

COMMENT

THE "COMMON HERITAGE" OF OUTER SPACE: EQUAL BENEFITS FOR MOST OF MANKIND

"We are the product of 4.5 billion years of fortuitous, slow, biological evolution. There is no reason to think that the evolutionary process has stopped. Man is a transitional animal. . . . All that is clear is that we cannot remain static."¹

"Space, the final frontier."²

I. INTRODUCTION

Man has been exploring his surroundings throughout his entire existence. Endurance and adaptation to new environments have been two of his strongest survival skills. Whether the uncharted discipline is geography, science, or philosophy, man has always sought to expand his boundaries. Societies that have "expanded their frontiers" have prospered while those that cease to explore may experience "long term, detrimental effects."³ Some have described the current era of space exploration as being analogous to the era of Christopher Columbus.⁴ Although the specific benefits of space remain uncertain,⁵

1. CARL SAGAN, *CARL SAGAN'S COSMIC CONNECTION: AN EXTRATERRESTRIAL PERSPECTIVE* 5 (Cambridge University Press 2000) (1973).

2. *Star Trek: The Man Trap* (NBC television broadcast Sept. 8, 1966); see also The Internet Movie Database, *Memorable Quotes from "Star Trek,"* <http://www.imdb.com/title/tt0060028/quotes> (last visited Nov. 27, 2006).

3. *The Future of NASA: Hearing Before the Subcomm. on Science, Technology and Space of the S. Comm. on Science and Transportation*, 108th Cong. 5, 8 (2003) [hereinafter *Space Hearing*] (statement of Brian Chase, Executive Director of the National Space Society) (articulating why the United States should go into outer space).

4. *Id.* at 14. Brian Chase, Executive Director of the National Space Society, warned that it is wrong to think of modern space flight as analogous to times of Christopher Columbus, but more like Leif Erikson due to inefficient technology. *Id.* Because of these technological limitations, Alex Roland, Professor of History at Duke University and former NASA historian, suggested trading manned space flight for automated missions until technology can fly humans more safely into space. *Id.* at 18 (statement of Alex Roland, Professor of History, Duke University).

5. See, e.g., Treaty on Principles Governing the Activities of States in the Exploration

space exploration will certainly change almost every aspect of human life. Satellite communications alone are enabling scientists and researchers to monitor weather, protect endangered species, identify pending disasters, and extend education to remote villages around the world.⁶ Benefits to specific industries could also come in the form of new mineral resources, evolving technology, or scientific advancements. In this regard, space exploration is something akin to discovering the New World.

Jurisprudence is now equally entering unknown territory. In recent years, international bodies have begun drafting laws to govern both the exploration and exploitation of outer space.⁷ The *corpus juris spatialis*,⁸ the body of space law,⁸ is a unique development in international law because it proposes a new structure for international interaction on Earth-based collective efforts in outer space.⁹ For example,

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 [hereinafter Outer Space Treaty] (referring generally to “the great prospects opening up before mankind as a result of man’s entry into outer space”) (emphasis added); see also Commercial Space Launch Act, 49 U.S.C. § 70101(a)(1) (2003) [hereinafter CSLA] (finding generally that “the peaceful uses of outer space continue to be of great value and to offer benefits to all mankind”) (emphasis added).

6. See generally UNITED NATIONS INTER-AGENCY MEETING ON OUTER SPACE ACTIVITIES, SPACE SOLUTIONS FOR THE WORLD’S PROBLEMS: HOW THE UNITED NATIONS FAMILY USES SPACE TECHNOLOGY FOR ACHIEVING DEVELOPMENT GOALS (2005), available at <http://www.uncosa.unvienna.org>.

7. The earliest international treaty that addressed activities in outer space was signed in 1963. See Treaty Banning Nuclear Weapons Tests in the Atmosphere, in Outer Space and Under Water, Aug. 5, 1963, 14 U.S.T. 1313, 480 U.N.T.S. 43 [hereinafter Limited Test Ban Treaty]. The first U.S. policy concerning outer space efforts was enacted in 1958. See National Aeronautics and Space Act of 1958, Pub. L. No. 85-568, 72 Stat. 426 (1958) (codified as amended at 42 U.S.C. § 2451 (2006)).

8. Robert A. Ramey, *Armed Conflict on the Final Frontier: The Law of War in Space*, 48 A.F. L. Rev. 1, 64-65 (2000) (listing the five space treaties that comprise the *corpus juris spatialis*); Christopher M. Petras, “Space Force Alpha”: *Military Use of the International Space Station and the Concepts of “Peaceful Purposes,”* 53 A.F. L. Rev. 135, 147-48 (2002) (referring to six treaties as the core of the *corpus juris spatialis*); see also United Nations Treaties and Principles on Space Law (2002), <http://www.unoosa.org/oosa/SpaceLaw/treaties.html>. The United Nations names five multilateral treaties and five General Assembly resolutions that comprise the body of governing space law. *Id.*; U.N. COPUOS, LEGAL SUBCOMM., 42nd Sess., 714th mtg., ¶¶ 12-13, U.N. Doc. V.05-85379 (Apr. 3, 2005) (statement of Kenneth Hodgkins, Delegate for the U. S.). Hodgkins references “the four core outer space treaties” and then goes on to discuss all of the recognized treaties excluding the Moon Treaty. See *id.* This implies that the United States, which is not a member of the Moon Treaty, does not recognize the Moon Treaty as a part of the *corpus juris spatialis*. See *id.* Therefore, there is still no consensus on the extent of the corpus.

9. The U.S. Department of Defense has suggested that space technologies enhance military coalitions. See Memorandum from William S. Cohen, U.S. Sec’y of Def., to the Sec’y of the Military Depts, Chairman of the Joint Chiefs of Staff, Under Sec’y of Def., Dir. of Def. Research & Eng’g, Assistant Sec’y of Def., Gen. Counsel of the Dep’t of Def., Inspector Gen. of the Dep’t of Def., Assistants to the Sec’y of Def., Dirs. of Def. Agencies (Jul. 9, 1999) [hereinafter Space Memo] (on file with author); see also U.S. DEP’T OF DEF.

while the idea of complete demilitarization of Earth's terrain may be thought to be impossible, many within the international community are struggling to secure such a mandate in space.¹⁰ One of the most important new principles to pervade every space law document is the idea of "Common Heritage."¹¹ This idea has been used before in political rhetoric, but there is no agreement about its precise definition.¹² At least some believe that "Common Heritage" guarantees that all mankind have an equal share in the benefits that will come from reaching into outer space.¹³

Pioneering states will interpret the new rules of outer space according to their own interests and needs. The ways in which humanity will benefit from space will be an area of great controversy between technologically developed countries and those still struggling to make their space debut. But as law-makers begin to draft legislation concerning permissible conduct in space, more and more technology will be tailored towards that same end.¹⁴

Space law is unique in that it is likely the first time in history that states will generally draft domestic policies based on international norms rather than the reverse. When most states first adopt international space agreements, they will have neither a space program nor any legislation concerning space exploration.¹⁵ This fact will enable more consistent legislation among different states, but will make adap-

DIRECTIVE NO. 3100.10, SPACE POLICY § 4.13 (Jul. 9, 1999) [hereinafter SPACE POLICY]. (suggesting that international cooperation in space will "forge closer security ties with U.S. allies and friends" and "improve interoperability between U.S. and allied forces").

10. DELBERT D. SMITH, SPACE STATIONS: INTERNATIONAL LAW AND POLICY 138-39 (1979) (discussing whether "peaceful purposes" means no military activity or just no aggressive actions); see also Petras, *supra* note 8, at 161-62, 176 (2002) (interpreting the Outer Space Treaty to mandate demilitarization of space and discussing Russia's expressed desire to prohibit military operations in space).

11. CTR. FOR RESEARCH OF AIR & SPACE LAW, MCGILL UNIV., SPACE ACTIVITIES AND EMERGING INTERNATIONAL LAW 327 (Nicolas Mateesco Matte ed., 1984). This term was put into use by the emerging super-powers in space. *Id.* at 327. This idea has since become a central theme throughout all space law. See *id.*

12. See SMITH, *supra* note 10, at 154-55. Although "Common Heritage" has been proposed before, it has only been accepted as long as there is no interference with political or economic activities. *Id.* The definition of "Common Heritage" has been steered away from including equal "sharing." *Id.*

13. See SPACE ACTIVITIES AND EMERGING INTERNATIONAL LAW, *supra* note 11, at 327.

14. Manifestation of the "Common Heritage" Principle will most likely ultimately be determined by what language is adopted and what language is rejected. Practice and capacity will change how international actors approach such a principle.

15. See Bruce Hurwitz, *Book Reviews and Notes*, 79 AM. J. INT'L L. 1116, 1117 (1985) (reviewing DAMODAR WADEGAONKAR, THE ORBIT OF SPACE LAW (1984)). Nevertheless, eighty-four states have signed on to the Outer Space Treaty. *Id.*; Outer Space Treaty, *supra* note 5, signatories.

tations to international law difficult in the future because it will potentially require states to redraft their domestic space laws.

As the United States drafts its domestic policies for space exploration and exploitation, the duties and privileges included in the “Common Heritage” Principle must be defined to avoid conflict with international law. This paper will first analyze the history of space exploration to see how the “Common Heritage” Principle has been defined as the field has evolved. It will then look at modern space law to see what the “Common Heritage” Principle means in current legal practice. Finally, in the midst of pending U.S. space legislation, this comment will try to reconcile the ideal of equal sharing and the practice of equal access.

Although many nations are likely looking to advance their own interests, it is critical that the United States recognize that its actions will have a major impact on the space industry because it has been the industry leader.¹⁶ Despite drawbacks, the United States has the biggest independent space program.¹⁷ Because of its unique position,¹⁸ the United States will likely have the largest influence on what legal frameworks are adopted or rejected.

16. See Larry Wheeler, *U.S. Losing Unofficial Space Race, Congressmen Say*, FLORIDA TODAY, Mar. 31, 2006, available at http://www.space.com/news/ft_060331_nasa_china_congress.html (stating that NASA “has lost the commanding lead it once held over the rest of the world in human space exploration”).

17. The United States had a budget of \$16.623 billion for their space program in 2006. NASA, NASA FY 2007 BUDGET REQUEST SUMMARY (2006), www.nasa.gov/pdf/142458main_FY07_budget_full.pdf. The next largest budget was the European Space Agency’s which was approximately \$3.296 billion dollars (2904 million euros). European Space Agency, ESA FACTS AND FIGURES (2006), www.esa.int/esaCP/GGG4SXG3AEC_index_0.html. China holds another of the larger space programs, which is currently considered one of the United States’ major competitors. Wheeler, *supra* note 16. China has vague responses to questions about its budget, but as of yet the budget does not reach NASA’s budget. See Jeff Foust, China, Competition, and Cooperation, THE SPACE REVIEW, Apr. 10, 2006, www.TheSpaceReview.com/article/599/1. China is estimated to spend anywhere between \$1.4 and \$2.2 billion dollars a year. Dean Cheng, *Dragons in Orbit: China’s Space Program Merits Greater Attention*, SPACE NEWS, Aug. 21, 2006, www.space.com/spacenews/archive06/ChengOpEd_0814.html.

18. *Space Hearing*, *supra* note 3, at 3-4 (statement of Marcia Smith, Specialist in Aerospace Tech. Policy from the Cong. Research Serv.). “Why the moon? Why Mars? Because it is humanity’s destiny to strive to seek to find and because it is America’s destiny to lead.” *Id.* at 4 (quoting George H. W. Bush, U.S. President, 20th Anniversary of Apollo Lunar Landing Speech (July 1989)).

II. "COMMON HERITAGE": SPACE EXPLORATION AND ITS LOFTY GOALS

Initially, man's exploration of space was dominated by government initiatives.¹⁹ In the past, civilian programs complimented government projects to explore outer space, but government investments funded the bulk of space research.²⁰ As a result, space technology has dual-uses: civilian and military.²¹ Consequently, space law continues to be highly influenced by the era during which it was first drafted: the Cold War.²² This has led to a competitive model in space²³ despite efforts to create a cooperative community.

A. *The Space Race*

In 1957, the United Soviet Socialist Republic (Soviet Union) launched the first satellite named "Sputnik" into outer space as the first step in the Space Race.²⁴ On the other side of the planet, the United States became alarmed by the prospect of being left behind in the Space Race.²⁵ President Dwight Eisenhower passed the National Aeronautics and Space Act of 1958²⁶ as a civilian component to a renewed national space effort,²⁷ reserving any military operations in

19. Joanne Irene Gabrynowicz, *Space Law: Its Cold War Origins and Challenges in the Era of Globalization*, 37 SUFFOLK U. L. REV. 1041, 1051 (2004) (describing the origins of space law as being characterized by use and governance of nation-states); *see also* Petras, *supra* note 8, at 135-36 (noting the parallel development of military space technology).

20. *See generally* Petras, *supra* note 8, and sources cited (discussing the impact of U.S. and Soviet Union military initiatives on the development of space programs).

21. *See generally* Elizabeth Seebode Waldrop, *Integration of Military and Civilian Space Assets: Legal and National Security Implications*, 55 A.F. L. REV. 157 (2004). Space technology inherently serves both scientific and military purposes at once. *Id.* For example, a satellite may be used to take pictures both for maps and for coordinating military operations. *Id.* at 171-72.

22. ROGER D. LAUNIUS, *NASA: A HISTORY OF THE U.S. CIVIL SPACE PROGRAM 17-18* (1994) (discussing the effects of Sputnik, the first satellite shot into orbit, on the United States); Waldrop, *supra* note 21, at 159.

23. *See generally* LAUNIUS, *supra* note 22, at 18-28. Efforts by the United States to not be left behind in the Space Race created a competitive model. *Id.* at 17.

24. *Id.* at 17; *see also* Waldrop, *supra* note 21, at 159.

25. LAUNIUS, *supra* note 22, at 17-18.

26. *See* National Aeronautics and Space Act of 1958, Pub. L. No. 85-568, 72 Stat. 426 (1958).

27. Waldrop, *supra* note 21, at 159; National Aeronautics and Space Act of 1958, 42 U.S.C. § 2451 (2006). An interesting provision to note in subsection (a) is that Congress declares the official U.S. policy in space as one that "should" be devoted to peaceful purposes for the benefit of all mankind. *Id.* The purpose is therefore not restricted to peaceful purposes, just encouraged. *See id.*

space for the Department of Defense.²⁸ The United States believed it needed to gain the position as the leader in space or risk losing the Cold War.²⁹ This created a direct connection between outer space exploration and military superiority.

Because of its military nature, space exploration has led to a myriad of concerns for the entire world.³⁰ Questions concerning issues such as the precise definition of “peaceful purposes” have become more urgent as new countries reach levels of development where they too have access to space.³¹ Groups of countries with similar interests and interpretations have joined together in international agreements and to make declarations over specific issues.³²

There is one governing body that tries to manage these concerns. The United Nations Committee on the Peaceful Uses of Outer Space (COPUOS) was created to promote the peaceful exploration of space.³³ COPUOS provides guidance and acts as a focal point for the growing variety of alliances.³⁴ Unfortunately, a mechanism for enforcement has not yet been developed.

28. See generally SPACE POLICY, *supra* note 9.

29. See KENNETH GATLAND, MANNED SPACECRAFT 100 (Macmillan Publ’g Co., Inc. 1976) (1967).

30. To understand the depth of fear the United States was experiencing, one might recall the Ronald Reagan speech about “Star Wars.” See Ronald Reagan, U.S. President, Address to the Nation on Defense and National Security (Mar. 23, 1983), available at <http://www.reagan.utexas.edu/archives/speeches/1983/32383d.htm>); CNN Cold War – Historical Documents: Reagan’s “Star Wars” Speech, <http://www.cnn.com/SPECIALS/cold.war/episodes/22/documents/starwars.speech> (last visited Nov. 22, 2006) (explaining that the speech was denoted the “Star Wars” speech because Reagan sought to develop satellite technology that could stop a nuclear attack). For a more personal effect, recall the “duck and cover” drills children performed in elementary schools. See also Limited Test Ban Treaty, *supra* note 7. This treaty was drafted to reach the “speediest possible achievement of an agreement on general and complete disarmament.” *Id.*

31. See Outer Space Treaty, *supra* note 5, proclamation; see also *Space Hearing*, *supra* note 3, (statement of Sam Brownback, U.S. Senator). To date, three nations have launched astronauts into space, the United States, Russia, and China. See *id.* (statement of Sam Brownback, U.S. Senator, that the U.S. and Russia were the only countries sending humans into space as of April 2, 2003); Foust, *supra* note 17 (confirming that China has launched humans into space).

32. The European Space Agency includes Belgium, Germany, France, Spain, and the United Kingdom. Agreement Concerning Cooperation on the Civil International Space Station, Mar. 27, 2001, 1998 U.S.T. 212 [hereinafter ISS Agreement]. The European Space Agency represents its members in the Agreement Concerning Cooperation on the Civil International Space Station. *Id.*

33. Gabrynowicz, *supra* note 19, at 1043.

34. See International Co-operation In the Peaceful Uses of Outer Space, G.A. Res. 1472 (XIV), ¶ A1(a), U.N. Doc. A/1472 (Dec. 12, 1959) (establishing “a Committee on the Peaceful Uses of Outer Space . . . [t]o review, as appropriate, the area of international cooperation, and to study practical and feasible means for giving effect to programmes in the peaceful uses of outer space which could appropriately be undertaken under the United Nations auspices”);

B. *Space Explorers*

To date, few nations have achieved "space faring" capability,³⁵ leaving most states with less developed technology outside of the space industry.³⁶ Space faring nations currently include the United States, Russia, and China.³⁷ Indeed, these states have begun a practice of camaraderie by bringing visiting astronauts from other nations into space for scientific purposes.³⁸ Today, scientific research is not the only reason to accept foreign passengers. Four wealthy entrepreneurs have paid their way onto the International Space Station as the Earth's first space tourists.³⁹

Since the beginning of the Space Race, the United States has been trying to maintain a technological edge over the rest of the world.⁴⁰ But the terms of the Space Race have changed. Following virtually

see also id. ¶ B(1) (stating that "[t]he General Assembly . . . [d]ecides to convene . . . under the auspices of the United Nations, an international scientific conference of interested Members of the United Nations and members of the specialized agencies for the exchange of experience in the peaceful uses of outer space").

35. "Space-faring" nations are those that can build and launch satellites into outer space. *See Waldrop, supra* note 21, at 167.

36. *See Nandisiri Jasentuliyana, The Development of the Outer Space Treaties and the Legal Principles from a Third World Perspective, in PROCEEDINGS OF THE FORTIETH COLLOQUIUM ON THE LAW OF OUTER SPACE 57, 59, 63 (Oct. 1997)* (stating that developed states have a "quasi-monopoly" in space and that developing states are working towards reducing the "technological gap" that exists between themselves and developed states regarding space technology).

37. *Space Hearing, supra* note 3, (statement of Sam Brownback, U.S. Senator).

38. For example, Brazil spent millions of U.S. dollars to send the first Brazillian astronaut to board the International Space Station (ISS) in a historic moment for the Brazilian people. *See generally* Tales Azzoni, *Homeland Has Much to Gain from Spaceflight, Brazilian Astronaut Says*, SPACE.COM, (Apr. 8, 2006), http://www.space.com/missionlaunches/060408_exp12_pontes.html. (last visited Nov. 9, 2006); *see* NASA Space Station Homepage, *available at* http://www.nasa.gov/mission_pages/station/expeditions/expedition14. (follow "Read more about Expedition 14" hyperlink). Biographies are available on the crews of the ISS: currently hosting Commander Michael Lopez-Alegria from the United States, Flight Engineer Mikhail Tyurin from Russia, Flight Engineer Thomas Reiter of the European Space Agency from Germany, Flight Engineer Sunita Williams from the United States, and Spaceflight Participant Anousheh Ansari from the United States (and the first member of Iranian decent). *Id.* Previous crews have consisted of Roberto Vittori from Italy (Expedition 11), and Pedro Duque from Spain (Expedition 8). For more details, *see* http://www.nasa.gov/mission_pages/station/expeditions/index.html (follow "Expedition 8" hyperlink) (follow "Expedition 11" hyperlink).

39. Ker Than, *Fourth Space Tourist, Expedition 14 Crew Docks at ISS*, SPACE.COM, Sep. 20, 2006, http://www.space.com/missionlaunches/060920_exp14_docking.html. In May 2001, Dennis Tito became the first space tourist. He has since been joined by Mark Shuttleworth in 2002, Greg Olsen in 2005, and the fist female, Anousheh Anasari, in 2006. *Id.*

40. *Space Hearing, supra* note 3 (statement of Sam Brownback, U.S. Senator); *see also* SPACE POLICY, *supra* note 9.

simultaneous experiments to build national space stations,⁴¹ the United States and Soviet Union joined forces under a growing number of national flags to maintain an International Space Station.⁴² The space station is currently hosting astronauts from all over the world.⁴³

The policy of joining forces with a potential rival has been employed by the United States before.⁴⁴ The United States was afraid that old rockets produced in the Soviet Union would be converted to ballistic missiles, so the United States encouraged Russia and the Ukraine to enter the commercial launch industry in exchange for acceptance of nuclear arms proliferation controls.⁴⁵

However, the United States has a very different role in the development of the space program in the People's Republic of China. Despite restrictions on the exchange of information, China has developed a successful "space-faring" program based on U.S. technology.⁴⁶ As China's space capabilities increase, some are encouraging the United States to reconsider joint ventures with China.⁴⁷

The United States must now reconsider its relationship with the commercial sector in space exploration as well. It has become increasingly expensive for the United States to continue its shuttle launch program as the primary means of space transportation.⁴⁸ Many

41. Petras, *supra* note 8, at 136; GATLAND, *supra* note 29, at 221, 230.

42. See ISS Agreement, *supra* note 32, art. 1(1)-(2).

43. See *supra* note 38 and accompanying text.

44. Letter from John F. Kennedy, U.S. President, to Nikita Khrushchev, Soviet Union Chairman of the Council of Ministers (Mar. 7, 1962), available at http://www.state.gov/www/about_state/history/volume_vi/exchanges.html (discussing the United States' intentions to strive for the cooperative use of outer space together with the Soviet Union).

45. Waldrop, *supra* note 21, at 183. The United States encouraged Russia and the Ukraine to commercialize their industry to ensure peaceful applications for their surplus missile technology. *Id.*

46. See generally *id.*; see also Foust, *supra* note 17. China has also invested in American companies in order to gain access to sensitive data and obtain plans through illegal intelligence operations. H.R. REP. NO. 105-851, vol. 1, ch.1, at 35 (1999). Counterintelligence is even more difficult with China than it was with the Soviet Union during the Cold War because Chinese nationals are able to travel in and out of the United States with ease. See *id.* at 38-41.

47. See Leonard David, *U.S.-China Cooperation: The Great Space Debate*, SPACE.COM (Apr. 12, 2006), http://www.space.com/news/060412_china_cooperation.html (discussing the current sentiment among American businesses wanting to collaborate with China); Wheeler, *supra* note 16. But see Foust, *supra* note 17 (discussing alarm among U.S. officials concerning China's space capabilities and intentions, but concluding that their concern is unfounded).

48. See *Space Hearing*, *supra* note 3 (statement of Alex Roland, Professor of History, Duke University) (discussing the growing inferiority of the NASA Shuttle). Since its construction, the shuttle has been the major workhorse for NASA missions. *Id.* But these shuttles are expensive to maintain, and some have been in service for more than twenty years. *Id.* Their decreasing capacity is evident by the Columbia accident. *Id.*

countries, including the United States, are looking to private companies for affordable transportation into outer space.⁴⁹ With this growing reliance on commercial rockets, private companies are launching satellites and scientific equipment into space that conduct both civilian and military objectives.⁵⁰

Because of developing technology, private companies are in a unique position to create new actors in outer space, intentionally and accidentally. The commercial sector has been responsible for multiple instances of errant technology reaching unauthorized parties.⁵¹

This comment distinguishes three types of space explorers as actors in the space industry: nation-state haves, nation-state have-nots, and private companies. All three of these actors have been shaping space law but have not yet put the law into practice. Vague provisions within international treaties are usually defined by technological capabilities and practice. But there have been two major lessons that will necessarily alter the world's approach to space exploration. First, universal access to outer space will soon become a reality for many developing states, and such access is beyond the control of any single nation. Second, cooperative efforts are more successful at developing the space industry than are competitive practices. International space law will need to reconcile the "Common Heritage" Principle with a competitive economic model on a playing field that is not anywhere near even.

III. "EXTRANATIONAL" LAW

Like most laws in history, the *corpus juris spatialis* was created amidst conflict and fear. The Soviet Union and United States were engaged in a race for economic, military, and technological superiority.⁵² The fear of a nuclear attack from space has been a growing concern for the international community as a whole. The COPUOS body

49. Waldrop, *supra* note 21, at 163, 165-66.

50. *See id.* at 162-63; Agreement on Guidelines for the Transfer of Equipment and Technology Related to Missiles, Apr. 16, 1987, 26 I.L.M. 599 [hereinafter MTCR]. The treaty specifically targets technology that can be dually employed for reusable entry vehicles (shuttles) and as nuclear payload delivery systems (Intercontinental Ballistic Missiles). *See id.*; *see also* Gabrynowicz, *supra* note 19, at 1056 (discussing how the United State is merging many of its military and science programs to minimize costs).

51. *See generally* H.R. REP. NO. 105-851, vol. 1, ch. 2, at 66-95 (1999) (discussing several incidents where Chinese individuals stole technical data from U.S. weapons design laboratories for the Chinese government); *see also* Waldrop, *supra* note 21, at 193, 194 (discussing Boeing's involvement in the unauthorized sharing of missile technology during a joint venture with Russia).

52. SPACE ACTIVITIES AND EMERGING INTERNATIONAL LAW, *supra* note 11, at 52.

was created at a time of bilateral super-power dominance,⁵³ but with new participants in space such as China, Japan, and North Korea, the situation is now much more complex. Against this backdrop, nations came together concerning the idea that there must be peaceful cooperation in space separate from any struggles on Earth.

The first international treaty regarding space was the Limited-Test-Ban Treaty.⁵⁴ This treaty is an international agreement concerning the banning of nuclear tests in the atmosphere, outer space, and under water.⁵⁵ The two major nuclear powers of the day, the United States and the Soviet Union, along with the United Kingdom agreed that there should be a general disarmament and a ban on nuclear testing in environments that could spread radioactive debris.⁵⁶ Over 120 other nations agreed to sign the treaty with a few notable exceptions.⁵⁷ Because the treaty focuses on use and not presence in space, it is not considered one of the *corpus juris spatialis*.⁵⁸ However, it is an important document because of the novel limitations put on military operations and the new approach to space exploration adopted by the world's military super powers.⁵⁹

A. *Corpus Juris Spatialis*

The body of modern law that is considered to govern space law consists of five international treaties: the Outer Space Treaty, the Rescue Agreement, the Liability Convention, the Registration Convention, and the Moon Treaty.⁶⁰ While more treaties are coming into existence, these five are regarded by most as the controlling authority for human activities in outer space.⁶¹ The principles of the *corpus juris spatialis* involve new commitments to international cooperation in order to achieve a shared vision of space exploration.⁶² International

53. *Id.* at 55.

54. Limited Test Ban Treaty, *supra* note 7.

55. *Id.* art. I(1)(a).

56. *See id.*

57. *See Petras, supra* note 8, at 148. France and China refused to ratify the treaty and continue using nuclear altitude testing. This rapprochement has limited the effect of the Limited Test Ban Treaty. *Id.*

58. *See id.*

59. *Id.*

60. *See* United Nations Office for Outer Space Affairs, United Nations Treaties and Principles on Space Law, <http://www.unoosa.org/oosa/en/SpaceLaw/treaties.html> (last visited Nov. 12, 2006).

61. *See id.*

62. *See id.*

cooperation will become an increasing norm vital to cooperative activities in space. Because the forum in outer space will operate under new concepts of the international community, perhaps the term for this area of law should be changed to "extranational law."

1. *Outer Space Treaty*

The Americans, Russians, and British came together in 1967 to write the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies (Outer Space Treaty).⁶³ This treaty is the most significant of any because it created the framework from which all international space law is derived.⁶⁴

The treaty begins by recognizing the common interests of all people in the peaceful exploration and use of space; that it should benefit all despite economic or scientific development.⁶⁵ The Outer Space Treaty establishes the belief that co-operation in space "will contribute to the development of mutual understanding and to the strengthening of friendly relations between states and peoples."⁶⁶ To date, there is no precise definition of "peaceful purpose."⁶⁷

Article I of the Outer Space Treaty lists what has become known as the three freedom principles.⁶⁸ The "freedom of access" principle ensures that all mankind shall benefit from exploration and use of outer space, despite economic or scientific development, that outer space "shall be the province of all mankind."⁶⁹ Second, every state shall have "freedom of exploration"⁷⁰ and free access to all celestial bodies.⁷¹ This elimination of property rights is similar to the principles in the Antarctic Treaty, discussed later.⁷² Finally, all nations have

63. Outer Space Treaty, *supra* note 5, proclamation.

64. Petras, *supra* note 8, at 150.

65. Outer Space Treaty, *supra* note 5, proclamation.

66. *Id.*

67. See generally Petras, *supra* note 8, page 168-171 (discussing the evolving interpretation of the term "peaceful purpose").

68. See Petras, *supra* note 8, at 153 (listing the three freedom principles as: "(1) freedom of access, (2) freedom of exploration, and (3) freedom of use"). See also Outer Space Treaty, *supra* note 5, art. I para. 2.

69. Outer Space Treaty, *supra* note 5, art. I para. 1. Does this mean everyone shall benefit the way everyone does from cancer research, in other words those who can afford it?

70. Petras, *supra* note 8, at 153.

71. Outer Space Treaty, *supra* note 5, art. I para. 2.

72. See Antarctic Treaty arts. I(1), II, IV(2), December 1, 1959, 12 U.S.T. 794, 402 U.N.T.S. 71 [hereinafter Antarctic Treaty]. All signatories are forbidden from asserting any new claims of sovereignty over any part of Antarctica, and military use is strictly prohibited,

“freedom of use”⁷³ for scientific investigation, along with a pledge to facilitate co-operation among states.⁷⁴

These principles, while noble, are also very broad and difficult to interpret. Until now, capacity and practice have defined these terms. For example, there has been a debate as to whether the “Common Interest” Principle implies equitable sharing of benefits or simply ensures equal access to space.⁷⁵ Historically, the only countries that were affected by this notion were those that could reach space,⁷⁶ but the implications are growing with the dissemination of technology.

Article II is similar to the treaties that govern Antarctica, stating that there will be “no national appropriation . . . of sovereignty” over space or any celestial body.⁷⁷ This prohibits government appropriation of territory. However, critics have disagreed as to whether this clause extends to private individuals.⁷⁸ While there is some indication of what property law in space will be, the extreme inaccessibility of space may require private ventures into space, and that will mean profit incentives. Entrepreneurs will need to know what is to be gained.

Another problem is that the boundaries between outer space and air space have yet to be defined by any specific altitude.⁷⁹ Nations already claim airspace for the purpose of controlling airplane traffic,⁸⁰

but they all have free access for scientific research and tourism. *Id.*; R. Thomas Rankin, *Space Tourism: Fanny Packs, Ugly T-Shirts, and the Law in Outer Space*, 36 SUFFOLK U. L. REV. 695, 699 (2003). The body of law governing Antarctica will be used to analyze the future of International Space Law. Rankin, *supra* note 76, at 696.

73. Petras, *supra* note 8, at 153.

74. Outer Space Treaty, *supra* note 5, art. I para. 3; *see also* Antarctic Treaty, *supra* note 72. This begs the question: to what extent will nations help themselves versus each other?

75. Petras, *supra* note 8, at 151-52.

76. *See id.*

77. Compare Outer Space Treaty, *supra* note 5, art. II, with Antarctic Treaty, *supra* note 72, art. IV(2).

78. Rosanna Sattler, *Transporting a Legal System for Property Rights: From the Earth to the Stars*, 6 CHI. J. INT'L L. 23, 28 (2005). Some critics argue that by means of citizenship, the restrictions are extended to private individuals. *Id.*

79. *See* Petras, *supra* note 8, at 154. There are two schools of thought on what to do with the outer space boundary. The first, “spacialists” feel that an international law should be passed to establish a boundary. *Id.* Others, “functionalists” feel that the specific activity should be governed by the nature of the activity. *Id.* at 154-55. For now, spacialists and functionalists agree that satellites create a minimum boundary because it is accepted that they orbit in space. *Id.* The two camps also look to the functioning definition of “space object” as any object designed to enter outer space. *Id.*

80. *See* Convention on International Civil Aviation art. I, Dec. 7, 1944, T.I.A.S. 1951, 15 U.N.T.S. 295 [hereinafter Chicago Convention] (“The contracting States recognize that every State has complete and exclusive sovereignty over the air space above its territory”); *see also id.* art. 6 (“No scheduled international air service may be operated over or into the

but this model will not serve in outer space.⁸¹ As aviation technology continues to improve, the difference between airplane and space shuttle will be relevant to the type of law employed.⁸² As the law stands, there are drastic differences in the legal principles applied to these two situations.⁸³

States also need to know where airspace and outer space border so that nations will know the vertical limits of their territory. Recently, the tiny South-Pacific nation of Tonga created a dilemma by attempting to secure exclusive rights for geostationary orbits.⁸⁴ This right may open the door to a free market in space territory, where states would claim sovereignty over geostationary orbits and then sell them to the highest bidder. After difficult negotiations with the International Telecommunications Satellite Organization (INTELSAT), Tonga was permitted to lawfully retain only six of sixteen orbits.⁸⁵ This outcome shows that there are profitable interests in space that states are willing to forego in the interest of retaining a common heritage in space.

Another critical provision of the Outer Space Treaty is found in Article III, which provides that parties to the treaty will act "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."⁸⁶ How-

territory of a contracting State, except with the special permission or other authorization of that State, and in accordance with the terms of such permission or authorization.").

81. See *supra* note 77 and accompanying text (stating that there is no sovereignty in space).

82. See 49 U.S.C. § 70102(8) (2006) ("'launch vehicle' means—(A) a vehicle built to operate in, or place a payload or human beings in outer space; and (B) a suborbital rocket."); Commercial Space Transportation Reusable Launch Vehicle and Reentry Licensing Regulations; Final Rule, 65 Fed. Reg. 56,617 (Sept. 19, 2000) (defining Reusable Launch Vehicles as those vehicles intended to return from Earth's orbit or outer space relatively intact). At no point do the regulations make a specific altitude distinction besides that the vehicles are meant to operate in outer space. 49 U.S.C. § 70102(8); see also Commercial Space Transportation Reusable Launch Vehicle and Reentry Licensing Regulations; Final Rule, 65 Fed. Reg. 56,618 (Sept. 19, 2000); Report of the Legal Subcommittee on its forty fifth session, A/AC.105/871, ¶ 91 (noting legal uncertainty concerning the application of space law and air law).

83. Compare Chicago Convention, *supra* note 80, arts. 1, 6 with Outer Space Treaty, *supra* note 5, art. II.

84. Jonathan Ira Ezor, *Costs Overhead: Tonga's Claiming of Sixteen Geostationary Orbital Sites and the Implications for U.S. Space Policy*, 24 LAW & POL'Y INT'L BUS. 915, 915 (2003). A geostationary satellite is one that orbits the Earth at the same constant rate as the turning of the Earth. This proves useful for creating constant satellite coverage in one area. *Id.* at 915 n. 1.

85. *Id.* at 915-16.

86. Outer Space Treaty, *supra* note 5, art. III.

ever there are certain principles that cannot apply due to the special environment of outer space,⁸⁷ such as those concerning property.

Military activities are absolutely forbidden in outer space by Article IV.⁸⁸ The interpretations of this section have been broad. For example, Article IV expressly prohibits military testing and placing nuclear weapons in space,⁸⁹ but the wording was intentionally crafted to exclude intercontinental ballistic missiles (ICBMs) and other types of less destructive weapons.⁹⁰ Also the use of military personnel for scientific investigation is not prohibited.⁹¹ Thus, the definition of prohibited military conduct remains arguable. The limitations on nuclear testing reiterate the principles of the Limited Test Ban Treaty and extend the limitations to nuclear testing of any kind.⁹²

Articles V through VIII of the Outer Space Treaty deal with mutual responsibilities of governments regarding astronauts and launch objects. Astronauts are labeled as “envoys of mankind” and are guaranteed “all possible assistance in the event of an accident. . . .”⁹³ The same follows for objects launched into space that crash back to the Earth.⁹⁴ In the spirit of international cooperation, every state is required to aid in the recovery of astronauts, technology, and to forewarn any parties who might be in danger from objects in space.⁹⁵ Any state launching an object into space retains jurisdiction over the object⁹⁶ as well as liability for any damage it may cause.⁹⁷ Private entities conducting activities in space must receive permission from an appropriate state body that will then oversee the activities.⁹⁸ Thus, parties to the treaty that have no space program accept a duty, but it remains to be seen what kind of benefit they will receive in exchange for their aid.⁹⁹

Of these provisions, Article VI contains important language for commercial prospects. Article VI requires all non-governmental enti-

87. Petras, *supra* note 8, at 156.

88. Outer Space Treaty, *supra* note 5, art. IV.

89. *Id.* art. IV para. 1.

90. Petras, *supra* note 8, at 157-58.

91. Outer Space Treaty, *supra* note 5, art. IV para. 2.

92. *See id.*; *see also* Limited Test Ban Treaty, *supra* note 7.

93. Outer Space Treaty, *supra* note 5, art. V para. 1.

94. *See id.* art. VIII (granting launching states jurisdiction over objects in space).

95. *Id.* art. V.

96. *Id.* art. VIII.

97. *Id.* art. VII.

98. *Id.* art. VI.

99. SMITH, *supra* note 10, at 91-92.

ties to be authorized and supervised by a member state.¹⁰⁰ Thus, the Outer Space Treaty grants governments the power to regulate independent space activities and appears to provide joint liability for such activities.¹⁰¹

The Outer Space Treaty includes provisions that attempt to elaborate on "Common Interest" and "Co-operation." Article IX states that parties to the treaty "shall be guided by the principle of co-operation" while keeping "due regard to the corresponding interests of all other States Parties to the [t]reaty."¹⁰² If a planned activity could interfere with other parties' use of space, then States Parties can request an international consultation before the activity occurs.¹⁰³ States Parties to the treaty are encouraged to cooperate in scientific endeavors. Specifically, they must allow states equal opportunity to observe space flights,¹⁰⁴ notify the scientific community of any activities conducted in space (including results),¹⁰⁵ and share space stations and equipment on a reciprocal basis.¹⁰⁶ Achieving international consensus on precise definitions for these terms is difficult enough, but it is even more complex due to the dual nature of the technology involved.¹⁰⁷

The core terms of the treaty conclude by parceling jurisdiction over all activities conducted in space, on the Moon, or on any other celestial bodies.¹⁰⁸ The treaty has been adopted by a majority of the U.N. members¹⁰⁹ and has been accepted as the founding body of international space law.¹¹⁰

2. *Rescue Agreement*

Treaties aiding space endeavors have helped make many developing states a part of space exploration. Through the Agreement on the Rescue of Astronauts, Return of Astronauts and the Return of Objects

100. Outer Space Treaty, *supra* note 5, art. VI.

101. *Id.*

102. *Id.* art. IX.

103. *Id.*

104. *Id.* art. X.

105. *Id.* art. XI.

106. *Id.* art. XII.

107. *See* Waldrop, *supra* note 21, at 175-76.

108. Outer Space Treaty, *supra* note 5, art. XIII para. 2.

109. As of January 1, 2006, ninety-eight member states had ratified the Outer Space Treaty with an additional twenty-seven member states as signatories. United Nations Office for Outer Space Affairs, United Nations Treaties and Principles on Space Law, Outer Space Treaty, <http://unoosa.org/oosa/en/SpaceLaw/treaties.html> (last visited Nov. 27, 2006).

110. *See* Petras, *supra* note 8, at 149.

Launched into Outer Space (Rescue Agreement), signatories pledge, among other things, to assist in the safe return of astronauts or space objects to their home country in the event of an emergency landing.¹¹¹ The treaty was drafted to promote international cooperation, and aspire to prevent “international conflict.”¹¹² Most of the terms in the Rescue Agreement give responsibilities to “contracting parties” that encounter wayward astronauts within their jurisdictions.¹¹³ While reimbursement is guaranteed,¹¹⁴ nowhere else is there any mention of profitable interest for a state that does not participate in outer space activities.¹¹⁵ This is an interesting fact since only five of the sixty-six contracting parties are space-faring nations.¹¹⁶

The Rescue Agreement expands on Article V of the Outer Space Treaty and clarifies the duties owed to stranded astronauts and governments trying to recover errant technology.¹¹⁷ For the most part, the Rescue Agreement is viewed as being a reaffirmation of principles already established in the Outer Space Treaty.

3. *The Liability Convention and the Space Registry*

Because many of the technological advancements in space are achieved through trial and error, a great deal of risk must be assumed.¹¹⁸ There are now more than 9,000 pieces of man-made space debris floating unfettered in Earth’s orbit.¹¹⁹ The Outer Space Treaty

111. See generally Agreement on the Rescue of Astronauts, Return of Astronauts and the Return of Objects Launched into Outer Space, U.S.-Gr. Brit.-U.S.S.R., Apr. 22, 1968, 19 U.S.T. 7570 [hereinafter Rescue Agreement].

112. Compare *id.*, with United Nations: Agreement Governing the Activities of States on the Moon and Other Celestial Bodies, *opened for signature* Dec. 18 1979, 1363 U.N.T.S. 3, 18 I.L.M. 1434 (*entered into force July 11, 1984*) [hereinafter Moon Treaty].

113. See, e.g., Rescue Agreement, *supra* note 111, art. 2 (“If, owing to accident, distress, emergency or unintended landing, the personnel of a spacecraft land in territory under the jurisdiction of a Contracting Party, it shall immediately take all possible steps to rescue them and render them all necessary assistance”).

114. *Id.* art. 5(5) (“Expenses incurred in fulfilling obligations to recover and return a space object or its component parts under paragraphs 2 and 3 of this article shall be borne by the launching authority”).

115. See *id.*

116. See generally *supra* notes 35-37 and accompanying text.

117. Robert A. Ramney, *Armed Conflict on the Final Frontier: The Law of War in Space*, 48 A.F. L. REV. 1, 86 (2000); Petras, *supra* note 8, at 163; compare Rescue Agreement, *supra* note 111, with Outer Space Treaty, *supra* note 5, art. V.

118. Cf. Molly K. Macauley, *Flying in the Face of Uncertainty: Human Risk in Space Activities*, 6 CHI. J. INT’L L. 131, 133 (2005) (stating that “spaceflight remains risky even after exhaustive, detailed, and careful investigation, extensive reengineering, and changes in communication”).

119. J.C. Liou & N.L. Johnson, *Risks in Space from Orbiting Debris*, SCIENCE, Jan. 20,

addresses liability in Articles VI ("States Parties to the Treaty shall bear international responsibility for national activities in outer space. . . ."),¹²⁰ Article VII (States Parties to the treaty that launch or procure the launch of any object into space assume liability for damage caused by those objects);¹²¹ and Article IX (States Parties must avoid contaminating or adversely affecting the Earth's environment when conducting activities in space).¹²² The Convention on International Liability (Liability Convention) augments these articles in the Outer Space Treaty,¹²³ and expressly attributes liability for damages to the country that launched the object into space.¹²⁴

This treaty contains a variant of the "Common Interest" Principle, but it is reworded to recognize "the common interest of all mankind in furthering the exploration and use of outer space for peaceful purposes."¹²⁵ This language may be narrower than the Outer Space Treaty's,¹²⁶ suggesting that perhaps the "Common Interest" is limited to peaceful activities in space. In other words, "Common Heritage" refers to the passive benefit of not being attacked from space. This favors the equitable access interpretation of "Common Interest." The convention also includes a refined definition of who is a state actor, namely any international intergovernmental organization conducting space activities that accepts the rights and duties of the Liability Convention.¹²⁷

To ensure that there is no doubt as to who launched a specific object into space, the Registration of Objects Launched into Outer Space (Space Registry) created a database at the United Nations that requires notification before a launch can take place.¹²⁸ The Space Registry and

2006, at 340.

120. Outer Space Treaty, *supra* note 5, art. VI.

121. *Id.* art. VII.

122. *Id.* art. IX.

123. See Petras, *supra* note 8, at 164-65.

124. Convention on International Liability for Damages Caused by Space Objects, Mar. 29, 1972, 24 U.S.T. 2389, art. II. [hereinafter Liability Convention].

125. *Id.* Proclamation.

126. Compare Liability Convention, *supra* note 124 (stating that the treaty recognizes "the common interest of all mankind in *furthering* the exploration and use of outer space for peaceful purposes" (emphasis added)), with Outer Space Treaty, *supra* note 5 (stating that the treaty recognizes "the common interest of all mankind in the *progress* of the exploration and use of outer space for peaceful purposes" (emphasis added)).

127. Liability Convention, *supra* note 124, art. XXII(1).

128. Registration of Objects Launched into Outer Space, Jan. 14, 1975, 28 U.S.T. 695, 1023 U.N.T.S. 15 [hereinafter Space Registry]. Originally, Article VIII of the Outer Space Treaty appointed jurisdiction of an object in space to the state where the object was registered. Outer Space Treaty, *supra* note 5, art. VIII.

the Liability Convention require that launching states assume absolute responsibility for damages.¹²⁹ Again, the “Common Interest” Principle is repeated as is found in the Liability Convention, adding more support to the argument that “Common Interest” is limited to equitable access.¹³⁰

4. *Moon Treaty*

There are few states that have the means to begin reaping the benefits of outer space and celestial bodies. Less developed states will probably have access to space one day, but because of their late arrival to the industry, there will be few benefits left untapped.¹³¹ To address this concern, two proposed treaties were presented to COPUOS concerning the use of the Moon and other celestial bodies; one from Argentina (backed by the United States), and another drafted by the Soviet Union.¹³² These drafts were surrounded by controversy concerning the world’s less developed nations’ desire to preserve the status of “Common Interest” benefits in an industry they could not yet access.¹³³ The Soviet Union’s version was adopted as the first draft of the United Nations: Agreement Governing the Activities of States on the Moon and Other Celestial Bodies (Moon Treaty).¹³⁴

This treaty is meant to govern activities on the Moon so that all states will have equal “use of the moon and other celestial bodies,” today and tomorrow, and to ensure that the Moon remains free from international conflict.¹³⁵ The treaty attempted to create an international regime to oversee exploitation in space as technology developed.¹³⁶ However, this idea would also constitute a freezing of commercial ex-

129. Space Registry, *supra* note 128 (“Recalling further that the [c]onvention on international liability for damage caused by space objects . . . establishes international rules and procedures concerning the liability of launching States for damages caused by their space objects”); *see also* Liability Convention, *supra* note 124, art. II (“A launching State shall be absolutely liable to pay compensation for damage caused by its space object on the surface of the Earth or to aircraft in flight”).

130. *See* Space Registry, *supra* note 128.

131. *See* Art Dula, *Free Enterprise and the Proposed Moon Treaty*, 2 HOUS. J. INT’L L. 3, 20 (1979) (discussing the idea that industrialized countries’ access to space resources should be limited “so that developing countries have a chance to” benefit from those resources).

132. *Id.* at 7.

133. *See* Gabrynowicz, *supra* note 19, at 1046-47.

134. Dula, *supra* note 131, at 1, 7. The draft that the Soviet Union submitted underwent several revisions before COPUOS adapted it into the Moon Treaty 1979. *Id.* at 7.

135. *See* Moon Treaty, *supra* note 112.

136. *See id.* art. 11.

exploitation of the Moon until such a governing body could be created.¹³⁷ Through a series of negotiations, the United States was able to convince the U.N. General Assembly to impose neither a moratorium on commercial growth,¹³⁸ nor a limit on exploitation done in furtherance of "scientific investigations."¹³⁹ Despite the compromise of the Soviets and other third world countries, the Moon Treaty has not been ratified by the United States and has subsequently received little recognition.¹⁴⁰

B. Additional International Agreements

There are three prominent international agreements that do not fall under the category of space law but can be viewed as instructive authority due to similarities with the outer space treaties: the Antarctic Treaty; the Seabed Treaty; and the 1998 International Space Station Agreement. These treaties require member states to agree to pursue only "peaceful purposes,"¹⁴¹ restrict claims of sovereignty in undeveloped environments,¹⁴² and imply a "Common Interest" for all mankind.¹⁴³ The Antarctic Treaty is often cited as an indication of what

137. Dula, *supra* note 131, at 16 (discussing the limit on commercial development on the Moon by U.S. corporations if the United States ratifies the Moon Treaty).

138. *Id.* at 10.

139. *Id.*

140. See Sattler, *supra* note 78, at 30; Petras, *supra* note 8, at 167; see also U.N. Committee on the Peaceful Uses of Outer Space, *Report of the Legal Subcommittee on its forty-fifth session, held in Vienna from 3 to 13 April 2006*, 49th Sess., ¶ 34, U.N. Doc. A/AC.105/871 (2006). The number of members ratifying the five treaties of space law descends with each successive treaty, starting at twenty-seven members of the Outer Space Treaty and only four members for the Moon Treaty. *Id.*

141. See Antarctic Treaty, *supra* note 72 ("Antarctica shall . . . be used exclusively for peaceful purposes . . ."); Treaty on the Prohibition of the Emplacement of Nuclear Weapons and Other Weapons of Mass Destruction on the Seabed and the Ocean Floor and in the Subsoil Thereof, *opened for signature* Feb. 11, 1971, 23 U.S.T. 701, 955 U.N.T.S. 115 [hereinafter Seabed Treaty] (limiting activity on seabed floor to peaceful purposes); ISS Agreement, *supra* note 32, art. 1(1) (stating that the objective of the agreement is "a permanently [inhabitable] civil international space station for "peaceful purposes").

142. See Antarctic Treaty, *supra* note 72, art. IV(2) ("No new claim, or enlargement of an existing claim, to territorial sovereignty in Antarctica shall be asserted . . ."); *c.f.* Seabed Treaty, *supra* note 141, arts. I, II (citing Convention on the Territorial Sea and the Contiguous Zone art. II, Sept. 29, 1958, 15 U.S.T. 1606, 516 U.N.T.S. 205 (generally prohibiting a state from exercising control beyond twelve miles from its coast)); ISS Agreement, *supra* note 32, art. 2(2)(c) ("Nothing in this Agreement shall be interpreted as . . . constituting a basis for asserting a claim to national appropriation over *outer space or any portion of outer space.*") (emphasis added).

143. See Antarctic Treaty, *supra* note 72 (recognizing interests of all mankind); Seabed Treaty, *supra* note 141 (recognizing common interests of all mankind); *c.f.* ISS Agreement, *supra* note 32 (stating that the international space station will be developed according to first four treaties in the *corpus juris spatialis*).

“peaceful purpose” might mean in the context of outer space.¹⁴⁴ The 1998 International Space Station Agreement is an ongoing experiment with what can be achieved through an international effort in space.

1. *The Antarctic Treaty*

The Antarctic Treaty was written to ensure that Antarctica would be used for peaceful, scientific purposes.¹⁴⁵ This treaty also prevents states from making new claims of territorial sovereignty.¹⁴⁶ The “Common Heritage” Principle is reflected in Article III which generally requires that, to the greatest extent feasible, parties to the treaty will openly share information, and personnel, and make scientific observations freely available.¹⁴⁷ This language is repeated in the International Space Station Agreement, but that agreement only requires sharing of information to the extent necessary to assemble and operate the space station.¹⁴⁸

2. *The Seabed Treaty*

The Treaty on Prohibition of the Placement of Nuclear Weapons and Other Weapons of Mass Destruction on the Seabed and the Ocean Floor and in the Subsoil Thereof (Seabed Treaty)¹⁴⁹ can be highly instructive for space law. This treaty sought to curb the growing danger of nuclear weapons and to prevent an arms race on the seafloor.¹⁵⁰ The concept of “Common Interest” is clearly set forth at the outset of the agreement,¹⁵¹ but in this treaty the benefit is specifically limited to “peaceful purposes” as being an end unto itself.¹⁵² According to this

144. See Petras, *supra* note 8, at 168-69. The Antarctic Treaty “is often cited as the most authoritative aid for the interpretation of the term “peaceful” in the outer space context . . .” *Id.*

145. Antarctic Treaty, *supra* note 72.

146. *Id.* art. IV(2).

147. *Id.* art. III(1).

148. See ISS Agreement, *supra* note 32, art. 19(1)-(2) (requiring the Partners to transfer all data necessary to fulfill responsibilities, but excluding transfer of any technical data or goods that might contravene national laws or regulations).

149. Seabed Treaty, *supra* note 141.

150. See *id.*

151. *Id.* (“The States Parties to this Treaty . . . recognize the common interest of mankind in the progress of the exploration and use of the seabed and the ocean floor for peaceful purposes . . .”).

152. See Ramney, *supra* note 117, at 65-66, (discussing the “permissible” nature of space law). If an activity is not expressly prohibited, space law assumes that it is permitted. *Id.* One example is that nuclear weapons are generally prohibited in space, while other weapons of “lesser destructive capabilities” are assumed permitted because a lack of specific pro-

language, respecting "Common Heritage" would be a passive duty for space-faring nations, with peace being the benefit in and of itself.

3. *The International Space Station Agreement*

The latest agreement that has brought international actors together in outer space is the Agreement Concerning Cooperation on the Civil International Space Station (ISS Agreement) that sets out the rules of the International Space Station.¹⁵³ Following early attempts by the United States and the Soviet Union to design national space stations,¹⁵⁴ several international bodies including Canada, the European Space Agency, Japan, Russia, and the United States, set forth an agreement for cooperative efforts in creating an orbiting scientific research station.¹⁵⁵ Because the space station is currently governed by international cooperation, the International Space Station and ISS Agreement serve as experiments on what can be achieved in space with multinational actors working closely together.

The ISS Agreement begins by recalling all of the treaties found in the *corpus juris spatialis* minus the Moon Treaty.¹⁵⁶ The terms of the ISS Agreement set forth rules for cooperative use.¹⁵⁷ Individual states retain jurisdiction over separate activities while a collective body coordinates station maintenance activities.¹⁵⁸ This agreement is unique because it defines how parties to the agreement should cooperate.¹⁵⁹

In anticipation of disputes over the sharing of discoveries on the space station, there is an article addressing the exchange of data and goods.¹⁶⁰ The structure of this article is based on the idea that a state retains jurisdiction over the components it has contributed to the space station.¹⁶¹ All technical data deemed necessary to operate the station must be transferred to the necessary partners of the treaty.¹⁶² States also promise to make "best efforts" to share any data with other part-

hibition. *Id.*

153. ISS Agreement, *supra* note 32.

154. Petras, *supra* note 8, at 136; GATLAND, *supra* note 29, at 221, 230.

155. Petras, *supra* note 8, at 138; *see also* ISS Agreement, *supra* note 32.

156. ISS Agreement, *supra* note 32.

157. *See id.* art. 1.

158. *See generally id.* arts. 5-7.

159. *See id.* art. 7 (requiring managing bodies to be responsible for planning and coordinating activities that will make research and development equally safe and accessible for parties to the agreement).

160. *See id.* art. 19.

161. *Id.* art. 5.

162. *Id.* art. 19 para. 1.

ners to the ISS Agreement, simultaneously agreeing to get the consent of the group before transferring data to parties outside of the agreement.¹⁶³

This treaty gives two more fixed points of what “Common Heritage” might mean. At a bare minimum, states are willing to openly share necessary benefits to operate joint ventures, and for more sensitive information, there must be national consent.¹⁶⁴ The International Space Station and ISS Agreement present potential models for future space partnerships. The only problem is that states are required to contribute to the partnership before they can become active beneficiaries of space exploration. What is the common heritage of those that cannot contribute?

C. United States Space Law

Being one of the foremost leaders in space exploration,¹⁶⁵ the United States has the most developed body of legislation and multinational agreements that govern the activities of public and private citizens in space.¹⁶⁶ Most of the United States’ domestic space law has been aimed at two objectives: to protect U.S. national security interests and to promote commercial space launches in the private sector.¹⁶⁷ The recognition of these two considerations implies that a balance must be struck between them. The U.S. government does not want to stifle a burgeoning industry, but national security cannot be compromised at the expense of new treaties.

1. Promoting the Commercial Sector of Space Exploration

One purpose of U.S. domestic space law is “to promote growth and entrepreneurial activity” through the peaceful use of outer space.¹⁶⁸ Like the development of space law, much of the U.S. legisla-

163. *Id.* art. 19 para. 2.

164. *Id.* art. 19 para. 2 (stating that partners shall meet the requests for transfers of data, but national laws still apply).

165. *See Space Hearing*, *supra* note 3 (statements of Sam Brownback, U.S. Senator and Marcia Smith, specialist in aerospace technology policy from the Congressional Research Service).

166. *See generally United States Space Laws and Regulations*, China Security (produced by World Security Institute), available at <http://www.wsichina.org/subprogram.cfm?subprogramid=1&charid=1>; *see also* CSLA, *supra* note 5.

167. 49 U.S.C. § 70103 (b)(1) (2006); *see also* Human Space Flight Regulations for Crew and Space Flight Participants, 14 U.S.C. § 401 (2006) [hereinafter FAA Regulations].

168. CSLA, *supra* note 5, § 401(b)(1)-(4).

tion governing space has been enacted out of necessity. As technology changes, the law adapts. As new legislation is being drafted, Congress is careful to leave ample room for private industry to grow.¹⁶⁹

a. NASA

Space activities have mostly been limited to military operations and a government funded civilian branch, the National Aeronautics Space Administration (NASA).¹⁷⁰ Passed in 1958, the National Aeronautics and Space Act (NASA Act)¹⁷¹ symbolized the United States' renewed commitment to dominance in space.¹⁷² But the United States wanted to ensure peace in space as well, so President Eisenhower made a point to separate the United States' commercial civilian efforts from the Department of Defense's military research.¹⁷³

Similar to international space law, the NASA Act opens with a declaration that U.S. activities in space should be "devoted to peaceful purposes for the benefit of all mankind."¹⁷⁴ This language suggests that all activities in space should be carried out on behalf of all mankind.

b. ComSat and INTELSAT

Another important act aimed at unifying international efforts is the ComSat Act.¹⁷⁵ The purpose of this act is to develop profitable commercial telecommunications technology¹⁷⁶ and for the United States to foster and support global commercial communications satellite systems.¹⁷⁷ The Communications Satellite Corporation (ComSat)

169. *See id.* The purposes of this act were "to promote economic growth and entrepreneurial activity through use of space . . . for peaceful purposes; to encourage the . . . private sector to provide launch vehicles"; to provide the Secretary of Transportation with overseeing authority; and "to facilitate the strengthening and expansion of the United States space transportation infrastructure . . ." (emphasis added). *Id.*

170. *See* Gabrynowicz, *supra* note 19, at 1047-48.

171. *Id.* at 1047.

172. SPACE ACTIVITIES AND EMERGING INTERNATIONAL LAW, *supra* note 11, at 52-54.

173. *Id.* at 54; *see, e.g.*, National Aeronautics and Space Act of 1958, 42 U.S.C. § 2451(b) (2006) (reserving "activities peculiar to or primarily associated with the development of weapons systems, military operations, or the defense of the United States . . ." for the Department of Defense).

174. 42 U.S.C. § 2451(a).

175. Communications Satellite Act, 47 U.S.C. § 701 (2006).

176. Communications Satellite Corporation v. FCC, 611 F.2d 883, 885 (D.C. Cir. 1977).

177. Lisa Parks, *Communications Satellite Corporation*, The Museum of Broadcast

was a private company that provided wholesale satellite circuitry to other communication carriers, including governments of developing nations.¹⁷⁸ To broaden the impact of such an effort Congress authorized ComSat to take part in the International Telecommunications Satellite Organization (INTELSAT) to help developing nations gain access to telecommunications through subsidies.¹⁷⁹ It accomplishes this task by offering affordable, uniform rates all over the world for telecommunications network service.¹⁸⁰ Interestingly, the members of INTELSAT have all agreed not to conduct activities that will harm other members of the corporation.¹⁸¹

c. Commercial Space Launch Act

The United States passed its first commercial space legislation in 1984 with the Commercial Space Launch Act (CSLA).¹⁸² The findings and purposes of this act can be categorized into two distinct interests of the United States:

- 1) To “protect the public health and safety, safety of property, and national security interests and foreign policy interests of the United States;”¹⁸³ and
- 2) To “encourage, facilitate, and promote commercial space launches and reentries by the private sector.”¹⁸⁴

This legislation anticipates commercial growth and economic prosperity in space, so it tries to regulate only those areas that are a threat to national security and safety.¹⁸⁵ The only finding that overlaps

Communications, <http://www.museum.tv/archives/etv/C/htmlC/communication/communication.htm>; see 47 U.S.C. § 701(a).

178. See Parks, *supra* note 177. ComSat was created to offset a debate over whether air space should be owned by private companies or the government. Eventually, the government created a private business that would be owned by private companies and by the government. Shareholders and the President of the United States elect board members. See *generally id.*

179. See *generally* Ezor, *supra* note 84, at 924-26; see also Parks *supra* note 177 (noting also that the United States owns fifty percent of INTELSAT).

180. Ezor, *supra* note 84, at 926.

181. *Id.* at 925; see 47 U.S.C. § 761 (b)(1) (2000). When considering applications or licenses for using INTELSAT resources (including those from INTELSAT and their successors), this statute directs the FCC to first determine if United States telecommunication markets competition will be harmed by an INTELSAT application. The same determination is then applied to entities subject to U.S. jurisdiction operated by INTELSAT. *Id.*

182. See *generally* CSLA, *supra* note 5.

183. *Id.* § 70101(b)(3) (granting the Secretary of Transportation the authority to prescribe any regulations to “protect the public health and safety, safety of property, and national security interests and foreign policy interests of the United States”).

184. *Id.* § 70103 (b)(1) (using this language to embody the Secretary of Transportation’s duties under the CSLA).

185. See *id.* § 70101 (a)(2) (finding that economic achievements in space are becoming

both categories is the first, which states that the peaceful use of outer space is of great value to "all mankind."¹⁸⁶ But these benefits will rely greatly on the participation of state governments.¹⁸⁷ By this declaration, the U.S. government has accepted responsibility for the growth of the commercial sector within the country.

To enable its goals, the CSLA gives the Department of Transportation (DOT) the authority to oversee commercial space launches that involve U.S. interests.¹⁸⁸ The DOT is charged with issuing permits and licenses to launch and perform reentry operations in order to "protect the public health and safety, safety of property, and national security and foreign policy interests of the United States."¹⁸⁹

Of the CSLA provisions, § 70104 is particularly notable in terms of defining what might be a benefit of space. Section 70104 impedes U.S. citizen participation in space programs outside of the reach of the United States.¹⁹⁰ This section also requires licenses or permits for U.S. citizens to perform commercial launch or reentry.¹⁹¹ Any citizen who does not obtain permission from the DOT may not conduct launch or reentry operations inside or outside of the United States, absent an agreement to the contrary between the United States and a foreign government.¹⁹² By this enactment, the United States restricts the availability of human expertise to the rest of the world. Consequently, all states are entitled to develop their human understanding of space, but the United States is not required to share human resources actively.

d. FAA Human Space Flight Regulations

Recently, the U.S. government charged the Federal Aviation Administration (FAA) with the task of creating rules and guidelines for space flight crews and participants.¹⁹³ There are specific rules and

significant and offer potential for growth).

186. *See id.* § 70101 (a)(1).

187. *Id.* § 70101 (a)(9).

188. *Id.* § 70101(b)(3) (granting the head of the DOT, the secretary of transportation, the authority to issue licenses or permits for launch and reentry into the atmosphere).

189. *Id.*

190. *Id.* § 70104(a).

191. *Id.*

192. *Id.*

193. *See Human Space Flight Requirements for Crew and Space Flight Participation*, 70 Fed. Reg. 77,262 (Dec. 29, 2005) (codified at 14 C.F.R. pt. 401, 415 et al.) (presenting rules proposed by the FAA under authority provided by the Commercial Space Launch Amendments Act of 2004, 49 U.S.C. § 70103(d) (2006)).

regulations for flight crews and different rules for ground crews of a space launch operation.¹⁹⁴ The regulations also contain proposed rules for space tourists, the most notable provision being that of the “fly at your own risk” disclaimer.¹⁹⁵ The ultimate goal of the FAA is to regulate the least number of areas possible, while maintaining safety standards; thereby leaving ample room for the space industry to grow safely and responsibly.¹⁹⁶

Looking at these rules, one can see how space benefits might be shared in a way similar to air space. Planes travel all over the world with varying degrees of technological advancements; they possess dual-use applications, such as tourism and military.¹⁹⁷ Yet, there is international coordination to regulate the use of air space.¹⁹⁸

2. *Protecting National Security Through International Efforts*

Part of maintaining national security requires maintaining a competitive edge in space technology.¹⁹⁹ How will scientific discoveries be shared with the rest of the world, particularly those conducted by private entities in space? Under U.S. leadership, two primary technology control agreements designed to keep sensitive technology out of dangerous hands have emerged: the Military Technology Control Regime (MTCR) and the Wassenaar Arrangement.²⁰⁰

194. *Id.* at 77,264 (delineating flight crews, remote operators, and other ground crews).

195. *Id.* at 77,269 (stating that space flight is inherently risky and requiring space flight participants to waive claims with the FAA).

196. Telephone interview with Linda Montgomery, Senior Counsel for the Federal Aviation administration (Mar. 17, 2006).

197. See Michel Bourbonniere & Louis Haeck, *Military Aircraft and International Law: Chicago Opus*, 66 J. AIR L. & COM. 885, 900 (2001) (“Airplanes have the inherent capacity for dual use. Civil airplanes can certainly be used for military missions and vice versa.”).

198. See, e.g., J. Scott Hamilton, *Allocation of Airspace as a Scarce National Resource*, 22 TRANSP. L.J. 251, 253 n.4 (1994) (“There is already considerable international cooperation in air traffic control.”).

199. See Space Memo, *supra* note 9 (“Achieving space and information superiority will help to counter an adversary’s ability to command and control its forces.”).

200. See Waldrop, *supra* note 21, at 189-90; see also Karim K. Shehadeh, *Note, The Wassenaar Arrangement and Encryption Exports: An Ineffective Export Control Regime that Compromises United States’ Economic Interests*, 15 AM. U. INT’L L. REV. 271, 272-73 (1999). “[A] United States-led group of thirty-three nations adopted the Wassenaar Arrangement Signatories to Wassenaar agree to cooperate with each other to limit the export of conventional weapons and dual-use technologies to politically unstable nations or regions.” *Id.*; Wyn Q. Bowen, *U.S. Policy on Ballistic Missile Proliferation: The MTCR’s First Decade, 1987-1997*, THE NONPROLIFERATION REV., Fall 1997, at 21, 23.

a. Military Technology Control Regime

The MTCR was created amidst growing international fears about proliferation of nuclear weapons.²⁰¹ Negotiated during the Reagan Administration and followed by the United States and other Group of Seven (G-7) states,²⁰² the MTCR is a "voluntary arrangement" which controls the transfer of equipment and technology that could be used to develop nuclear-capable missiles.²⁰³ The MTCR lists several factors that should be taken into account when considering applications to transfer controlled items.²⁰⁴ These factors include "nuclear proliferation concerns," as well as capabilities and objectives of an applicant's space and missile program.²⁰⁵ If technology is a benefit of outer space exploration, these factors could be considered as guidelines for what types of technology may be shared among any international states. The MTCR is not intended to hinder space exploration, so exchanges of technology are freely permissible between members of the MTCR and states that can prove peaceful intentions.²⁰⁶ However, this agreement is limited to transfers between governments.²⁰⁷ There is no mention of private entities exchanging information.²⁰⁸

One major drawback to the MTCR has actually been lack of enforcement and implementation by parties to the agreement.²⁰⁹ Nations that were not members, such as the Soviet Union and China, could easily take advantage of industry demands by unauthorized developing nations.²¹⁰ To help combat further proliferation, the member states agreed upon a "no undercut" policy, stating that if one state denies transfer of technology to another country, all members should deny them as well.²¹¹

201. Bowen, *supra* note 200, at 22-23.

202. *Id.* at 23.

203. *Id.*; see also Waldrop, *supra* note 21, at 190; MTCR, *supra* note 50, para. 1.

204. MTCR, *supra* note 50, para. 3.

205. *Id.*

206. Waldrop, *supra* note 21, at 190.

207. MTCR, *supra* note 50, para. 3.

208. See generally *id.*

209. Bowen, *supra* note 200, at 24-25.

210. *Id.* at 25.

211. Waldrop, *supra* note 21, at 190.

b. Wassenaar Arrangement

To compliment the MTCR, the Wassenaar Arrangement²¹² prevents dual-use goods and technologies from reaching terrorists.²¹³ This policy meets the challenges of “post-Cold-War changes in the international environment.”²¹⁴ This agreement’s value lies in the list of technology that is restricted to certain states, such as rocket technology.²¹⁵ By restricting the types of technology that can be shared, a legal limitation is placed on “Common Heritage.” Equitable benefits in space do not include potentially dangerous military technology. However, this document has proven of little value because states are not legally bound to comply.²¹⁶

IV. MAN’S “COMMON HERITAGE”: A HYBRID OF EQUITIES

Defining “Common Heritage” has been a narrowing process for the international community. The Outer Space Treaty proposed a broad ideal that has been refined and tailored by actors in outer space.²¹⁷ So is “Common Heritage” a reference to equitable benefits or equitable access? Like most legal questions, the resulting answer is a mixture of both ideas and is dependent upon the situation.

A. The Evolution of “Common Heritage” in Practice

The impetus of space exploration occurred during a time of conflict and fear.²¹⁸ The world’s superpowers were left in a mindset where technological superiority meant survival.²¹⁹ When the first agreements concerning outer space were reached, space exploration was conducted in a manner of strict equitable access.²²⁰ The Cold War standoff resulted in an understanding that states would have free access to space so long as there were no military intentions.²²¹

212. The Wassenaar Arrangement on Export Controls for Conventional Arms and Dual-Use Goods and Technologies [hereinafter Wassenaar Arrangement] (Jan. 2006), <http://www.wassenaar.org> (follow “Basic Documents Compilation” hyperlink).

213. *Id.* at 1.

214. See Kenneth A. Dursht, *From Containment to Cooperation: Collective Action and the Wassenaar Arrangement*, 19 CARDOZO L. REV. 1079, 1109 (1998).

215. See Wassenaar Arrangement, *supra* note 212, at 8, 18.

216. Dursht, *supra* note 214, at 1113.

217. See discussion *supra* Part III.

218. LAUNIUS, *supra* note 22, at 17-18.

219. See generally *id.* at 17, 24-26.

220. See *id.* at 27-28; Gabrynowicz, *supra* note 19, at 1042.

221. LAUNIUS, *supra* note 22, at 27-28.

As cooperation in space has progressed, "Common Heritage" expanded from equitable access to a limited form of equitable benefits.²²² States that can contribute to space development may share equally in benefits so long as that development does not involve sensitive dual-use technology.²²³ The ISS Agreement functions under this scheme.²²⁴ Where technology is relevant to the direct operations of the space station, sharing is mandatory.²²⁵ If technical data is classified, all parties to the transfer must reach an agreement.²²⁶ This aspect of the agreement aligns with the concept that all member states have a national security interest when military technology is being shared.²²⁷

B. The Evolution of "Common Heritage" on Paper

Space law has come to reflect an adoption of a blended "Common Heritage" Principle. The Outer Space Treaty purports a broad principle that is increasingly narrowed by subsequent legislation.²²⁸ The Rescue Agreement is the only international legislation that suggests equitable benefits to all.²²⁹ Under the Rescue Agreement, responsibility is imparted to all parties,²³⁰ and where there is a duty there is an implied benefit.²³¹ If an astronaut is an envoy of all mankind, then his missions are on behalf of all mankind.²³² This strengthens every state's duty towards astronauts and their home states.

222. See generally discussion *supra* Part III (describing the evolution of the "Common Heritage" Principle in space law).

223. See Waldrop, *supra* note 21, at 175.

224. See generally ISS Agreement, *supra* note 32 (indicating that the space station is intended to benefit all of the Partners). "The Space Station together with its additions of evolutionary capability shall remain a civil station, and its operation and utilization shall be for peaceful purposes, in accordance with international law." *Id.* art. 14(1).

225. See *id.* art. 19(1).

226. *Id.* art. 19(3)(c).

227. See Waldrop, *supra* note 21, at 175.

228. See *supra* note 126 and accompanying text (discussing the narrowing of "Common Heritage" to passive benefits); see also discussion *supra* Part III.B.3 (discussing the conditions for benefiting from the International Space Station).

229. See generally Rescue Agreement, *supra* note 111.

230. See *id.* art. 2 (imposing a duty on contracting parties to take all possible steps to rescue a spacecraft in danger).

231. All of Space Law is based on positivist theory of international law that states must proactively seek to become members of the agreements. See discussion *supra* Part III. What incentive would states have to become members of a treaty if they would not receive anything in return?

232. Outer Space Treaty, *supra* note 5, art. V para. 1.

But the Liability Convention²³³ and Space Registry begin a process of restriction on the concept of equitable sharing.²³⁴ The language of the Liability Convention is restricted to benefits of “peaceful” uses.²³⁵ This is a passive benefit, meaning that space-faring states do not need to act positively to help less developed nations enjoy any benefits of space. They must simply refrain from aggressive actions. There are no references to any active benefits, like mandatory dissemination of technology information or scientific discoveries, found in the *corpus juris spatialis*.²³⁶ Active benefits are reserved for parties who can participate in cooperative efforts in space. Language in the ISS Agreement, for example, suggests that many of the benefits of that agreement are only to be enjoyed by “Partners.”²³⁷

For some, the Moon Treaty had been read to define the “Common Heritage” Principle to mean broad equitable benefits.²³⁸ For others, while the Moon Treaty had at least given initial effect to the principle, minimal ratification has rendered the treaty of “relatively little consequence in establishing international space.”²³⁹ Instead it seems that equitable access has come to be the prevailing definition.²⁴⁰ But, cooperative efforts taking place on the space station have left open the possibility of sharing of benefits, at least with respect to those who participate.²⁴¹ There is also the occasional effort to share benefits with all mankind, as is evident, for example, by the efforts of “Intelsat.”²⁴² But such efforts are often met with challenges.²⁴³ In sum, the “Com-

233. Liability Convention, *supra* note 124.

234. Space Registry, *supra* note 128.

235. See Liability Convention, *supra* note 124.

236. Compare *id.*, with Outer Space Treaty, *supra* note 5, art. VII (creating international liability for damage caused by launch); see also ISS Agreement, *supra* note 32, art. 19(1) (stating that each Partner shall transfer technical data and goods); see also Antarctic Treaty, *supra* note 72, art. III (1)(a)-(c).

237. See ISS Agreement, *supra* note 32, arts. 1(3), 9(3), 9(5). Partners may grant permission for non-partner use, but the power to grant is subject to significant limitations. Petras, *supra* note 8, at 144-45.

238. See Dula, *supra* note 131, at 20 (suggesting that the Moon Treaty might be construed as calling for not only distribution of financial benefits but technology as well); see also Moon Treaty, *supra* note 112, art. 4(1) (“The exploration and use of the moon shall be the province of all mankind and shall be carried out for the benefit and in the interests of all countries, irrespective of their degree of economic or scientific development.”) (emphasis added).

239. See Petras, *supra* note 8, at 167.

240. *Id.* at 152.

241. See *supra* Part III.B.3.

242. Cf. Parks, *supra* note 177 (“Intelsat . . . is a global satellite network that provides developing nations with access to communications satellites for domestic communications.”) (emphasis added).

243. *Id.* Parks notes the “difficult challenge of negotiating the often contradictory inter-

mon Heritage" to be enjoyed by all mankind may be seen modernly as a hybrid of: equitable access for all, some equitable benefits for all (excluding non-peaceful purpose technology), and equitable rights to peace in space.

C. "Common Heritage" as Potential Partnerships

The original concept was that space exploration should be carried out for the benefit of all mankind in the most expansive sense of the phrase.²⁴⁴ The emerging definition places limitations on the types of benefits to be enjoyed by all and suggests distinctions between classes of "mankind" in space.²⁴⁵ This is dually consistent and contrary to the original concepts of space law.

The Outer Space Treaty states specifically that outer space exploration should be carried out for the benefit of all people "irrespective of their degree of economic or scientific" development.²⁴⁶ This language suggests that economic and scientific lagging should not prevent the receipt of benefits. However, if the only parties who are privileged to benefit from outer space are parties who may participate in space programs, then the poorest and least developed nations will not see any benefits apart from not being attacked from outer space.

On the other hand, there is nothing in space law that says states may not be excluded because of national security concerns. In the interest of national security, states may seek to limit both access to space and sharing of space technology. If space is to be used for peaceful purposes, it would seem that denying access and technology in these instances would be permissible and would not amount to denial of any recognized benefits of space exploration.²⁴⁷ So the modified idea of "Common Heritage" ignores the less economically developed nations, but it excludes nations that threaten national security. If this is the case, then the duty of space-faring states to less developed nations should be to offer access to space and an opportunity to participate peacefully, but not to share technology that enables military applications.

ests of private enterprise and the public good." *Id.* Challenges like this are contrary to the equitable benefits principle because they suggest that less developed nations are only entitled to what others are willing to spare.

244. Outer Space Treaty, *supra* note 5.

245. *See, e.g., supra* note 237 (discussing distinctions between Partners and non-Partners with respect to benefits of the International Space Station).

246. Outer Space Treaty, *supra* note 5, art. I para. 1.

247. *See* Waldrop, *supra* note 21, at 177-78, 189.

D. How Should the United States Proceed?

Under modern space law, the United States has a duty to mankind to offer participation in cooperative efforts to any state that does not pose a risk to national security.²⁴⁸ This definition resembles the ISS Agreement.²⁴⁹ If a state wishes to undertake peaceful scientific activity aboard the International Space Station, under international space law it is the duty of the space station's managing body to permit those scientists aboard, but it is not their duty to conduct the research for any other party.²⁵⁰ It does not matter whether the visiting state is a member of the ISS Agreement so long as a Partner determines that the activities are peaceful.²⁵¹ The United States must reconcile this duty with its two main interests in space: to promote the commercial industry and to protect national security interests.²⁵²

With the introduction of private companies in space, it will not be long before less developed countries will be able to pay for access to space without developing their own space program. Under the standing notion of "Common Heritage," the home states of private corporations should be as permissive as possible with permits for launch under regulations like the FAA's.²⁵³ Minimizing the barriers that the regulated space industry imposes will encourage foreign space programs to pursue commercial permits.²⁵⁴ Since the United States is seeking to expand the commercial sector anyway,²⁵⁵ the United States should adopt a lenient policy that will encourage the development of affordable space flights for less developed countries. The benefits of a growing space industry will then contribute to the U.S. economy, which is one objective of the CSLA.²⁵⁶

With new actors entering the space industry, it will be increasingly difficult to monitor all activities in space and developments on Earth.²⁵⁷ By establishing a concrete definition of "Common Heritage"

248. See CSLA, *supra* note 5 (the United States has taken up the responsibility of acting as an example to others in outer space themselves).

249. Compare *id.*, with ISS Agreement, *supra* note 32, art. 1(1).

250. ISS Agreement, *supra* note 32, art. 9(3); see also Petras, *supra* note 8, at 144-45.

251. ISS Agreement, *supra* note 32, art. 9(3)(a); see also Petras, *supra* note 8, at 145.

252. See Waldrop, *supra* note 21, at 163-64; SPACE POLICY, *supra* note 9, § 4.1.

253. See generally FAA Regulations, *supra* note 167.

254. See SPACE POLICY, *supra* note 9, § 4.13 (recognizing the growing practice to enter into joint ventures with nations whose technology may later pose a threat).

255. Waldrop, *supra* note 21, at 163.

256. See CSLA, *supra* note 5, §§ (a)(2), (b)(1).

257. Espionage is already resulting in proliferation of space technology. See *supra* notes 46-49 and accompanying text.

the United States can proceed with an agreement similar to the Moon Treaty; one that oversees all activities in space and on Earth, without concern that a moratorium will be placed over the commercial industry. Other states will share in the interests they were originally trying to protect in the Moon Treaty, so it will behoove more parties to create a governing body quickly, and without putting unnecessary restrictions on a blossoming private sector.

To avoid further entanglements in the private sector, the commercial industry will need to help poorer states. By helping poorer nations develop a space industry, commercial explorers can be classified for research and development. The private industry will profit from space exploration and share tangible benefits with all mankind. Even if it takes a significant amount of time to develop a governing body, the commercial sector will be excluded so the industry will still have room to grow.

To act as a governing body, the United States should look to international organizations already in place. The COPUOS could apply the framework of the ISS Agreement fairly easily. As a result, many nations would be included in the efforts to keep space peaceful and free of military impropriety. A cooperative body will free U.S. resources that were once spent on monitoring other nations for military capabilities. Efforts could then be diverted to research and development projects at NASA, such as the mission to Mars or lunar colonization. Instead of trying to keep other states from developing technology, the United States could seek new advancements as a means of maintaining a competitive edge. Both national security and the commercial industry could benefit from this arrangement inside and outside of the United States. This model would also promote cooperation and understanding between international partners.

V. CONCLUSION

On the television show *Star Trek*, Captain Kirk and the *Enterprise* were envoys of Earth, not of any one state or nation.²⁵⁸ The development of a "Common Heritage" Principle was a bold step by international bodies when it was first drafted. It was a symbolic gesture indicating that all should equitably share the benefits of space. Throughout the development of space law, this aspirational clause is being shaped into definite terms. All people are entitled to equal space access, all people are entitled to live under peaceful skies, and

258. *Star Trek: The Man Trap* (NBC television broadcast Sept. 8, 1966).

all people are welcome to become equal partners in space exploration. This leaves mankind with the same decision it has always faced: to work together or race each other in the pursuit of a common goal. The challenges of space are already as numerous as the stars; it would be counterproductive to add more obstacles such as a competitive structure.

The United States currently finds itself in a unique position. As citizens of a nation born in a new world, Americans know what possibility lies on the new frontier. They also understand what cooperation and competition can do to a growing industry. As the United States drafts its pending legislation concerning space law, it should keep in mind the ideals upon which space exploration was commenced. The United States must find the courage to “boldly go where no man has gone before.”²⁵⁹

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259. *Id.*; see also The Internet Movie Database, *Memorable Quotes from “Star Trek,”* <http://www.imdb.com/title/tt0060028/quotes> (last visited Sept. 5, 2006).

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