless possibilities that space had to offer captivated both scientists and the general public, but along with the wonder and excitement came serious concern. The potential for misuse of technology of this magnitude, coupled with the tangible political tensions between the United States and the Soviet Union, led to international fear that earthly conflicts would extend into space. Effectively, leaps and bounds in international relations ran parallel out of sheer necessity with technological achievement. Mutual global interests demanded that extraordinary strides be made in establishing an international legal doctrine with respect to space, and the United Nations accomplished that goal. Out of tremendous political confrontation came unprecedented political cooperation, which would establish a new branch of international law. Space law was thus developed out of the need to set guidelines and regulations for outer space, and for objects put in orbit around the Earth.

As time has passed, political circumstances have changed and technology has continued to develop. Heading into the

twenty-first century, global interest in space law has returned due to an equally significant political controversy, the United States' renewed commitment to put weapons into space. This resurgence of space-oriented political debate makes it important to have a basic understanding of what laws exist with regard to weapons in space. However, it is essential to have an even greater understanding of what is going on from a political standpoint, and is therefore critical to identify what the United States' intentions are in terms of space policy, what the political ramifications could be if the United States achieves its goals, and how this would affect the legacy of the principles set forth in the Outer Space Treaty.

The "Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies," known as the Outer Space Treaty, was the first of many treaties that shaped space law.[1] It is a multilateral agreement that entered into force in 1967, and was drawn up by the legal sub-committee of the United Nations Committee on the Peaceful Uses of Outer Space (UNCOPUOS). Though later treaties would follow, the Outer Space Treaty has been frequently hailed as the "Magna Carta of Space", and is regarded by many as a landmark in international space law for two main reasons.

First, the Outer Space Treaty is currently ratified by ninety-three states, including all of the major space-faring

nations, and has been signed but not ratified by twenty-seven more (von der Dunk, 1997). No other international agreement has received that amount of multilateral support. Secondly, the language of the treaty represents "forward-looking thought at a time when Cold War tensions and narrow nationalism were the norm"(Reynolds & Merges, 1989). It sought to prevent the colonization and exploitation of outer space and celestial bodies, and promoted peace and cooperation between nations for the benefit of all humankind. The spirit of the treaty was centered in the joint efforts of all nations to share information and research, to aid astronauts and space personnel in times of emergency, to take responsibility for any damages incurred, and to keep weapons out of space. The intent was that outer space would not be, and would not become, "an area where a particular state could call the tune to which all other states (and their entities) would have to dance" (von der Dunk, 1997). As is the case with any legal doctrine, one cannot simply herald it as a milestone without recognizing that inadequacies exist.

Although the treaty is a unique example of multilateral consensus and forward-looking thought, in order to reach such an agreement it was necessary for the language of the treaty to be broad. This has led to some ambiguity and debate with regard to certain aspects of the treaty. Article IV, which is the portion of the treaty that deals specifically with weapons in space, is no exception. Major Elizabeth Kelly, chief of space and

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[1] See Appendix I for the full document.

international law for Air Force Space Command, refers to Article IV as "the most important law from a military perspective" (Scott, 2001).

Article IV states that:

> States Parties to the Treaty undertake not to place in orbit around the Earth any objects carrying nuclear weapons or any other kinds of weapons of mass destruction, install such weapons on celestial bodies, or station such weapons in outer space in any other manner.
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> The Moon and other celestial bodies shall be used by all States Parties to the Treaty exclusively for peaceful purposes. The establishment of military bases, installations and fortifications, the testing of any type of weapons and the conduct of military maneuvers on celestial bodies shall be forbidden. The use of military personnel for scientific research or for any other peaceful purposes shall not be prohibited. The use of any equipment or facility necessary for peaceful exploration of the Moon and other celestial bodies shall also not be prohibited.

According to the first paragraph, States cannot legally place objects carrying nuclear weapons or weapons of mass destruction into orbit. The treaty is silent about missiles and other conventional weapons, and does not directly address the advent of new technology, however, later international law would establish atomic, biological and chemical weapons as weapons of mass

destruction (J. Gabrynowicz, personal communication, April 20, 2002).[2]

At the time that the treaty was written, it was essential not to restrict military personnel or military equipment from space if being used for peaceful purposes. This was because all initial space research and development fell under the authority of the military for both the United States and the Soviet Union. Though NASA was founded in 1958 as a separate government agency, scientific research, equipment, and even astronauts had a direct connection to the military.[3]

It is important to note that in the first paragraph of Article IV both outer space and celestial bodies were prohibited, while in the second paragraph only the Moon and celestial bodies are forbidden. The United States and the Soviet Union had already launched satellites into outer space solely for military purposes (spy satellites), and the final text was considered to be "the most practical solution from the standpoint of expeditious conclusion of a treaty on outer space" (Reynolds & Merges, 1989), with further questions to be dealt with in future negotiations.

Since the treaty specifically refers to only nuclear weapons and weapons of mass destruction it does not legally restrict, by definition, other types of weaponry or apply to new

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[2] Joanne Gabrynowicz has taught space law and policy since 1987. She is the current director of the National Remote Sensing and Space Law Center at the University of Mississippi Law School. For more information on Professor Gabrynowicz, visit http://www.olemiss.edu/programs/spacelaw/f&s/gabry.html

technology. Major Kelly reminds legal officers that, "the letter-of-law is very limited as to what is prohibited, leaving a lot of room for use of many kinds of weapons in outer space" (Scott, 2001). There is also no mention of how to proceed in the event of new technology that didn't fall under the categories designated by the Outer Space Treaty. The counter-argument to such ambiguity is that if one looks at the intent of the treaty as a whole it is clear that the intent is to make space a peaceful place (J. Gabrynowicz, personal communication, March 18, 2002).

However, new technology is dealt with specifically in another more recognized treaty that has recently made its way back into the news, the Anti-Ballistic Missile Treaty (ABM) of 1972.[4] The ABM Treaty is also historically significant because of the introduction of the Strategic Defense Initiative (SDI) during the Reagan Administration, which is generally viewed as the predecessor to the United States' current space-based defense ambitions. From a political standpoint, it is useful to compare and contrast the ABM Treaty and SDI with political events that are occurring today, and also with the intent of the Outer Space Treaty.

In the 1950's, the creation of the Intercontinental Ballistic Missile (ICBM) by the Soviet Union, and the successful launches of Sputnik I and II, demonstrated the Soviet's superior

[3]In fact, the first American astronauts to go into space and subsequently land on the moon were military personnel, and had no scientific background beyond what they were taught for the purposes of their missions.

heavy-lifting launch capabilities. It was understood at this time that any country that had the technology to launch an object into space also had the technology to use those capabilities to launch a weapon from one continent to another. Fueled by rumors that hundreds of these Soviet ICBMs were targeted on the United States, and also by a heightened American paranoia of the communist regime, the panic-driven United States military embarked on a mission to catch up with Soviet technology for the purposes of national security (Lewis, 1996). These rumors would prove to be false, but by 1972 the United States and the Soviet Union were in the midst of a full-out nuclear arms race. As a result of the proliferation of nuclear arms, the ABM Treaty was signed in October 1972. It differs from the Outer Space Treaty in that it is a bilateral agreement between the United States and the Soviet Union. It was evident to both sides by this time that "the limitation of anti-ballistic missile systems would lead to a decrease in the risk of outbreak of war involving nuclear weapons," and that "effective measures toward reductions in strategic arms, nuclear disarmament, and general and complete disarmament, [would] contribute to the relaxation of international tension…"(Preamble of the ABM Treaty). The sections of the treaty that are relevant to space or that can be used in comparison with the Outer Space Treaty are Articles V and Article XV.

Article V states that:

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[4] See Appendix II for the full document.

1. Each Party undertakes not to develop, test, or deploy ABM systems or components, which are sea-based, air-based, space-based, or mobile land-based.
2. Each Party undertakes not to develop, test or deploy ABM launchers for launching more than one ABM interceptor missile at a time from each launcher, not to modify deployed launchers to provide them with such a capacity, not to develop, test, or deploy automatic or semi-automatic or other similar systems for rapid reload of ABM launchers.

Even though there were no systems operational at the time that the treaty was signed, Article V. Paragraph 1 specifically refers to "space-based" ABM systems (Reynolds & Merges, 1989). While parties were banned from developing, testing and deploying space-based ABM systems, they were not prohibited from researching them. The United States and the Soviet Union were both conducting research, but it was not until 1985 when the Reagan Administration declared its commitment to test such technology (when and if it was ready) that the ABM Treaty fell under intense scrutiny (Reynolds & Merges, 1989).

The goal of SDI was initially envisioned to be a virtually perfect defense shield involving a space-based laser particle beam that would destroy incoming ICBMs en route to the United States. But, according to the Federation of American Scientists website, the program evolved over time and the initial focus on space-based directed energy weapons shifted gradually toward

interest in ground-based kinetic energy weapons. SDI is a related issue in terms of future attempts at a space-based weapons system, and one further comparison between the ABM and Outer Space Treaties needs to be made before discussing the present space-related intentions of United States.

Article XV of the ABM Treaty states that:

1. This Treaty shall be of unlimited duration.
2. Each Party shall, in exercising its national sovereignty, have the right to withdraw from this Treaty if it decides that extraordinary events related to the subject matter of this Treaty have jeopardized its supreme interests. It shall give notice of its decision to the other Party six months prior to withdrawal from the Treaty. Such notice shall include a statement of the extraordinary events the notifying Party regards as having jeopardized its supreme interests.

The Outer Space Treaty does not allow for legal withdrawal as the ABM Treaty does in Article XV. Paragraph 2. The United States, under the current Bush Administration, has in fact decided to do just that and gave its six-month notice at the end of 2001. Though there may not be legal issues related to such a decision since withdrawal was included, the question now becomes, "What are the political consequences of such a move?" Also, "Why decide to withdraw in the first place: what are the United States' intentions?"

The main objective appears to be total domination. Assistant Secretary of the Air Force for Space Keith Hall, declared, "With regard to space dominance, we have it, we like it, and we're going to keep it," and Loring Wirbel cites the US Space Command's Long Range Plan, which talks about projecting U.S. power from space over Earth below and taking "over everything between now and 2020 to achieve complete dominance for the United States alone-no other nations are invited to be involved" (Grossman, March 10-11, 1999).

According to the United States Space Command Joint Vision 2010, the United States' aspiration is full-spectrum dominance.[5] Joint Vision 2010 defines full-spectrum as the synergy of land, sea and air superiority with emerging space superiority, which is enabled by information superiority and technological innovation. The goal of Joint Vision 2010 is to be "persuasive in peace, decisive in war, and preeminent in any form of conflict."

The Air Force Space Command report, Almanac 2000, says that the US Air Force needs to be: "Globally dominant-Tomorrow's Air Force will likely dominate the air and space around the world…" and the motto of the Air Force Space Command is "Master of Space" (Grossman, February 22, 2001).

In the United States Space Command's Vision for 2020 (1997), the first page states in bold lettering,

> "US Space Command--dominating the space dimension of military operations to protect US interests and investment.

Integrating Space Forces into warfighting capabilities across the full spectrum of conflict."

Vision 2020 then goes on to explain four operational concepts. The first of which is *Control of Space*.

Control of Space is "the ability to assure access to space, freedom of operations within the space medium, and an ability to deny others the use of space, if required." *Control of Space* discusses commercial space systems (including communications satellites and remote-sensing satellites), and the threat that nations may tap into these systems for military purposes. It is suggested in Vision 2020 that the United States "may evolve into the guardian of space commerce—similar to the historical example of navies protecting sea commerce." *Control of Space* is often referred to as space control, which is the doctrine that has been adopted by the Department of Defense (J. Gabrynowicz, personal communication, March 18, 2002).

The second operational concept is *Global Engagement*, which is "the application of precision force from, to, and through space." US Space Command is the combatant command for National Missile Defense (NMD), and *Global Engagement* is considered to be the key element for NMD. *Global Engagement* would provide "global surveillance with the potential for a space-based global precision strike capability." It will enhance existing land, sea and air missions, and surface and air surveillance systems will be augmented as well.

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[5] The Army, Air Force, and Naval Space Commands combined make up the United

Thirdly, *Full Force Integration* is required. *Full Force Integration* involves the combination of "space-derived information with land, sea, and air forces and their information." The goal being to achieve the "same level of joint operations between space and the other mediums of warfighting as land, sea, and air currently enjoy today." People are considered to be the main indispensable asset in this area, and education and training of these professionals is stressed in *Full Force Integration*.

Finally, *Global Partnerships* will augment "military space capabilities through the leveraging of civil, commercial, and international space systems." The military will be combined with commercial, international, and civil organizations in order to "decrease pressure on existing military infrastructure and operations, and reduce maintenance costs by offloading functions to civil and commercial providers." The term *Global Engagement* should not be misinterpreted to mean that the United States would seek partnerships or alliances with other nations. The Department of Defense recognizes that the costs of Vision 2020 will be great, and the goal of *Global Engagement* is basically to spread responsibility around to relieve some of that burden.

The operational concept most often referred to outside of Joint Vision 2020 is *Control of Space*, or space control. Former commander in chief of US Space Command, General Joseph Ashy, said in 1996 that, "Some people don't want to hear this, and it sure

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States Space Command.

isn't in vogue, but - absolutely - we're going to fight in space" (Grossman, 1999). When referring to space control he said that expansion of that mission (and the mission of space force application) was necessary because it would become increasingly important (Grossman, 2001). Current commander in chief, Ralph E. Eberhart, has said, "The importance of space control and space superiority will continue to grow as our economy becomes more reliant on space" (Waller, March 19, 2001). At a seminar on space power at the Center for Security Policy, Senator Robert Smith, R-N.H., said, "If we intend to maintain our information superiority, we need a strong space control program to protect our assets and to deny our adversaries the use of their own systems" (Waller, 2001).

Beyond the space control doctrine, the types of weapons that are envisioned for "space-based global precision strike capability," and to ensure American dominance in space, would come in several different forms. Most often heard of is a space-based laser. The Air Force is currently developing the Space Based Laser Integrated Flight Experiment (SBL-IFX) with a team of aerospace contractors.[6] SBL-IFX is planned to be a single satellite, which would carry a high-energy chemical laser, a beam director and related beam control systems, and would be launched in 2012 (El Segundo, April 4, 2001). Other types of

[6] There is some debate as to whether or not space warfare is the new "cash cow" that can be used to funnel enormous amounts of money for defense purposes, with large aerospace industries subsequently benefiting from defense contracts (Bruce Gagnon, coordinator of the Global Network Against Weapons & Nuclear Power in Space quoted in SpaceDaily, January 7, 2002).

weapons could be "reusable space planes" and small attack satellites known as "microsatellites," which would latch on to enemy satellites and disable them. All of these possible systems were used in the first-ever space war games exercise in January 2001 held at the Space Warfare Center at Schreiver Air Force Base in Colorado (Anonymous, May/June 2001).

In reality, none of these systems are currently operational. SBL-IFX has successfully completed its System Requirements Review, but that only means that the requirements have been defined for the design and manufacturing development process (El Segundo, 2001). Integrated ground tests of the Alpha high-energy laser have been used in order to test design concepts for SBL-IFX, and aerospace corporation SpaceDev Inc. has some small contracts for microsatellite development with the military (Colorado Springs Independent, January 7, 2002). In terms of space planes, neither research nor development has been started.[7]

With respect to the Outer Space Treaty, weapons of this sort would be in direct violation. Again, new technology is not directly addressed, but evidence that these weapons' projected use wouldn't be for peaceful purposes would imply that they are in violation of the intent of the treaty, even though they are not specifically listed. A space-based laser weapon such as SBL-IFX would also be considered a nuclear weapon because a device of

[7] It is worth mentioning that although the United States is not at a testing stage for any of its space-based weapons, there has already been a second successful test of a ground-based missile intercept as of July 2001 (CNN.com, July 15, 2001). This testing was carried out before withdrawal from the ABM Treaty took place, and was therefore a direct violation.

this magnitude requires a tremendous amount of power, and only nuclear power will supply the necessary energy to sustain it. That was one of the reasons that SDI opted for research into a ground-based kinetic energy system, the energy requirements for a similar weapon in space made it unfeasible to pursue.

The doctrine of space control is also in violation of the Outer Space Treaty. Space control entails the exclusion of other States from space, which is again a direct violation of the treaty. If both the doctrine of space control is realized, and the goal of weapons in space is successful, the United States would be making an active decision to ignore the intent and principles of the Outer Space Treaty. There is only one possible means of carrying out their goals without completely breaching the Outer Space Treaty.

Carl Q. Christol (1966) states in The International Law of Outer Space that a state is entitled, under international law, "to maintain its continued existence and is permitted pursuant to the rule of law to engage in measures of self-defense, either collective or individual, to uphold this right." War game participants have also extended the concept of self-defense to justify preemptive or anticipatory strikes (Scott, 2001). If the United States could justify that proposed weapons are defensive in nature, this would allow these weapons to be utilized according to the terms of international law. But there is a very fine line between what can be considered a defensive weapon and what is classified as an offensive weapon.

The two standards for outlining this distinction are:

1. The design of the technology

2. The intent of its use.

Joanne Gabrynowicz uses a simple example to further explain the differences between defensive and offensive weapons using these two standards. She says that if there are two opposing sides using something rudimentary like rocks as weapons it is easy to tell the intent of its use. If Side A throws its rock at Side B then it is considered offensive in nature, whereas if Side B consequently throws its rock back then the same type of rock would be considered a defensive weapon. However, if Side B had a means of launching their rock by way of a triggering mechanism, so that they wouldn't be physically there and someone from Side A could trigger the weapon by walking past or stepping on the mechanism, then the design of the technology comes into play. Mrs. Gabrynowicz emphasizes that design of technology is a very complicated matter, involving range of the weapon, circumstances of the conflict and also factors like the possibility of an innocent victim stumbling upon the device. The use of the design of technology to implicate a weapon as offensive can lead to multi-sided arguments. But, in addition to design of technology and intent of use there is one more factor, and that is the notion of credible threat. If there exists a credible threat then weapons can be justified as defensive, and the contrary would be that if there were no real credible threat then weapons would be considered offensive (J. Gabrynowicz, personal

communication, April 20, 2002). The two standards of design of technology and intent of use, coupled with the notion of credible threat, can now be applied to today's political climate.

Within the scope of this paper, it is not feasible to go in-depth about what the weapons status is of all nations around the world.[8] However, according to the Center for Defense and International Security Studies (CDISS) website there is presently little threat of a missile attack on the United States by countries other than Russia or China. Russia is now considered a friendly nation (the cold war having ended in 1989 with the collapse of the communist regime), and the danger from China is currently low, although there is the possibility of an accidental or unauthorized missile launch from either of these nations (CDISS Website). China has been developing microsatellite technology, and this would make China the third nation to possess this technology after the United States and Russia (Ho, January 8, 2000).

It is critical to be aware that since September 11, 2001, the adversaries of the United States are of a different caliber than they have been previously (J. Gabrynowicz, personal communication, March 18, 2001). President Bush has referred to rogue nations, but it is important to remember that for the most part these nations do not have either missiles or the launch capabilities to fire missiles intercontinentally. Both missiles

[8] If the reader wishes to access information on a specific country's weapons status they may wish to visit the Center for Defense & International Security

and launch capability could be obtained from countries that possess them, but it is difficult to determine whether or not the intention is there until this actually happens. Diplomacy would have a lot to offer in this aspect. It has been argued that a space shield would not have prevented the hijacking of those four planes, and also whether a shield in space would have been more beneficial than other defensive measures in stopping those planes from crashing into the World Trade Center and the Pentagon.

This brings discussion back to the US Space Command's Vision and the implications that it would have if its goals were to be achieved. Without the existence of credible threat, the ambitions of the United States would force them to withdraw from the Outer Space Treaty. At the present moment, the United States would have a very hard time convincing anyone that their space policy is justifiable in terms of credible threat, especially when attempts have been made by the United Nations (and member states of the United Nations) to use diplomacy to curtail the proliferation of arms and prevent the militarization of outer space.

Regardless of the fact that weapons have not reached the testing stage in the United States, an alarm has been sounded by other nations of the world. At a United Nations presentation in 2000, counselor of the Permanent Mission of Canada, Marc Vidricaire, said,

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Studies website, www.cdiss.org, where information is readily available, including illustrations, on this topic.

> "There is no question that the technology can be developed to place weapons in outer space. There is also no question that no state can expect to maintain a monopoly on such knowledge - or such capabilities - for all time. If one state actively pursues the weaponisation of space, we can be sure others will follow" (Grossman, 2001).

Russian President Vladimir Putin told the Millennium Summit in 2000 that "particularly alarming are the plans for the militarisation of outer space" (Grossman, 2001). And at the Conference on Disarmament also in 2000, the Ambassador to China, Hu Xiaodi, spoke about the prevention of an arms race in outer space as being one of the most "prominent issues that had the greatest bearing on international peace and security in the twenty-first century" (Grossman, 2001).

Response to these concerns from the United States came in the form of a statement made by the U.S. Representative to the Conference on Disarmament, Robert Grey. Grey emphasized that the United States has "repeatedly pointed out that there is no arms race in outer space - nor any prospect of an arms race in outer space, for as far down the road as anyone can see." Grey also insisted that, "the United States is committed to the exploration and use of outer space by all nations for peaceful purposes and for the benefit of all humanity," and said that, "it serves no constructive purpose to insist that the Conference must conduct negotiations on a new outer space treaty" (Grey, September 15, 2000). Grey's statement stands in direct contradiction to what

the United States Space Command published in 1997 in Joint Vision 2010 and Joint Vision 2020. A memo from the Johnson Space Center Legal Office to various Space Station Program offices at the Johnson Space Center in March 2001 seems to then contradict Grey's statement. The memo states that:

> "No one from NASA may attend or participate in any way whatsoever the conference that will take place in Moscow on April 11-14. This conference may be referred to in at least four different ways, so we need to make sure everyone understands what we're talking about."

The memo then goes on to name the four possible titles for the "International Space Forum-2001: Mankind through peaceful space into the future," and informs readers that the restriction against NASA participation comes directly from Mr. Goldin, the Administrator of NASA (NASA Watch). "International Space Forum-2001" was set up by the Russian Federation because it was felt that the need for a conference dealing with outer space and its future were great.

Though this memo's contents are somewhat puzzling, it is Grey's statements to the Conference on Disarmament that are the most bewildering. Nations like Russia and China are leading the charge diplomatically to prevent an arms race in outer space, while Americans such as Senator Robert Smith target them as the threat that obligates American commitment to a space control program. Smith said that he who controls space controls the destiny of the Earth and asks, "When you look at the options out

there, I would ask you, who do you want it to be? Iran? Russia? Iraq? China?" He continues, "To those who say we can't militarize space, I must say, 'Do you want somebody else to do it?" (Waller, 2001) Statements such as those by Smith are what truly threaten the legacy of the principles in the Outer Space Treaty.

If the Outer Space Treaty is abandoned due to the introduction of weapons into space by the United States, there are two possible scenarios that will result according to Wang Xiaoyu, First Secretary Delegate of China to the United Nations.

1. Other countries would accept the status quo and acquiesce in the space power's privilege to achieve even greater and absolute strategic superiorities on the ground and in space, in addition to its currently largest and most advanced nuclear and conventional arsenals;
2. Other countries would in response launch their own plan to develop weapons, on the ground, in the sea, in the air and in outer space.

It is Wang's belief that people all over the world would reject either of these two scenarios (Wang, 1999).

In 1962, Deputy Secretary of Defense Gilpatric declared that, "An arms race in space will not contribute to our security. I can think of no greater stimulus for a Soviet thermonuclear arms effort in space than a United States commitment to such a program" (Cristol, 1966). Although technology is now in its adolescent stages, and political circumstances have shifted, the

question remains as to whether or not an American commitment to a program that would place weapons into space would cause the same results Gilpatric recognized in 1962.

The United States has the most powerful military in the world, is a leader in technology and is incredibly dependent on space systems. It can be argued that any means necessary should be taken in order to maintain future control over these systems and the United States' dominance. On the other hand, the United States has tremendous influence in international relations, and it can be argued that it should set an example by opting for diplomatic solutions when they are available. The Outer Space Treaty was a landmark because it advocated peace and cooperation, and the latter argument would also include the notion that the United States would be setting out on a dangerous course if they chose to favor unilateral control rather than global participation.

It has been said that war is what results when diplomacy fails. However, I don't necessarily agree with this. I think that diplomatic means of resolution are usually only implemented (and respected) in two situations. First, when the conflict itself doesn't merit going to war over and all parties are in agreement on this in advance, and second, when the consequences if both parties were to go to war are mutually agreed upon to be undesirable.[9] The Outer Space Treaty was signed under the latter

[9] Joanne Gabrynowicz discussed the idea about conflicting countries deciding to agree or fight, and opting for diplomacy at times when they mutually concede that war is not the best option. I have expanded on this discussion, which took place during communications on March 18, 2002.

conditions, as well as the ABM Treaty. The pen was mightier than the sword in 1967 and 1972, but given changes in political circumstances and military dominance, will the pen remain mightier than the sword in the future? Is the global community possibly headed to the brink of nuclear war again, with the United States' space-based defense policy acting as the catalyst?

President Eisenhower warned in his farewell address of 1961 that, "Only an alert and knowledgeable citizenry can compel the proper meshing of the huge industrial and military machinery of defense with our peaceful methods and goals, so that security and liberty may prosper together." In the midst of all this international debate amid US and foreign leaders, it is perhaps most important to remember that we, as citizens, not only have the right to be informed about the decision-making of our government, but a responsibility to remain attentive and get involved in issues regarding the future status of the world (and universe) in which we live.

Appendix I

TREATY ON PRINCIPLES GOVERNING THE ACTIVITIES OF STATES IN THE EXPLORATION AND USE OF OUTER SPACE, INCLUDING THE MOON AND OTHER CELESTIAL BODIES

Signed at Washington, London, Moscow, January 27, 1967
Ratification advised by U.S. Senate April 25, 1967
Ratified by U.S. President May 24, 1967
U.S. ratification deposited at Washington, London, and Moscow October 10, 1967
Proclaimed by U.S. President October 10, 1967
Entered into force October 10, 1967

The States Parties to this Treaty,

Inspired by the great prospects opening up before mankind as a result of mans entry into outer space,

Recognizing the common interest of all mankind in the progress of the exploration and use of outer space for peaceful purposes,

Believing that the exploration and use of outer space should be carried on for the benefit of all peoples irrespective of the degree of their economic or scientific development,

Desiring to contribute to broad international co-operation in the scientific as well as the legal aspects of the exploration and use of outer space for peaceful purposes,

Believing that such co-operation will contribute to the development of mutual understanding and to the strengthening of friendly relations between States and peoples,

Recalling resolution 1962 (XVIII), entitled "Declaration of Legal Principles Governing the Activities of States in the Exploration and Use of Outer Space," which was adopted unanimously by the United Nations General Assembly on 13 December 1963,

Recalling resolution 1884 (XVIII), calling upon States to refrain from placing in orbit around the Earth any objects carrying nuclear weapons or any other kinds of weapons of mass destruction or from installing such weapons on celestial bodies, which was adopted unanimously by the United Nations General Assembly on 17 October 1963,

Taking account of United Nations General Assembly resolution 110 (II) of 3 November 1947, which condemned propaganda designed or likely to provoke or encourage any threat to the peace, breach of the peace or act of aggression, and considering that the aforementioned resolution is applicable to outer space,

Convinced that a Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies, will further the Purposes and Principles of the Charter of the United Nations,

Have agreed on the following:

Article I

The exploration and use of outer space, including the moon and other celestial bodies, shall be carried out for the benefit and in the interests of all countries, irrespective of their degree of economic or scientific development, and shall be the province of all mankind.

Outer space, including the moon and other celestial bodies, shall be free for exploration and use by all States without discrimination of any kind, on a basis of equality and in accordance with international law, and there shall be free access to all areas of celestial bodies.

There shall be freedom of scientific investigation in outer space, including the moon and other celestial bodies, and States shall facilitate and encourage international co-operation in such investigation.

Article II

Outer space, including the moon and other celestial bodies, is not subject to national appropriation by claim of sovereignty, by means of use or occupation, or by any other means.

Article III

States Parties to the Treaty shall carry on activities in the exploration and use of outer space, including the moon and other celestial bodies, in accordance with international law, including the Charter of the United Nations, in the interest of maintaining international peace and security and promoting international co-operation and understanding.

Article IV

States Parties to the Treaty undertake not to place in orbit around the Earth any objects carrying nuclear weapons or any other kinds of weapons of mass destruction, install such weapons on celestial bodies, or station such weapons in outer space in any other manner.

The Moon and other celestial bodies shall be used by all States Parties to the Treaty exclusively for peaceful purposes. The establishment of military bases, installations and fortifications, the testing of any type of weapons and the conduct of military maneuvers on celestial bodies shall be forbidden. The use of military personnel for scientific research or for any other peaceful purposes shall not be prohibited. The use of any equipment or facility necessary for peaceful exploration of the Moon and other celestial bodies shall also not be prohibited.

Article V

States Parties to the Treaty shall regard astronauts as envoys of mankind in outer space and shall render to them all possible assistance in the event of accident, distress, or emergency landing on the territory of another State Party or on the high seas. When astronauts make such a landing, they shall be safely and promptly returned to the State of registry of their space vehicle.

In carrying on activities in outer space and on celestial bodies, the astronauts of one State Party shall render all possible assistance to the astronauts of other States Parties.
States Parties to the Treaty shall immediately inform the other States Parties to the Treaty or the Secretary-General of the United Nations of any phenomena they discover in outer space, including the Moon and other celestial bodies, which could constitute a danger to the life or health of astronauts.

Article VI

States Parties to the Treaty shall bear international responsibility for national activities in outer space, including the Moon and other celestial bodies, whether such activities are carried on by governmental agencies or by non-governmental entities, and for assuring that national activities are carried out in conformity with the provisions set forth in the present Treaty. The activities of non-governmental entities in outer space, including the Moon and other celestial bodies, shall require authorization and continuing supervision by the appropriate State Party to the Treaty. When activities are carried on in outer space, including the Moon and other celestial bodies, by an international organization, responsibility for compliance with this Treaty shall be borne both by the international organization and by the States Parties to the Treaty participating in such organization.

Article VII

Each State Party to the Treaty that launches or procures the launching of an object into outer space, including the Moon and other celestial bodies, and each State Party from whose territory or facility an object is launched, is internationally liable for damage to another State Party to the Treaty or to its natural or juridical persons by such object or its component parts on the Earth, in air space or in outer space, including the Moon and other celestial bodies.

Article VIII

A State Party to the Treaty on whose registry an object launched into outer space is carried shall retain jurisdiction and control over such object, and over any personnel thereof, while in outer space or on a celestial body. Ownership of objects launched into outer space, including objects landed or constructed on a celestial body, and of their component parts, is not affected by their presence in outer space or on a celestial body or by their return to the Earth. Such objects or component parts found beyond the limits of the State Party to the Treaty on whose registry they are carried shall be returned to that State Party, which shall, upon request, furnish identifying data prior to their return.

Article IX

In the exploration and use of outer space, including the Moon and other celestial bodies, States Parties to the Treaty shall be guided by the principle of co-operation and mutual assistance and shall conduct all their activities in outer space, including the

Moon and other celestial bodies, with due regard to the corresponding interests of all other States Parties to the Treaty. States Parties to the Treaty shall pursue studies of outer space, including the Moon and other celestial bodies, and conduct exploration of them so as to avoid their harmful contamination and also adverse changes in the environment of the Earth resulting from the introduction of extraterrestrial matter and, where necessary, shall adopt appropriate measures for this purpose. If a State Party to the Treaty has reason to believe that an activity or experiment planned by it or its nationals in outer space, including the Moon and other celestial bodies, would cause potentially harmful interference with activities of other States Parties in the peaceful exploration and use of outer space, including the Moon and other celestial bodies, it shall undertake appropriate international consultations before proceeding with any such activity or experiment. A State Party to the Treaty which has reason to believe that an activity or experiment planned by another State Party in outer space, including the Moon and other celestial bodies, would cause potentially harmful interference with activities in the peaceful exploration and use of outer space, including the Moon and other celestial bodies, may request consultation concerning the activity or experiment.

Article X

In order to promote international co-operation in the exploration and use of outer space, including the Moon and other celestial bodies, in conformity with the purposes of this Treaty, the States Parties to the Treaty shall consider on a basis of equality any requests by other States Parties to the Treaty to be afforded an opportunity to observe the flight of space objects launched by those States.

The nature of such an opportunity for observation and the conditions under which it could be afforded shall be determined by agreement between the States concerned.

Article XI

In order to promote international co-operation in the peaceful exploration and use of outer space, States Parties to the Treaty conducting activities in outer space, including the Moon and other celestial bodies, agree to inform the Secretary-General of the United Nations as well as the public and the international scientific community, to the greatest extent feasible and practicable, of the nature, conduct, locations and results of such activities. On receiving the said information, the Secretary-General of the United Nations should be prepared to disseminate it immediately and effectively.

Article XII

All stations, installations, equipment and space vehicles on the Moon and other celestial bodies shall be open to representatives of other States Parties to the Treaty on a basis of reciprocity. Such representatives shall give reasonable advance notice of a projected visit, in order that appropriate consultations may be

held and that maximum precautions may be taken to assure safety and to avoid interference with normal operations in the facility to be visited.

Article XIII

The provisions of this Treaty shall apply to the activities of States Parties to the Treaty in the exploration and use of outer space, including the Moon and other celestial bodies, whether such activities are carried on by a single State Party to the Treaty or jointly with other States, including cases where they are carried on within the framework of international intergovernmental organizations.

Any practical questions arising in connection with activities carried on by international inter-governmental organizations in the exploration and use of outer space, including the Moon and other celestial bodies, shall be resolved by the States Parties to the Treaty either with the appropriate international organization or with one or more States members of that international organization, which are Parties to this Treaty.

Article XIV

1. This Treaty shall be open to all States for signature. Any State which does not sign this Treaty before its entry into force in accordance with paragraph 3 of this article may accede to it at any time.
2. This Treaty shall be subject to ratification by signatory States. Instruments of ratification and instruments of accession shall be deposited with the Governments of the United States of America, the United Kingdom of Great Britain and Northern Ireland and the Union of Soviet Socialist Republics, which are hereby designated the Depositary Governments.
3. This Treaty shall enter into force upon the deposit of instruments of ratification by five Governments including the Governments designated as Depositary Governments under this Treaty.
4. For States whose instruments of ratification or accession are deposited subsequent to the entry into force of this Treaty, it shall enter into force on the date of the deposit of their instruments of ratification or accession.
5. The Depositary Governments shall promptly inform all signatory and acceding States of the date of each signature, the date of deposit of each instrument of ratification of and accession to this Treaty, the date of its entry into force and other notices.
6. This Treaty shall be registered by the Depositary Governments pursuant to Article 102 of the Charter of the United Nations.

Article XV

Any State Party to the Treaty may propose amendments to this Treaty. Amendments shall enter into force for each State Party to the Treaty accepting the amendments upon their acceptance by a majority of the States Parties to the Treaty and thereafter for each remaining State Party to the Treaty on the date of acceptance by it.

Article XVI

Any State Party to the Treaty may give notice of its withdrawal from the Treaty one year after its entry into force by written notification to the Depositary Governments. Such withdrawal shall take effect one year from the date of receipt of this notification.

Article XVII

This Treaty, of which the English, Russian, French, Spanish and Chinese texts are equally authentic, shall be deposited in the archives of the Depositary Governments. Duly certified copies of this Treaty shall be transmitted by the Depositary Governments to the Governments of the signatory and acceding States.

IN WITNESS WHEREOF the undersigned, duly authorized, have signed this Treaty.

DONE in triplicate, at the cities of Washington, London and Moscow, this twenty-seventh day of January one thousand nine hundred sixty-seven.

Appendix II

TREATY BETWEEN THE UNITED STATES OF AMERICA AND THE UNION OF SOVIET SOCIALIST REPUBLICS ON THE LIMITATION OF ANTI-BALLISTIC MISSILE SYSTEMS

Signed at Moscow May 26, 1972
Ratification advised by U.S. Senate August 3, 1972
Ratified by U.S. President September 30, 1972
Proclaimed by U.S. President October 3, 1972
Instruments of ratification exchanged October 3, 1972
Entered into force October 3, 1972The United States of America and the Union of Soviet Socialist Republics, hereinafter referred to as the Parties,

Proceeding from the premise that nuclear war would have devastating consequences for all mankind,

Considering that effective measures to limit anti-ballistic missile systems would be a substantial factor in curbing the race in strategic offensive arms and would lead to a decrease in the risk of outbreak of war involving nuclear weapons,

Proceeding from the premise that the limitation of anti-ballistic missile systems, as well as certain agreed measures with respect to the limitation of strategic offensive arms, would contribute to the creation of more favorable conditions for further negotiations on limiting strategic arms,

Mindful of their obligations under Article VI of the Treaty on the Non-Proliferation of Nuclear Weapons,

Declaring their intention to achieve at the earliest possible date the cessation of the nuclear arms race and to take effective measures toward reductions in strategic arms, nuclear disarmament, and general and complete disarmament,

Desiring to contribute to the relaxation of international tension and the strengthening of trust between States,

Have agreed as follows:

Article I

1. Each Party undertakes to limit anti-ballistic missile (ABM) systems and to adopt other measures in accordance with the provisions of this Treaty.

2. Each Party undertakes not to deploy ABM systems for a defense of the territory of its country and not to provide a base for such a defense, and not to deploy ABM systems for defense of an individual region except as provided for in Article III of this Treaty.

Article II

1. For the purpose of this Treaty an ABM system is a system to counter strategic ballistic missiles or their elements in flight trajectory, currently consisting of:

(a) ABM interceptor missiles, which are interceptor missiles constructed and deployed for an ABM role, or of a type tested in an ABM mode;
(b) ABM launchers, which are launchers constructed and deployed for launching ABM interceptor missiles; and
(c) ABM radars, which are radars constructed and deployed for an ABM role, or of a type tested in an ABM mode.

2. The ABM system components listed in paragraph 1 of this Article include those which are:
(a) operational;
(b) under construction;
(c) undergoing testing;
(d) undergoing overhaul, repair or conversion; or
(e) mothballed.

Article III

Each Party undertakes not to deploy ABM systems or their components except that:
(a) within one ABM system deployment area having a radius of one hundred and fifty kilometers and centered on the Partys national capital, a Party may deploy: (1) no more than one hundred ABM launchers and no more than one hundred ABM interceptor missiles at launch sites, and (2) ABM radars within no more than six ABM radar complexes, the area of each complex being circular and having a diameter of no more than three kilometers; and
(b) within one ABM system deployment area having a radius of one hundred and fifty kilometers and containing ICBM silo launchers, a Party may deploy: (1) no more than one hundred ABM launchers and no more than one hundred ABM interceptor missiles at launch sites, (2) two large phased-array ABM radars comparable in potential to corresponding ABM radars operational or under construction on the date of signature of the Treaty in an ABM system deployment area containing ICBM silo launchers, and (3) no more than eighteen ABM radars each having a potential less than the potential of the smaller of the above-mentioned two large phased-array ABM radars.

Article IV

The limitations provided for in Article III shall not apply to ABM systems or their components used for development or testing, and located within current or additionally agreed test ranges. Each Party may have no more than a total of fifteen ABM launchers at test ranges.

Article V

1. Each Party undertakes not to develop, test, or deploy ABM systems or components which are sea-based, air-based, space-based, or mobile land-based.

2. Each Party undertakes not to develop, test or deploy ABM launchers for launching more than one ABM interceptor missile at a time from each launcher, not to modify deployed launchers to provide them with such a capacity, not to develop, test, or deploy automatic or semi-automatic or other similar systems for rapid reload of ABM launchers.

Article VI

To enhance assurance of the effectiveness of the limitations on ABM systems and their components provided by the Treaty, each Party undertakes:

(a) not to give missiles, launchers, or radars, other than ABM interceptor missiles, ABM launchers, or ABM radars, capabilities to counter strategic ballistic missiles or their elements in flight trajectory, and not to test them in an ABM mode; and

(b) not to deploy in the future radars for early warning of strategic ballistic missile attack except at locations along the periphery of its national territory and oriented outward.

Article VII

Subject to the provisions of this Treaty, modernization and replacement of ABM systems or their components may be carried out.

Article VIII

ABM systems or their components in excess of the numbers or outside the areas specified in this Treaty, as well as ABM systems or their components prohibited by this Treaty, shall be destroyed or dismantled under agreed procedures within the shortest possible agreed period of time.

Article IX

To assure the viability and effectiveness of this Treaty, each Party undertakes not to transfer to other States, and not to deploy outside its national territory, ABM systems or their components limited by this Treaty.

Article X

Each Party undertakes not to assume any international obligations which would conflict with this Treaty.

Article XI

The Parties undertake to continue active negotiations for limitations on strategic offensive arms.

Article XII

1. For the purpose of providing assurance or compliance with the provisions of this Treaty, each Party shall use national technical means of verification at its disposal in a manner consistent with generally recognized principles of international law.

2. Each Party undertakes not to interfere with the national technical means of verification of the other Party operating in accordance with paragraph 1 of this Article.

3. Each Party undertakes not to use deliberate concealment measures which impede verification by national technical means of compliance with the provisions of this Treaty.

This obligation shall not require changes in current construction, assembly, conversion, or overhaul practices.

Article XIII

1. To promote the objectives and implementation of the provisions of this Treaty, the Parties shall establish promptly a Standing Consultative Commission, within the framework of which they will:

(a) consider questions concerning compliance with the obligations assumed and related situations which may be considered ambiguous;

(b) provide on a voluntary basis such information as either Party considers necessary to assure confidence in compliance with the obligations assumed;

(c) consider questions involving unintended interference with national technical means of verification;

(d) consider possible changes in the strategic situation which have a bearing on the provisions of this Treaty;

(e) agree upon procedures and dates for destruction or dismantling of ABM systems or their components in cases provided for by the provisions of this Treaty;

(f) consider, as appropriate, possible proposals for further increasing the viability of this Treaty; including proposals for amendments in accordance with the provisions of this Treaty;

(g) consider, as appropriate, proposals for further measures aimed at limiting strategic arms.

2. The Parties through consultation shall establish, and may amend as appropriate, Regulations for the Standing Consultative Commission governing procedures, composition and other relevant matters.

Article XIV

1. Each Party may propose amendments to this Treaty. Agreed amendments shall enter into force in accordance with the procedures governing the entry into force of this Treaty.

2. Five years after entry into force of this Treaty, and at five-year intervals thereafter, the Parties shall together conduct a review of this Treaty.

Article XV

1. This Treaty shall be of unlimited duration.

2. Each Party shall, in exercising its national sovereignty, have the right to withdraw from this Treaty if it decides that extraordinary events related to the subject matter of this Treaty have jeopardized its supreme interests. It shall give notice of its decision to the other Party six months prior to withdrawal from the Treaty. Such notice shall include a statement of the extraordinary events the notifying Party regards as having jeopardized its supreme interests.

Article XVI

1. This Treaty shall be subject to ratification in accordance with the constitutional procedures of each Party. The Treaty shall enter into force on the day of the exchange of instruments of ratification.
2. This Treaty shall be registered pursuant to Article 102 of the Charter of the United Nations.
DONE at Moscow on May 26, 1972, in two copies, each in the English and Russian languages, both texts being equally authentic.
FOR THE UNITED STATES OF AMERICA:
RICHARD NIXON
President of the United States of America
FOR THE UNION OF SOVIET SOCIALIST REPUBLICS:
L. I. BREZHNEV
General Secretary of the Central Committee of the CPSU

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