

IAC-04-IISL.3.11

PREVIEWING A SERIES OF POTENTIALLY CATAclySMIC EVENTS

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ABSTRACT

The time has come for space lawmakers and policymakers to come together and place on the agenda the need for specific laws to govern emerging space activities. The Astronautical community must take seriously the potential for world conflict which may arise if international space law continues to be vague. Discourse, written plans and policy statements regarding outer space make apparent that outer space development is in the process of drastic change. The debates alone on the need to update space law are no longer sufficient to address current commercialization issues. The ideological divide between space lawyers and space policymakers over the permissibility of private property rights needs to be settled by the international community. This paper explains the importance of paying attention to seven (7) events are co-existing simultaneously, and it suggests possible steps to alleviate this problem of potential world conflict in outer space - the final frontier.

INTRODUCTION

Key space law actors seem to have forgotten or overlooked the following set of potentially cataclysmic events: 1) major wars were caused by ideological clashes or issues concerning new territory 2) historically the conquest of land has occurred through blatant military force, as well as subtle economic, trade, and ideological practices 3) the link between *power* and *discourse*, and the rise in law journal articles (US) calling for the free marketization of outer space, combined with

new public perceptions (US) of outer space 4) the already existing pattern of commercialization and the successful progression towards privatization of space industries, in an era globalization and free market ideology 5) the US has been a trendsetter in the pattern of shaping domestic laws to further privatization and commercialization of established space industries 6) the significant division between the ideology of capitalism versus the ideology of communism and socialism, and the present yet unaddressed ideological conflict over private property rights in outer space between space lawyers and policymakers and 7) billions of dollars have been invested in research and development and now concrete plans are being set into motion for the outer space territory. By combining insights from political science, domestic and international law, political-economy, discourse analysis, history and current events in astronautics, I will elucidate a current potential source of world conflict and recommend steps to alleviate this problem, consistent with the purpose of international law.

1. FORGOTTEN: CAUSES OF WAR

The recent history of the twentieth century reveals a number of significant wars that were fought. We must not forget them, or their causes. Historians and political scientists have left us with volumes of discussion, complete with theories and

beliefs about the causes of war. Despite, the volumes of text on this subject it is quite clear that there is no certain answer. There are many opinions supported by theory, arguments and factual data. For example in *Why Nations Go to War*, John G. Stoessinger decides not to "dwell on the underlying causes of the world war. Not only have these been discussed exhaustively by leading historians¹, but I seriously question whether they can be related directly and demonstrably to the fateful decisions that actually *precipitated* the war"². For example, he critiques historians for being "virtually unanimous in their belief that the system of competitive alliances dividing Europe into two camps in 1914 was a principal factor that caused the war to spread". He asserts that this is "mechanistic view that undervalues psychological and personality considerations"³. Contrary to popular belief, he argues that many of the major wars occurring in the twentieth century were not caused by nationalism, militarism, alliance systems, economic factors or some other basic cause⁴. Instead, he concludes that people went to war because they were "frightened and entrapped by self-delusion" and that people based their policies and actions on "fears, not facts, and were singularly devoid of empathy. Misperception, rather than conscious evil design, appears to have been the leading villain in the drama"⁵. For Stoessinger, in order to understand the reasons for people resorting to war is best seen by focusing on personalities and the psychological dimension of key leaders who made the decisions. His detailed and thorough analysis includes many of the facts surrounding World War I, World War II, the Korean War, the Vietnam War, the war in Bosnia and "the war over the remains of Yugoslavia", the series of wars between India and Pakistan in 1947, 1965, 1971, and 1998, the wars between Arabs and Jews,

Israel and Palestine (The Palestine War of 1948, The Sinai Campaign and the Suez Crisis of 1956, the Six-Day War of 1967, the October War of 1973, the Lebanese Tragedy, and the 1988 Arab-Israeli Conflict); the Iran-Iraq War, the Desert Storm conflict concerning Saddam Hussein's invasion of Kuwait, and the "new war" against terrorism prompted by the 9/11 bombing of the Twin Towers in New York City's World Trade Center. The exact reason(s) for these wars might be better understood by an outer space case study. By applying the details and facts concerning the above mentioned wars to a concern that I have for outer space, I have boiled down these facts and circumstances into two reasons why people have gone to war: 1) actions were taken by people to spread their influence into a "new territory", in order to occupy or control the land and its people, or 2) conflicting ideologies operating to shape hatred, mental enemies, behaviors, actions, fear and/or mistrust. Hence, the territory known as outer space has lots of potential for conflict. The framers of the Outer Space Treaty of 1967 understood this point. Space lawyers and policymakers of today seem to have forgotten about this. Activities being planned and articulated for the near future (by states, entrepreneurs, and corporations), once initiated further, may trigger the perception that outer space is being occupied or controlled on the basis of an opposing ideology. However in today's free market climate, if these actions are taken by corporations, it may take a while for anyone to get suspicious. Since outer space has key ingredients for the causes of all of the above listed major wars, I see the unresolved issues concerning the international space law as potentially cataclysmic.

2. HISTORIES OF CONQUEST

In addition to war, history is packed full of instances of conquest of land. Most were

without the bother of negotiating for the transfer of legal title from the prior owners. I am bringing up the issue due to a discussion at last years' IISL Colloquium wherein I was asked my position on the question of whether or not people should be able to sell extraterrestrial real estate, and if so, who would convey the legal title since outer space is owned by no one. I would like to address this issue herein. Personally, I think space law makes clear that it is illegal and forbidden to sell off parcels of outer space. Yes, the Outer Space Treaty is vague, but one thing is clear from the record of negotiations contained in the *travaux préparatoires and related documents*, leading up to all five of the outer space treaties, the nations of the world were against ownership of outer space territory. This prohibition applies to individuals, private, corporate, international or governmental bodies⁶.

The state representatives who worked on creating the outer space treaties were clearly most concerned with preventing future world conflicts over outer space territories. Today's space lawyers and policymakers seem to be asleep on the issue of outer space being a potential hotbed for world conflict. Furthermore, I would like to add that Belgium, France, Germany, Great Britain, Italy, Portugal and Spain *partitioned* the continent of Africa without first securing title from the actual owners of the land; the Spanish (and others) performed the same conquest over Native America and Mexico; as well as Britain with respect to Aboriginal lands. In addition to blatant exercises of power such as the Mongol Conquest, history is also full of examples of land conquest through subtle economic, trade and ideological exercises of power. Britain's relationship with India is good example. I do realize that outer space is not currently thought of as real land, and there are no inhabitants that we know of there, yet.

However, the point remains that outer space is being spoken of as though it is a new territory for exploration and colonization in books, articles, law journals, academic writings and in policy circles.

3. THE POWER OF DISCOURSE

Another subtle way in which power has been exercised over territory is through discourse. Many scholars have written on the link between discourse, power and knowledge⁷. For example, Escobar⁸ argues that it was through the *deployment of discourse* that the industrialized nations of North America and Europe came to be seen as the "First World" in comparison to the countries of Asia, Africa and Latin America being seen at the "Third World". Escobar argues that discourse has been used as a political tool for the subtle exercise of political, economic, cultural and ideological power, and he demonstrates how discourse has the power to shape subsequent realities. The space lawmaking community needs to take notice of the Post Cold-War era discourse which calls for a new free marketization of outer space⁹.

4. THE DOMINANCE OF FREE MARKET IDEOLOGY AND PRIVATE COMMERCIALIZATION

4.1 Space Commercialization/Privatization

Space commercialization has become generally accepted by the international community. There are several space industries which have officially gone through the process of becoming commercialized and privatized, with the support and backing of the international law-making machinery. Strategic, targeted, specific agenda-setting activities occurred in order for these shifts to occur. Again, examples include communications satellites, direct television broadcasting industries, and remote sensing space transportation and private launch services. Over time, more

nations and more private companies became key players in the market.

4.2 In an Era of Globalization

The terms *free trade*, *free market* and *globalization* are all closely related. Globalization includes the way in which free market ideology is increasingly becoming popular. They marry an ideology, which is widely accepted and dominant in the world today. The GATT agreement and the WTO have provided the instruments to facilitate, legalize and legitimize the dominance of free market norms in the global community. Neoliberalism and free market ideology have achieved a new hegemonic status in the Post Cold-War era. And this new reality has already and will continue to impact the outer space development community. Consider the drastic economic and structural changes in Russia and China in the Post-Cold War era along with the magnitude to which countries have begun to accept, adopt and embrace free market/free trade principles, we can clearly understand that the character of today's international structure is one wherein neoliberal free market ideology is dominant.

In addition, international laws and international treaties have become key instruments used to facilitate standardization of rules and norms established outside of state authority. For example, the General Agreement on Tariffs and Trade (GATT), the United Nations Convention on the Law of the Sea, the North American Free Trade Agreement (NAFTA), and the Trade-Related Aspects of Intellectual Property, Including Trade in Counterfeit Goods (TRIPS) accord in the (GATT). Krishna Jayakar¹⁰ sets forth several pieces of evidence which establish that the process of economic globalization and neoliberal free market ideology are the defining features of today's international structure. First, several economic tendencies exist such as the "fluid movement of the locus of production

following lower input costs, intensified competition in national markets between local and foreign firms, new forms of collaborative activities like contract manufacturing and joint ventures between firms in different countries, faster technology transfer, diffusion of new production techniques, and above all, the intensified flows of international finance following the day-to-day fluctuation of interest rates". Jayakar further argues that the pattern of "denationalization" inherent in globalization and the increase of new non-state actors in the international arena. The pattern exists of countries all around the world deregulating, privatizing and liberalizing their domestic markets and economic institutions. This pattern has noticeably been underway since the 1980s. As further evidence of globalization, Jayakar (1998) includes the legitimization of international decision processes. For example, the recent changes in international telecommunications regime, ITU procedures where standardized through legitimized international decision making process during the 1980s and 1990s. Changes within the outer space community have occurred consistently with the globalization process. Therefore, with globalization characterizing the international structure we can see that new actors or new actions are dotting the outer space planning landscape. We can then expect bold new moves towards the establishment of increased free market themes for outer space such as for-profit space tourism, space mining and space settlement.

5. UNITED STATES: A TRENDSETTER

After 1980, there was an increase in domestic regulations governing space activities. The U.S. was the leader in this trend wherein domestic laws began to guide space ventures. Other nations have begun to do the same. Today, for example, the U.S.

commercial space transportation industry is composed of a variety of private entities such as major aerospace firms and a multitude of other viable business entities and entrepreneurs engaged in space related businesses. In order to understand the politics of international law, we must acknowledge that both processes and structures are at work, shaping interpretations and outcomes. For instance, the Post Cold-War distribution of power seems to be shaping state behavior, and institutional response in many international treaty conventions. In international space law, we see a shift, after 1980, away from the international law-making arena to the reliance on domestic laws¹¹.

6. CONFLICTING IDEOLOGIES

6.1 The Private Property Rights Debate

Currently the issue of private property rights in outer space is hotly contested within the space law discourse¹². For example, Lunar Embassy, a private company, has been selling plots on the Moon¹³ for approximately twenty years. The proprietor seems to be operating under the assumption that there is a gap/loophole in international space law making is permissible for private entities to own and sell space territory. Similarly, Orbital Development welcomed NASA's NEAR spacecraft upon the spacecraft's successful landing on the Asteroid Eros, and requested that NASA pay parking fees arguing that Eros is owned by Orbital Development. The company's founder Gregory Nemitz. Asserts that he has owned the property since a claim was established on March 3, 2000, when he filed a Class D property claim with the Archimedes Institute¹⁴. Well, in July of 2004, the International Institute of Space Law put an end to these particular types of assertions when its Board of Directors issued a formal statement "On Claims to Property Rights Regarding The Moon and

Other Celestial Bodies"¹⁵. It reads, in part, as follows:

Claims to own the Moon or parts thereof by private parties have been made for many years, but so far such claims have not been taken very seriously. However, this could change, as "deeds to lunar property" have started to appear, raising the opportunity for individuals to be misled. In addition, the scope of such claims has been extended recently to other celestial bodies. Thus, the Board of Directors of the International Institute of Space Law (IISL) has concluded that there is a need for a statement regarding the current legal situation concerning claims to private property rights to the Moon and other celestial bodies or parts thereof. While this issue is only a small part of a much broader context surrounding private sector activities on the Moon and other celestial bodies, this statement is limited only to the topic of claims to private

6.2 Situating the Conflict

This is a current ideological conflict which needs to be addressed by the International Institute of Space Law and the United Nations' Committee on Peaceful Uses of Outer Space (COPUOS) and its Legal Subcommittee. Not everybody agrees that outer space should become a free market frontier. However, there is not formal, final statement of law indicating this point. In spite of the recent action taken by the IISL to clarify the issue concerning selling space as real estate, the issue is still unsettled in many ways. This legal step resolves the issue of people trying to own or sell parcels of the Moon or other extraterrestrial real estate. However, it does not resolve the more important question of private corporations eventual successful progression beyond the telecommunications, satellite, launch and transportation industries into the newly proposed business such as space tourism, space mining commercial space settlement. Once this begins to happen, we will see very quickly that there is no international consensus on the extent to which these new types of activities are permitted under the current international space law. Similarly there is no international consensus on **the extent to which private**

property rights are allowable in outer space. We know most space lawyers will agree that laws should be interpreted to protect the success of certain established space industries, the one that have already been privatized and commercialized. But where is the cut off? At what point is privatization or commercialization not permissible? The fact is that the international legal community is at an impasse on this soon to be important issue. A perusal of the *travaux préparatoires* and related documents¹⁶ reveals that the intent of the framers was always to prevent property rights (including private, institutional or governmental) to outer space resources and territories. In spite of this reality, today the private property rights issue is constantly debated. Article II of the Outer Space Treaty is often quoted¹⁷. It states: "outer space, including the Moon and other celestial bodies, is not subject to national appropriation [emphasis added] by claim of sovereignty, by means of use or occupation, or by any other means." Many space law interpreters will cite Article II in support of the argument that international space law permits private property rights because it does not explicitly prohibit them¹⁸. This argument is often intermingled with the contradictory argument that since the Outer Space Treaty does not explicitly mention private appropriation, there is legal uncertainty. This uncertainty is said to create disincentives to private commercial sector investment in space endeavors¹⁹. In taking this position, some argue that previous drafts distinguished between national and private appropriation and prohibited both, and that the final draft only contains explicit prohibition against national appropriation. Therefore, they assume that a decision must have been made to permit private appropriation²⁰. Other space lawyers argue that "appropriation" of outer space resources, by any entity or individual, strictly is prohibited²¹. They argue that the

term "national appropriation" includes all forms of appropriation whether national, private or otherwise. Some taking this position, include the very concept of private property rights as "appropriation". However, this seems to depend on the current status of the activity or industry, in the public mind.

The CHM principle is treated as an integral part of the private property rights debate. Although there is support for the Common Heritage of Mankind (hereinafter referred to as CHM) principle²², there is a chorus of argument complaining that international space law inhibits commercial development of outer space²³. Some space law interpreters argue that space law's flaw is its uncertainty on the issue of private property rights²⁴. Within this discourse, some are placing blame the on the Outer Space Treaty²⁵. Others are blaming the CHM principle²⁶. Still others point the blame, for the CHM principle, on "developing countries"²⁷. No matter the reason, this chorus chants the general complaint that defects in international space law create investor uncertainty, and therefore inhibits or prevents commercial space development.

Space lawyers need to come together and articulate as fact that Outer Space Treaty does not contain the CHM language. Instead it uses the term *Province of Mankind*, which, is open to varying interpretations. It is vague. Second, The Moon Treaty, which does contain the Common Heritage of Mankind language may or may not be part of the body of international space law. The Moon Treaty is not generally considered accepted international law, however it was adopted by the consensus principle and therefore is arguably part of international law. Really, this issue needs to officially be addressed and settled between the international community. The laws that we have governing outer space are excellent. They just need to be updated by more

specific principles to be agreed upon by the international lawmaking community. Since The Moon Treaty has only been signed and ratified by a handful of nations²⁸, we need to discuss this as an international problem. The Moon Treaty is written about by academics, who seem misinformed on the actual record of negotiations leading up to the treaty. The Moon Treaty is often blamed for the stagnation of outer space development when in fact there are many thriving commercial space industries operating within the confines of international and domestic space law. Many of the complaints against the CHM principle and The Moon Treaty are fueled by an underbelly narrative implying that the issue is one of developing countries who are against private property, versus developed countries who of for private property²⁹. For example, the US (a major developed nation) proposed the common heritage of mankind principle in its draft language for the Moon Treaty. Therefore, it is incorrect to assume that there is or was a battle between developing countries wanting the CHM principle versus developed countries refusing it. This discourse³⁰ seems to be sparking an ideological shift, which seems to have influenced recent actions towards increased levels of free marketization of outer space. So, even though it is inaccurate it seems powerful.

7. NEW PLANS FOR NEW TERRITORY

7.1 Articulated Plans for Outer Space

I realize that many people do not see outer space as a territory *per se*. This is due to mankind's current lack of technology to get there and to stay there. But, I also realize that at one time most people believed that the Earth was flat and that people could not fly. Technology has been advancing exponentially in our lifetime and probably will continue to do so. In addition, the geostationary orbit is already a full house,

and the intellectual and professional base for Astronautics has concluded that there is a need to coordinate new integrated space infrastructure initiatives (or space "assets") for all aspects of outer space development including the scientific, commercial and military aspects. This will mean an increasing amount of joint ventures, partnerships and corporations combining resources and the use of assets in space. Space activities have always been extremely expensive with cost well into billions of dollars. With this new spin of the sharing and co-partnering the cost of building the space infrastructure will start to decrease consistently that new space assets will foster the expansion of space activities in the following ways:

- Creating various facilities in low Earth orbit
- Transferring payloads and people from one Earth orbit to another
- Developing the geostationary orbit with platforms such as solar power stations, depots for cryogenic propellants, and service stations for satellites or spacecraft
- Establishing human outposts at both the Earth-Moon and the Sun-Earth Lagrange points
- Developing nuclear propulsion systems for solar system exploration by human beings
- Establishing human outposts on the Moon and in-orbit around Mars
- Exploiting extraterrestrial resources such as water on The Moon or Mars for oxygen to breathe and hydrogen to burn as fuel, or platinum from an asteroid
- To explore the outer solar system in some detail using colonies of robotic spacecraft³¹.

7.2 The New Space Race

Until recently, the U.S. and former Soviet Union were the only two space superpowers. Today, many countries have activated their

own programs of sending spacecraft and satellites into space, to Mars, the Moon, and beyond. China's first manned spacecraft, the *Shenzhou 5*, completed its mission successfully in October 2003. China became the third nation to send a manned vehicle into space³². The European Space Agency's *Smart - 1* spacecraft also took off during the Fall of 2003 for a trip to the moon. This unmanned flight, was Europe's first to the moon. Many articles have indicated that China is "planning to establish a base on the Moon [by 2010] to exploit its mineral resources" because "[o]ur long-term goal is to set up a base on the Moon and mine its riches for the benefit of humanity"³³. India too has proclaimed the need to go to the Moon³⁴. Moreover, President Bush in January of 2004 declared that the U.S. plans to establish a base on the Moon and send more manned missions to Mars. On June 16, 2004, the President's Commission on the Moon, Mars and Beyond published a report entitled "A Journey to Inspire, Innovate and Discover"³⁵; it sets forth the new implementation policy. These steps represent bold new strides towards outer space development. Exciting things are happening with outer space today. For example, Japan, Europe (including France, Germany, Russia, United Kingdom), China, India, the United States all seem to be making plans for space, and numerous countries all over the world have drastically increased their space funding. For example, Nigeria and Korea. This is the stuff that movies are made out of. But, the entertainment industry seems to have overlooked this are perhaps are unaware of how dynamic the outer space arena is.

7.3 Space Tourism

Although space tourism is not taken seriously by most of the Astronautical community. Still this topic pops up more and more³⁶, and many are seriously determined to make space tourism a viable

industry³⁷. However, there are many serious space tourism actors gearing up and taking steps toward the formation of a new industry. By space tourism, I am referring to the notion that space is a place for laypeople (non astronauts) to visit and enjoy by traveling there. This includes parabolic and suborbital flights, going into orbit (like the international space stations), or traveling to asteroids, The Moon, Mars or elsewhere. Regarding this concept, there are three stages spoken of:

- Suborbital day trips (joyrides)
- Short stays in space-based facilities (low Earth orbit)
- Longer stays in space – further into space or on other celestial bodies

Space tourism is not a new concept, but has been around since the 1950s, or before. It was ignored until recently³⁸. Space tourism has already been initiated by private companies. For example, Space Adventures, Ltd.³⁹ is selling tickets for private trips to outer space at \$98,000 per person. Globalization is widespread today and free market ideology is at an all time international high.

In April of 2004 the Federal Aviation Administration Office of Commercial Space Transportation issued the world's first license for a private sub-orbital manned rocket flight to Burt Rutan's Scaled Composites, Mojave, California. The license issued is for a sequence of sub-orbital flights spanning a one-year period. SpaceShipOne is one of several aircraft in the running for the X-Prize competition, which will award \$10 million to the first company or organization to:

- Privately finance, build & launch a spaceship, able to carry three people to 100 Km (62.5 miles)
- Return safely to Earth
- Repeat the launch with the same ship within 2 weeks

When it reached an altitude above 62.14 miles (100 km), SpaceShipOne became the first private spaceflight⁴⁰. The X Prize involves an international competition to spark private inventors of space vehicles into a competition with each other. Although not in full fruition yet, this seems to be an emerging industry worth discuss within the mainstream Astronautical community and the United Nations' COPUOS and its Legal Subcommittee.

7.4 Space Mining

Celestial bodies within the solar system, including the Moon and the asteroids are proving to contain all sorts of minerals and metals in higher concentrations than found on Earth. For example, ice, oxygen, silicon, aluminum, iron, platinum metals, calcium, magnesium and many others. The current value is unknown but could range in trillions of US dollars. There is significant discourse⁴¹ on tapping into the wealth of space by extracting natural resources from the Moon, Mars, other planets and small bodies such as asteroids.

7.5 Space Settlement

Space settlement/space colonization refers to creating human habitats away from Earth. So far, according to today's technology, this would mean closed structures capable of supplying oxygen, water and other essentials to sustain human life. Space habitats will be structures ranging in size. Some might be the width and height of a car or an RV. Others may be the size a building, small town or city. They will also be either free floating, stationary or both. Some will be built to adhere to the ground, to The Moon, Mars or somewhere else. The expansion of the space infrastructure will mean endless career possibilities for architects, engineers and scientists in general. For years, space settlement advocates have been writing and arguing for mankind's final journey into the final frontier. Numerous seeds of change demonstrate the direction that outer space

development may take. As just one example, The NASA Ralph Steckler/Space Grant Space Colonization Research and Technology Opportunity involved awards totaling \$1 million to implement Mr. Steckler's testamentary direction and to "make a lasting impact on the field of space colonization".

CONCLUSION/RECOMMENDATIONS

The IISL and the UN COPUOS and its Legal Subcommittee must place the following questions on the agenda to be answered by the international community:

1. What are the international rules specifically concerning for-profit space tourism, for-profit space mining and for-profit space settlement?
2. Are The Moon Treaty and the Common Heritage of Mankind principle active parts of international space law?
3. To what extent are private property rights permitted or prohibited in accordance with the wishes of the international community?

The purpose of international law is to establish rules to govern behavior so that actors understand what to expect. Activities seem to be *in process*⁴² with no clear laws to govern them. This situation is a breeding ground for world conflict. Let's settle this today.

¹ John G. Stoessinger in *Why Nations Go to War* cites the following examples: Sidney Bradshaw Fay, *The Origins of the World War, Volumes 1 and 2* (New York: Free Press, 1928-1930); Luigi Albertini, *The Origins of the War of 1914, Volumes 1, 2 and 3* (London: 1952-1957); and Fritz Fischer, *Griff nach der Weltmacht* (Hamburg: 1961).

² *Id* at p. 2

³ *Id* at p. 2

⁴ *Id* at xvii

⁵ *Id* at p.2

⁶ For discussions/views leading to the space treaties see Nandasiri Jasentulyana and Roy S.K. Lee (1979-1981) *Manual on Space Law, Volumes I, II, III and IV* (Dobbs Ferry, New York: Oceana Publication, Inc., 1979-1981).

⁷ Michel Foucault, *Power and Knowledge* (New York Pantheon: Books, 1980); Edward W. Said, *Covering Islam:*

How the Media and the Experts Determine How We See The Rest of the World (New York: Vintage Books, 1997); James Der Derian and Michael J. Shapiro, *International/Intertextual Relations: Postmodern Readings of World Politics* (New York: Lexington Books, (1989).

⁸ See Arturo Escobar, *Encountering Development: The Making and Unmaking of the Third World* (Princeton, N. J.: Princeton University Press, 1995).

⁹ For further reading on applying Escobar's analysis to outer space discourse see See Edythe Weeks (May-August, 2001) "Continuing Pattern of Inequality Between North and South in Outer Space", *Revue de Droit International De Sciences Diplomatiques et Politiques*, Vol 79, no. 2: 167.

¹⁰ Krishna Jayakar (Spring, 1998) "Globalization and the Legitimacy of International Telecommunications Standard-Setting Organizations" *Indiana Journal of Global Legal Studies*, Vol. 5: 711

¹¹ For example, in the US, domestic laws and policy statements have encouraged privatization of the space transportation industry. The Commercial Space Launch Act of 1984 regulated private space transportation in the US. Prior to this, it was fragmentary and inconsistent. In 1984, the Department of Transportation was designated the lead agency for commercial launch activities. And other similar policy statements followed. For instance, the National Space Policy (1989), the Commercial Space Launch Policy (1990), the Commercial Space Policy Guidelines (1991), and the National Launch Strategy (1991). For further reading see Nathan C. Goldman *American Space Law: International and Domestic 2nd ed.* (San Diego, California: Univelt, 1996); Patrick Salin (June, 2002) "An Overview of US Commercial Space Legislation and Policies - Present and Future", *Air and Space Law*, Volume 27: 3. See generally A.S. Piradov, *International Space Law* (Honolulu, Hawaii: University Press of the Pacific, 2000); Bin Cheng, *Studies in International Space Law* (Oxford, New York: Clarendon Press, 1997); George V. d'Angelo, *Aerospace Business Law* (Westport, CT: Quorum Books, 1994); Peter D. Nergos, (1991) "Commercial Space Transportation: A New Industry Emerges", XVI *Annals of Air and Space Law*, 393; Jonathan F. Galloway, *Politics and Technology of Satellite Communications* (Lexington, Massachusetts: Lexington Books, 1972); and George V. d'Angelo, *Aerospace Business Law* (Westport, CT: Quorum

¹² Kelly M. Zullo (2002) "The Need to Clarify the Status of Property Rights in International Space Law", *The Georgetown Law Journal* Vol. 90: 2414 at 2424-2425; Virgiliu Pop (November 2000) "Appropriation in Outer Space: The Relationship Between Land Ownership and Sovereignty on the Celestial Bodies" *Space Policy* Vol. 16, Issue 4: 275-282; Nicolas Mateesco Matte (1984) "Space Activities and Emerging International Law" *Report of a*

Major research conducted by The Centre for Research of Air and Space Law, McGill University pp. 279-281.

¹³ <http://www.scifidimensions.com/Feb01/dennishope.htm>.

¹⁴ <http://www.orbdev.com>.

¹⁵ <http://www.iafastro-iisl.com>

¹⁶ For a complete layout of the formal written record, discussions and views leading up to the space treaties see Nandasiri Jasentuliyana and Roy S.K. Lee (1979-1981) *Manual on Space Law, Volumes I, II, III and IV* (Dobbs Ferry, New York: Oceana Publication, Inc., 1979-1981).

¹⁷ Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies, Jan. 27, 1967, 18 U.S.T. 2410, 610 U.N.T.S. 205 (The Outer Space Treaty of 1967).

¹⁸ Pat Dasch, Michael Martin Smith, and Anne Pierce Director of Programs, National Space Society (1999) "Conference of Space Property Rights: Next Steps", p.174-178 and Wayne White, Jr. "Implications of a Proposal for Real Property Rights in Outer Space" p. 366-372, *Proceedings of the 42nd Colloquium on the Law of Outer Space*.

¹⁹ *Id.*

²⁰ Wayne White, Jr. "Proposal for a Multilateral Treaty Regarding Jurisdiction and Real Property Rights in Outer Space" p. 245-253, *Proceedings of the 43rd Colloquium on the Law of Outer Space, 2000*.

²¹ P.M. Sterns and L.I. Tennen (2002) Privateering and Profiteering on the Moon and Other Celestial Bodies: Debunking the Myth of Property Rights in Space" World Space Conference Paper No. COSPAR 02-A-01933, Houston Texas, October, 2002; Sylvia Ospina (2002) "The Concepts of Assets and Property: Similarities and Differences, and their Applicability to Undertakings in Outer Space", *Proceedings of the 45th Colloquium on the Law of Outer Space*; Arnel Kerrest (2001) "Outer Space: Res Communis, Common Heritage or Common Province of Mankind" *Proceedings of the 10th ECSL Summer Course on Space Law and Policy*, University of Nice, France (August 27 - September 8, 2001).

²² Maurice N. Amdem (1999) "Twentieth Anniversary of the 1979 Moon Treaty: The Legal Status of the Moon and Other Celestial Bodies Revisited in the Light of the Commercialisation of Outer Space Activities", *Proceedings of the 42nd Colloquium on the Law of Outer Space*, 383-392; also see Rana, Harminderpal Singh (Fall, 1994) "The CHM & The Final Frontier: A Revaluation of Values constituting the International Legal Regime for Outer Space Activities" Volume 26 *Rutgers Law Journal*, 225.

²³ Ty S. Twibell (Spring 1997) "Space Law: Legal Restraints on Commercialization and Development of Outer Space", *University of Missouri at Kansas City Law Review* Vol. 65: 589; Ty S. Twibell (1997) "Circumnavigating International Space Law", *ILSA Journal of International and Comparative Law* Vol. 4: 259.

²⁴ Kelly M. Zullo (2002) at note 12; Glenn H. Reynolds (1992) "International Space Law: Into the Twenty-First Century" *Vanderbilt Journal of Transnational Law*, Vol. 25 no. 2: 225 and in (February, 1990) "Laying a Legal Foundation for Space Development", *Ad Astra* at 30 argues that international space law inhibits commercial development due to the uncertainty posed by the lack of clarity on the issue of private property rights. Some authors suggest that space law be changed to explicitly permit land grants to encourage outer space settlement. For example, Glenn H. Reynolds (Summer 1992) "Environmental Rights and International Peace", *Tennessee Law Review*, Vol. 59: 723. The land grant concept seems to fall into the forbidden "appropriation" category.

²⁵ Robert Zimmerman (July-August, 2000) "Brave New World?: American Colonial History as a Guide to Building Space Societies", *Ad Astra* 32-34; Richard Berkley "Intellectual Property issues in East Asia Proceedings of the 1997 Symposium: Article and Comment: Space Law Versus Space Utilization: The Inhibition of Private Industry in Outer Space." *Wisconsin International Law Journal*. 15 Spring, 1997, 421; Lawrence L. Risley (1998) "An Examination of the Need to Amend Space Law to Protect the Private Explorer in Outer Space." *Western State University Law Review* Vol. 26: 47.

²⁶ Kevin V. Cook, (Spring, 1999) "The Discovery of Lunar Water: An Opportunity to Develop a Workable Moon Treaty", *Georgetown International Environmental Law Review*, Vol. 11: 647 provides over 70 pages of text detailing various reasons international space law is defective; Eric Husby (1994) "Sovereignty and Property Rights in Outer Space" *Journal of International Law and Practice*, Vol. 3: 359 also argues that space law is defective, for various reasons; Heidi Keefe (July, 1995) "Making the Final Frontier Feasible: A Critical Look at the Current Body of Outer Space Law", *Computer & High Technology Law Journal*, Vol. 11: 345.

²⁷ Brian M. Hoffstadt (December, 1994) "Comment: Moving the Heavens: Lunar Mining and the "CHM" in the Moon Treaty", *UCLA Law Review*, Vol. 24: 575.

²⁸ Only nine states (Australia, Austria, Chile, Mexico, Morocco, The Netherlands, Pakistan, Philippines and Uruguay) have ratified it and five states (France, Guatemala, India, Peru and Romania) in addition have signed but not ratified. It only took five nations to enter it into force, took five years to get the five requisite signatures. Conversely, The Outer Space Treaty was well received: it was ratified by ninety-six nations and signed by another twenty-seven states. See *Report of the Legal Subcommittee on Its Fortieth Session*, UN Committee on the Peaceful Uses of Outer Space, 40th Session, 22(a), United Nations' Document A/AC.105763 (2001). Due to the low level of international support, some space law experts have reasoned it is "obviously unacceptable". Kelly M. Zullo (2002), note 12, citing Eilene Galloway, "Guidelines for the

Review and Formulation of Outer Space Treaties", Presentation at the International Astronautical Federation 41st International Colloquium on the Law of Outer Space (October 2, 1998).

²⁹ See Barbara Heim (1990) in "Exploring the Last Frontiers for Mineral Resources: A Comparison of International Law Regarding the Deep Seabed, Outer Space and Antarctica", Volume 23 *Vanderbilt Journal of Transnational Law*, 819.

³⁰ See Weeks at note 9.

³¹ E. Vallerani "The Need for a New Vision", Proceedings of the International Space University's 7th Annual Symposium, 4-7 June, Strasbourg, France entitled "Beyond the International Space Station: The Future of Human Spaceflight" (Dordrecht: Kluwer Academic Publishers, 2002), pp. 1-2.

³² James Oberg, "China's Great Leap Forward", *Scientific American*, 9/15/03.

³³ "China Sets Date for the Moon", *BBC News*, 5/20/02.

³⁴ "India Limbers Up for Space Race as Prime Minister Asks for the Moon", *Guardian Newspapers*, Jan. 29, 2003.

³⁵ *The Report of the President's Commission on Implementation of U.S. Space Exploration Policy: A Journey to Inspire, Innovate and Discover*, ISBN 0-16-073075-9, (U.S. Government Printing Office, Washington, D.C.) (June 16, 2004).

³⁶ im Benson, "The Role of the Private Sector/Entrepreneur in Future Human Space Exploration" pp. 217-222; R.A. Goehlich, "Economic and Technical Evaluation of Suborbital Spaceflight for Space Tourism" pp. 223-230; A. P. Buckley and W. Mendell, "Space Tourism - From Dream to Reality" pp. 231-238; and I. Bouvet, "Space for Entrepreneurs and Tourists: Some Legal Issues" pp. 239-246, see the Proceedings of the International Space University's 7th Annual Symposium at note 31.

³⁷ Paula Berinstein, *Making Space Happen: Private Space Ventures and the Visionaries Behind Them* (Medford, New Jersey: Plexus Publishing, Inc., 2002).

³⁸ For more information on space tourism history see <http://www.spacefuture.com/tourism/timeline.shtml>.

³⁹ From the website it appears that this U.S. company's flights will leave from Russia's Star City and will be launched from the Baikonur Cosmodrome. It is about 100 miles (160 km) northwest of Kyzylorda. Baikonur was founded in 1955 and is the former Soviet and current Russian space center located in south-central Kazakhstan. It is the oldest space launch facility in the world. This demonstrates that we are living in a high time of globalization. See <http://www.spaceadventures.com>.

⁴⁰ See www.xprize.org.

⁴¹ See Bernstein at note 36.

⁴² See E.E. Weeks, *Outsiders' Guide to Understanding Outer Space Development* (Xlibris, 2004).