Journal of Air Law and Commerce

Volume 73 | Issue 1 Article 3

2008

Space Settlements, Property Rights, and International Law: Could a Lunar Settlement Claim the Lunar Real Estate It Needs to Survive

Alan Wasser

Douglas Jobes

SPACE SETTLEMENTS, PROPERTY RIGHTS, AND INTERNATIONAL LAW: COULD A LUNAR SETTLEMENT CLAIM THE LUNAR REAL ESTATE IT NEEDS TO SURVIVE?

ALAN WASSER*
DOUGLAS JOBES**

TABLE OF CONTENTS

* Alan Wasser is the Chairman of The Space Settlement Institute and a former CEO of the National Space Society. He is a former member of the AIAA Space Colonization Technical Committee, former member of the Board of Directors of ProSpace, and a former Senior Associate of the Space Studies Institute. His "Space Settlement Initiative" was featured in the 2005 book RETURN TO THE MOON (Apogee Books).

** Douglas Jobes is the President of The Space Settlement Institute and a promoter of space exploration and settlement. He has been published in The Space Review and in the American Astronautical Society's (AAS) SPACE TIMES magazine. For more details, see http://www.space-settlement-institute.org/

I. INTRODUCTION

HUMANITY'S SURVIVAL depends on moving out into the cosmos while the window of opportunity for doing so still exists. Besides helping to ensure the survival of humankind, the settling of space—including the establishment of permanent human settlements on the Moon and Mars—will bring incalculable economic and social benefits to all nations. The settlement of space would benefit all of humanity. It would open a new frontier, provide resources and room for growth of the human race without despoiling the Earth, energize our society, and as Dr. Stephen Hawking has pointed out, create a lifeboat for humanity that could survive even a planet-wide catastrophe.[1] But, as Dr. Lawrence Risley pointed out, "Exploration is not suicidal and it is usually not altruistic, rather it is a means to obtain wealth. There must be rewards for the risks being taken."[2]

Unfortunately, neither private enterprise nor government currently has a sufficient incentive to invest the billions of dol-

---

[1] Sylvia Hui, *Hawking Says Humans Must Colonize Space*, SPACE.COM, June 13, 2006, http://www.space.com/news/060613_ap_hawking_space.html. In Hawking's words:

> It is important for the human race to spread out into space for the survival of the species. . . . Life on Earth is at the ever-increasing risk of being wiped out by a disaster, such as sudden global warming, nuclear war, a genetically engineered virus or other dangers we have not yet thought of.

Id.

[2] Lawrence L. Risley, *An Examination of the Need to Amend Space Law to Protect the Private Explorer in Outer Space*, 26 W. ST. U. L. REV. 47, 47–48 (1998–99).

lars necessary to make space settlement happen. In the private sector, even the recent accomplishments of space entrepreneurs such as Richard Branson and Robert Bigelow are but tiny steps towards settlement.[3] These billionaires may be able to get a few passengers to low Earth orbit, but it is very unlikely that they will finance technology for people to live in space, especially on the Moon or Mars.[4] They may be wealthy, but they are not that wealthy. And the U.S. government's current "Return to the Moon" plan[5] has numerous hurdles, not the least of which is whether financing will be sustained over the next decades by future administrations. In any case, the goal of the program is not a thriving settlement on the Moon, but rather a limited, government-run Moon base.[6] The government space programs of other countries are even farther behind with regard to space settlement.[7]

There appears to be one incentive, however, that could spark massive private investment leading to the establishment of permanent space settlements on the Moon and beyond with an immediate payback to investors. The concept of "land claims recognition" (developed by author Alan Wasser and others over the last twenty years) seems to be the most powerful economic incentive, much more so than all the other incentives, such as government-funded prizes and corporate tax holidays combined.[8]

If and when the Moon and Mars are settled in the future through other incentives, the nations of Earth will eventually have to recognize these settlements' authority over their own land. But to create an incentive now, governments would need to commit to recognizing that ownership in advance, rather than long after the fact.

---

[3] Cathy B. Thomas, *The Space Cowboys*, TIME, Feb. 22, 2007, *available at* http://www.time.com/time/printout/0,8816,1592834,00.html.

[4] *See id.*

[5] *See* Guy Gugliotta, *NASA Unveils $104 Billion Plan to Return to Moon by 2018*, WASH. POST, Sept. 20, 2005, at A03.

[6] *See* Warren E. Leary, *NASA Plans Permanent Moon Base*, N.Y. TIMES, Dec. 5, 2006, *available at* http://www.nytimes.com/2006/12/05/science/space/05nasa.html.

[7] *See Spurred by NASA, Russia Plans Its Own Moon Base*, CANADIAN BROAD. CTR., http://www.cbc.ca/technology/story/2007/08/31/science-russia-moon.html (last visited Mar. 25, 2008).

[8] Douglas O. Jobes & Alan B. Wasser, *Land Claims Recognition (LCR) Analysis: Leveraging the Inherent Value of Lunar Land For Billions in Private Sector Investment*, SPACE SETTLEMENT INST., Aug. 18, 2004, http://www.space-settlement-institute.org/Articles/LCRbrieftext.htm.

Land claims recognition legislation would commit the Earth's nations, in advance, to allowing a true private Lunar settlement to claim and sell (to people back on Earth) a reasonable amount of Lunar real estate in the area around the base, thus giving the founders of the Moon settlement a way to earn back the investment they made to establish the settlement.[9] Appropriate conditions could be set in the law, such as the establishment of an Earth-Moon space line open to all paying passengers regardless of nationality.[10]

The many other aspects of the land claims recognition concept are discussed in detail elsewhere,[11] but a major point of related debate involves what international law has to say about the legality of a private entity, such as a space settlement owned by a corporation or individual, claiming ownership of land on a celestial body like the Moon on the basis of "occupation and

---

[9] It cannot be stressed enough that the reason for land claims recognition legislation is not to establish a good property rights regime for its own sake, nor is it to protect Lunar residents from claim jumping, which will not, in fact, be a problem, as will be shown later. *See* The Space Settlement Initiative, http://www.spacesettlement.org (last visited Mar. 25, 2008). The sole reason is to create the only product that a privately funded space settlement could sell to the public back on Earth for sufficient profit to justify the tremendous cost of establishing a space settlement. *Id.* This product is hundreds of millions of paper deeds that are recognized by the U.S. government and other governments as *bona fide* deeds to acres of Lunar or Martian land, printed on Earth for pennies apiece, and sold to investors on Earth for perhaps one hundred dollars each. *Id.*

The chain of reasoning is as follows: The objective is promoting the settlement of space—the day when ordinary people will live and work in thriving communities on the Moon and Mars. We do not want the Moon and Mars to be permanent wastelands like Antarctica, but instead we want them developed like Alaska. This goal would require an enormous up-front investment, but government has proven unwilling or unable to make this investment. *Id.* Private enterprise could make this investment, but only if there were a prospect of a quick, enormous profit upon success. *Id.* For this, there needs to be a very profitable product that a privately funded space settlement could sell to the public back on Earth. *Id.* It would be ideal if every nation of the world allowed the sale and acknowledged the validity of the deeds but, since the biggest pool of money is concentrated in the U.S., and the U.S. tends to lead the way in economic matters, it is U.S. recognition that is by far the most important. A claim of 600,000 square miles—around four percent of the Moon's surface and roughly the size of Alaska—would contain 384,000,000 acres, so at even a conservative price of one hundred dollars per acre it would be worth almost forty billion dollars. *Id.*

[10] *See* Space Settlement Initiative, *supra* note 9.

[11] *See, e.g.*, Douglas Jobes, *Lunar Land Claims Recognition: Designing the Ultimate Incentive for Space Infrastructure Development*, SPACE TIMES, May/June 2005, at 4; *see also* Space Settlement Initiative, *supra* note 9.

use."[12] The following discussion lays out the argument that current international law, and especially "the Outer Space Treaty," does appear to permit private property ownership in space and permit nations on Earth to recognize land ownership claims made by private space settlements, without these nations being guilty of national appropriation or any other legal violation.

II. A TALE OF TWO TREATIES

The 1967 Treaty On Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies,[13] generally called the Outer Space Treaty, is the primary basis for most international space law. The treaty was negotiated by the United States and the Soviet Union in order to end the costly space race between them.[14]

There were, of course, a great many differences between the U.S. and the U.S.S.R., which had to be compromised or papered-over in order to get a treaty agreement.[15] For example, the U.S.S.R. wanted to ban all private enterprise space activity but the U.S. refused.[16]

---

[12] *See generally* Thomas Gangale, *A Limited International Agreement on Property Rights*, 2007-6072 AM. INST. OF AERONAUTICS & ASTRONAUTICS (2007).

[13] Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies art. 11, Jan. 27, 1967, T.I.A.S. No. 6347 [hereinafter Outer Space Treaty].

[14] U.S. STATE DEP'T, SPACE GOALS AFTER THE LUNAR LANDING 13–16 (1966) *available at* http://www.space-settlement-institute.org/Articles/research_library/SpaceGoals1966.pdf (this document was declassified pursuant to a Freedom of Information Act request by one of the authors of this Article).

[15] *See generally* U.S. Delegation on Negotiations With the Soviets on the Legal Problems of Outer Space, Position Paper, Sept. 24, 1963 (on file with author) [hereinafter Position Paper] (describing the U.S. government's position regarding the Soviet draft of the Outer Space Treaty) (this Position Paper was declassified Oct. 3, 1990 and was obtained from the LBJ Library in Austin, Texas).

[16] *Id.* at 7. The U.S. negotiators were not sure whether this was "an attempt to extend Communist principles to outer space" or just a negotiating tactic. *Id.* That is, the Americans thought the U.S.S.R. might just want to trade "a Soviet concession on private companies in outer space" for U.S. concessions on issues such as banning the use of satellites for war propaganda or the Soviet proposal that "the use of artificial satellites for the collection of intelligence information in the territory of a foreign state is incompatible with the objectives of mankind in its conquest of outer space." *Id.* at 7, 9; Laura Grego, *A History of Anti-Satellite Weapons Programs*, SPACE WEAPONS BASICS (Union of Concerned Scientists, Cambridge, Mass.), at n.3, http://www.ucsusa.org/global_security/space_weapons/a-history-of-asat-programs.html (last visited Mar. 27, 2008) (quoting the 1962 draft proposal given to the U.N. legal subcommittee by the Soviets). The U.S. compromise proposal "insures that each national government accepts responsibility for

In many cases, the solution was to insert vague language that could be interpreted whichever way the reader wanted, but would leave the enactment of any real rules to a future discussion. At the U.S. Senate ratification hearings for the Treaty, Arthur Goldberg, who led the U.S. negotiating team, was asked about Article I of the treaty, and he told the Senators that "the article [was] a 'broad general declaration of purposes' that would have no specific impact until its intent was detailed in subsequent, detailed agreements."[17]

About a decade later, there was a serious attempt to produce such a detailed agreement, the 1979 "Agreement on the Activities of States on the Moon and Other Celestial Bodies,"[18] generally referred to as "The 1979 Moon Treaty."[19] The agreement would have banned all private property in space, and for that reason, among others, the U.S. Senate refused to ratify it.[20] No other space-faring nation ratified it either.[21] Therefore, it is

---

its activities and those of its nationals, and is internationally liable for them." Position Paper, *supra* note 15, at 7.

[17] John W. Finney, *Space Treaty Called 'Fuzzy' at Senate Hearings: Rusk and Goldberg Dispute Unexpected Objections by Gore and Fulbright*, N.Y. TIMES, Mar. 8, 1967, at 20.

[18] Agreement Governing the Activities on the Moon and Other Celestial Bodies, Dec. 5, 1979, 1984 U.N.T.S. 22 [hereinafter Moon Treaty].

[19] Wayne N. White Jr., Presentation at the 40th Colloquium on the Law of Space of the American Institute of Aeronautics and Astronautics: Real Property in Outer Space 1 (Oct. 6–10, 1997), *available at* http://www.space-settlement-institute.org/Articles/research_library/WayneWhite98-2.pdf.

> The 1979 Moon Treaty contains a non-appropriation clause which is more inclusive than Article II [of the 1967 Outer Space Treaty]. Although Article 11, paragraph 2 of the Moon Treaty reiterates the language of Article II of the Outer Space Treaty, Article 11, paragraph 3 further provides that 'neither the surface nor subsurface of the moon . . . shall become property of any state, international inter-governmental or non-governmental organization, national organization or non-governmental entity or of any natural person' (references to 'the moon' in the Moon Treaty refer to all celestial bodies and areas of outer space other than Earth and Earth orbits).
>
> The [Moon] treaty also says, in Article 11, paragraph 1, that 'the moon and its natural resources are the 'common heritage of mankind.' Opponents of the treaty note that the developing nations often interpret 'common heritage' to mean 'common property' of mankind. As a result, the Moon Treaty has encountered resistance from countries with free market economies.

Id. at 5; *See also* Moon Treaty, *supra* note 18, art. 11.

[20] *See* White, *supra* note 19.

[21] *Id.*

generally agreed today that the Moon Treaty is non-binding and not a part of international law.[22] As Kurt Anderson Baca notes,

> The Moon Treaty outlaws property rights in any celestial body absent the establishment of an international regime. The Moon Treaty also aims at closing the avenue toward property and quasi-sovereignty left by the Outer Space Treaty. The Moon Treaty, however, has yet not been ratified by any major space power and has been signed by very few states. It is not binding as a treaty on the non-party states and the claim that it represents customary law is probably not credible.[23]

It has also been pointed out that the very fact that the framers of the Moon Treaty felt the need to write a new specific ban on private property indicates that they did not feel the earlier Outer Space Treaty had already accomplished such a prohibition.[24]

III. EXPERT OPINIONS ON THE OUTER SPACE TREATY

So the question is whether it would be an exercise of sovereignty, and therefore a violation of the Outer Space Treaty (especially Article II)[25] for the U.S. to pass legislation agreeing to recognize the right of privately funded, permanent Lunar or Martian settlements, regardless of nationality, to claim land around their base. Most experts now seem to agree that the

---

[22] *See* Lotta Vikari, *Time Is of the Essence: Making Space Law More Effective*, SPACE POLICY, Feb. 2005, at 1–5.

[23] Kurt Anderson Baca, *Property Rights in Outer Space*, 58 J. AIR L. & COM. 1041, 1069 (1993).

> The Moon Treaty introduces the concept of the common heritage of mankind to considerations of space property law. The obligations incurred by states under this principle, and the Moon Treaty itself, are unclear and have been the subject of much commentary.

Id. at 1068–69. That view was endorsed in an official review of the space treaties by the Netherlands, one of the few nations that ratified the Moon Treaty:

> Contrary to the other treaties, the almost complete lack of ratification of the [Moon Treaty] Agreement by the world's States will preclude any conclusion that the Moon Agreement would be endowed with some measure of customary legal force as an elaboration of the Outer Space Treaty with respect to a particular area (or number of areas) within outer space as a whole.

U.N. Comm. on the Peaceful Uses of Outer Space, *Review of the Status of the Five International Legal Instruments Governing Outer Space*, at 21, U.N. Doc. A/AC.105/C.2/L.210 (Mar. 2, 1998).

[24] Alan Wasser, *The Law That Could Make Privately Funded Space Settlement Profitable*, SPACE GOVERNANCE, Jan. 1998, at 56.

[25] Outer Space Treaty, *supra* note 13, art. II.

Outer Space Treaty does not ban private property. The following are several examples:

1) As law Professor Glenn Reynolds and National Review columnist Dave Kopel say,

> [i]t is widely agreed by space-law scholars that the Outer Space Treaty forbids only national sovereignty—not private property rights. If, later this century, Americans settle Mars, they will acquire property rights to the land they settle . . . . The American government may choose to respect the Martian settlers' property rights, and even defend them, without violating the treaty's terms, so long as the government doesn't proclaim its own sovereignty over portions of Mars . . . . As independent settlers, they would not be bound by the Outer Space Treaty, which only restricts the Earth-based governments that have signed it.[26]

2) Joanne Gabrynowicz, a professor of law and the Director of the National Remote Sensing and Space Law Center says, "[a]s regards to property rights per se, the Outer Space Treaty is silent. It contains no prohibition."[27]

3) Writing for the *Fordham Law Review*, Professor Stephen Gorove, former Chairman of the Graduate Program of the School of Law and professor of law at the University of Mississippi, School of Law, said,

> . . . the [Outer Space] Treaty in its present form appears to contain no prohibition regarding individual appropriation or acquisition by a private association or an international organization. . . . Thus, at present, an individual acting on his own behalf or on behalf of another individual or a private association or an international organization could lawfully appropriate any part of outer space, including the moon and other celestial bodies.[28]

Professor Gorove goes on to say:

> . . . the establishment of a permanent settlement or the carrying out of commercial activities by nationals of a country on a celestial body may constitute national appropriation if the activities take place under tie [sic] supreme authority (sovereignty) of the state. Short of this, if the state wields no exclusive authority or jurisdiction in relation to the area in

---

[26] Glenn Reynolds & Dave Kopel, *The New Frontier: Preparing the Law for Settling on Mars*, NAT'L REV. ONLINE, June 4, 2002, http://www.nationalreview.com/kopel/kopel060402.asp.

[27] Joanne Irene Gabrynowicz, *The International Space Treaty Regime in the Globalization Era*, AD ASTRA, Fall 2005, at 30, *available at* http://www.space-settlement-institute.org/Articles/IntlSpaceTreatyGabryno.pdf.

[28] Stephen Gorove, *Interpreting Article II of the Outer Space Treaty*, 37 FORDHAM L. REV. 349, 351 (1969).

question, the answer would seem to be in the negative, unless, the nationals also use their individual appropriations as cover-ups for their state's activities.[29]

4) At the 50th International Astronautical Congress, National Space Society ("NSS") representatives Pat Dasch, Michael Martin-Smith, and Anne Pierce presented a report on space property rights. The presentation concluded that "[s]everal important principles have been established by customary law and treaty. First, national sovereignty stops where outer space begins. . . . Second, that national appropriation of the Moon, other planets, asteroids, etc., is forbidden. And third, that private property rights are not forbidden."[30]

Dasch, Martin-Smith, and Pierce noted that the third point had been controversial for some time.[31] But, they say, it is now agreed that, "The 1967 Outer Space Treaty forbids 'national appropriation' of the Moon and other celestial bodies . . . . It does not forbid private property rights on these bodies."[32]

5) Even attorney and space law consultant Wayne White, who opposes the "Space Settlement Initiative" (proposed legislation to utilize Lunar land claims recognition by the U.S. as the financial incentive to impel private industry to finance settlements on the Moon),[33] says: "Some interpret Article II narrowly to prohibit only national appropriation. Many others interpret the clause broadly to prohibit all forms of appropriation, including private and international appropriation. When Article II is compared to similar provisions in other documents, however, it becomes clear that the narrow interpretation is correct."[34]

Before the 1967 Outer Space Treaty was drafted by the U.N. Committee on the Peaceful Uses of Outer Space ("COPUOS"), four other international legal organizations prepared draft resolutions. All of these documents recommended non-appropriation clauses which are broader than Article II.[35] The

---

[29] *Id.* at 352.

[30] Pat Dasch, Michael Martin-Smith, & Anne Pierce, Nat'l Space Society, Presentation at the 50th International Astronautical Congress: Conference on Space Property Rights: Next Steps (Oct. 4–8, 1999).

[31] *Id.*

[32] *Id.*

[33] *See* Space Settlement Initiative, *supra* note 9.

[34] White, *supra* note 19.

[35] *Draft Resolution of the International Institute of Space Law Concerning the Legal Status of Celestial Bodies, in* PROCEEDINGS OF THE EIGHTH COLLOQUIUM ON THE LAW OF OUTER SPACE 467–69 (Andrew G. Haley & Mortimer D. Schwartz eds., 1966); *Institute de Droit International, Resolution on the Legal Regime of Outer Space, in* C.W. JENKS, SPACE LAW 416 (1965) (adopted unanimously Sept. 11, 1963); *David Davies Memorial Institute of International Studies, Draft Code on the Exploration and Uses of*

terminology in these clauses suggests that at the time the Outer Space Treaty was drafted, international lawyers did not consider "national appropriation" to be an all-inclusive phrase.

For example, a resolution of the International Institute of Space Law ("IISL") specifically distinguished between national and private appropriation: "Celestial bodies or regions on them shall not be subject to national or private appropriation, by claim of sovereignty, by means of use or occupation or by any other means."[36]

> 6) A.F. van Ballegoyen says simply, "Article 2 of the treaty . . . needs to be interpreted in a restrictive, literal meaning, namely as just the prohibition of national appropriation. This interpretation would allow other entities like private companies and non-governmental organizations to appropriate territory."[37]
>
> 7) And, in the *Connecticut Law Review*, environment and energy lawyer Lynn M. Fountain notes that, "[w]ithout assurance of property rights, private industry will not invest in the development of outer space. The right of continued use does not have to mean a declaration of national sovereignty."[38] Fountain further acknowledges that:
>
> > The Outer Space Treaty only bans national appropriation of celestial bodies. It does not specifically mention resources removed from such bodies, nor does it specifically mention or prohibit appropriation by private industry. The Moon Treaty is more specific on both elements and thus has not been signed or ratified by any of the space powers.[39]

These experts and many others agree that the Outer Space Treaty does not ban private property on the moon, Mars, or other celestial bodies.

Outer Space, in C.W. JENKS, *supra*, at 419; International Law Association, Resolution on Air Sovereignty and the Legal Status of Outer Space, *in* C.W. JENKS, *supra*, at 167.

[36] *Draft Resolution of the International Institute of Space Law Concerning the Legal Status of Celestial Bodies, supra* note 35, at 468; White, *supra* note 19.

[37] A.F. van Ballegoyen, *Ownership of the Moon and Mars: The Land-Grant Act as Means of Stimulating Human Settlement of Celestial Bodies*, AD ASTRA, Jan./Feb. 2000, at 37, *available at* http://www.space-settlement-institute.org/Articles/research_library/BallegoyenOwn.pdf.

[38] Lynn M. Fountain, *Creating Momentum in Space: Ending the Paralysis Produced by the 'Common Heritage of Mankind' Doctrine*, 35 CONN. L. REV. 1753, 1777 (2003).

[39] *Id.* at 1777 n.156.

IV. RECOGNITION OF PROPERTY OWNERSHIP

If private property claims in space are legitimate under the Outer Space Treaty, must the nations of the world pretend that they are not, or could they publicly acknowledge that they are? White points out that, "under international law states may do whatever is not expressly forbidden. Restrictions upon the independence of States cannot . . . be presumed."[40]

Clearly, if the Outer Space Treaty does not ban private property ownership, it certainly does not contain a separate, special provision expressly forbidding nations from recognizing that fact. The long-accepted legal doctrine *expressio unius est exclusio alterius* says that, when interpreting statutes, we should presume things not mentioned were excluded by deliberate choice, not inadvertence.[41]

So what motivates those who proclaim that the treaty does ban such recognition of private property? Some of those who make that claim "believe only governments and government employees belong in space at all, ever, as a matter of principle and safety."[42] Others are trying to justify their own competing approaches to space development. For example, some scientists want the Moon reserved for research alone and everyone else kept away.[43] Some are fearful that development of competitive space settlements might lead to armed conflict.[44] And there are

---

[40] Case of the S.S. Lotus (Fr. v. Turk.), 1927 P.C.I.J. (ser. A) No. 10, at 18 (Sept. 7); White, *supra* note 19, at 4.

[41] *Expressio unius est exclusio alterius* is defined as: "A cannon of construction holding that to express or include one thing implies the exclusion of the other, or of the alternative;" also called *"inclusio unius est exclusio alterius."* BLACK'S LAW DICTIONARY 620 (8th ed. 2004); IAN BROWNLIE, PRINCIPLES OF PUBLIC INTERNATIONAL LAW 602, 604 (6th ed. 2003).

[42] *See* Space Settlement Initiative, *supra* note 9; *see also* Homer Hickman & Rand Simberg, *Why Is NASA the Only Game in Space?*, L.A. TIMES, Oct. 1, 2007, http://latimes.com/news/opinion/la-op-dustup1oct01,0,3687593,print.story?coll=l1-home-commentary; Press Release, Space Frontier Found., NASA Can Fix Its Budget Problems by Buying from Private Industry Instead of Competing with It (Feb. 5, 2007).

[43] *See, e.g., Scientists Are Split on Whether Lunar Base is Too Ambitious*, REDORBIT, Jan. 7, 2007, http://www.redorbit.com/news/space/791549/scientists_are_split_on_whether_lunar_base_is_too_ambitious/index.html.

[44] For example, G. Harry Stine, Patricia M. Sterns, and Leslie I. Tennen say that "clearly, international peace and security would be served by the prevention of conflict over competing terran [sic] claims to portions of the cosmos. The resolution of this issue, therefore, was a universal prohibition of national appropriation in space." Patricia M. Sterns, G. Harry Stine, & Leslie I. Tennen, *Preliminary Jurisprudential Observations Concerning Property Rights on the Moon and Other Celestial Bodies in the Commercial Space Age, in* PROCEEDINGS OF THE THIRTY-NINTH

even people who believe that private property itself, especially all land ownership, is an abomination, and should be made illegal in the new world of space.[45] For these advocates, whether or not the Outer Space Treaty actually bans private property claims, it should—and for them, that is the same thing. As a result of such conflicting viewpoints, little progress toward space settlement has been made in the thirty years since the Apollo program.

V. DIFFERING LEGAL SYSTEMS: COMMON LAW VERSUS CIVIL LAW

Some critics of private ownership of extraterrestrial land only take into consideration the provisions of English common law.[46] With common law, ever since William "The Conqueror" confiscated the old nobility's lands after 1066, all property rights have derived ultimately from the King, or sovereign. So these critics feel that a ban on private ownership is automatically implied by the Outer Space Treaty's ban on national appropriation.[47]

COLLOQUIUM ON THE LAW OF OUTER SPACE 53 (1997). By extension, states could not license private parties to appropriate privately that which cannot be appropriated publicly, because "wars of conquest also could result . . . ." *See id.* at 54. To the authors it seems most unlikely that a settlement established by, for example, a consortium led by Boeing and Energia would end up settling a dispute with the Mitsubishi/Aerospatiale settlement by means of a "war of conquest." It should be noted that Stine, Stern, and Tennen advocate an international agreement recognizing a true permanent settlement's "autonomy . . . like unto another state" and "capacity as a legal regime," ". . . an *exinde civitas politicae*, a political city-state in space." *Id.* at 60. But, somehow, they don't mention whether that "city-state" should have the right to claim even the land it stands on.

[45] Space activist Paul Beich wrote a denunciation of Lunar land claims recognition saying: "capitalism is instead the primary obstacle to the . . . goal of a spacefaring civilization." Paul Beich, *Lettters: Will Capitalism Work?*, AD ASTRA, May/June 1998, at 3. Beich further wrote, "[c]apitalism is a disincentive for any activity that does not directly or indirectly result in the production of wealth for the elite. The profit motive is capitalism's euphemism for greed, and greed is a poor motivation for anything, especially the noble and exciting human endeavor of moving into the universe." *Id.*

[46] *See* THOMAS GANGALE & MARILYN DUDLEY-ROWLEY, AMER. INST. AERONAUTICS & ASTRONAUTICS, TO BUILD BIFROST: DEVELOPING SPACE PROPERTY RIGHTS AND INFRASTRUCTURE 1 (2005), http://www.astrosociology.com/Library/PDF/Submissions/To%20Build%20Bifrost.pdf.

[47] *See* Ray T. Black, *The Historical Background of Some Modern Real Estate Principles*, 34 REAL EST. L. J. 327, 333–34 (2005); *see also* GANGALE & DUDLEY-ROWLEY, *supra* note 46, at 1; Richard Epstein, *International News Service v. Associated Press: Custom and Law as Sources of Property Rights in News*, 78 VA. L. REV. 85, 88 (1992).

Some even say that private property in space would be impossible because it would need national sovereignty in space.[48] However, in countries like France, which follow "civil law," property rights have never been based on territorial sovereignty.[49] Instead, they are based on the "natural law" principle of *pedis possessio* or "use and occupation"—that individuals mix their labor with the soil and create property rights independent of government.[50] Government merely recognizes those rights.[51]

Wayne White explains this point well.

> The relationship between property and sovereignty differs under common law and civil law systems. The common law theory of title has its roots in feudal law. Under this theory the Crown holds the ultimate title to all lands, and the proprietary rights of the subject are explained in terms of vassalage. Civil law, on the other hand, is derived from Roman law, which distinguishes between property and sovereignty. Under this theory, it is possible for property to exist in the absence of sovereignty.[52]
>
> This is why "[i]n the discussions leading to the conclusion of the [Outer Space] treaty, France [a civil law country] indicated more than once that she was not altogether satisfied with the wording of Article II . . . ." France's representative was "thinking in particular of the risks of ambiguity between the principle of non-sovereignty— which falls under public law—and that of non-appropriation, flowing from private law."[53]

A key realization is that the common law standard cannot be applied on the Moon, where sovereignty itself is barred by international treaty.

As John Locke wrote, "As much Land as a Man Tills, Plants, Improves, Cultivates, and can use the Product of, so much is his

---

[48] *See* GANGALE & DUDLEY-ROWLEY, *supra* note 46, at 1; *see also* Henry R. Hertzfeld & Frans G. von der Dunk, *Bringing Space Law into the Commercial World: Property Rights Without Sovereignty*, 6 CHI. J. INT'L L. 81, 81 (2005).

[49] *See* O. Lee Reed, *What is Property?*, 41 AM. BUS. L. J. 459, 501 n.30 (2004).

[50] "*[P]edis possessio* [Latin] A foothold; an actual possession of real property, implying either actual occupancy or enclosure or use." BLACK'S LAW DICTIONARY 1201 (8th ed. 2004). Similarly, "*pedis positio* [Latin] A putting or placing of the foot. This term denoted possession of land by actual entry." BLACK'S LAW DICTIONARY 1167 (8th ed. 2004).

[51] *See* Epstein, *supra* note 47, at 85.

[52] *See* White, *supra* note 19, at 6.

[53] *Id.*; *see also* U.N. Comm. on the Peaceful Uses of Outer Space, Legal Sub-Comm., *Summary of the Record of the Seventeenth Meeting*, at 14, U.N. Doc. A/AC.105/C.2/SR.70 (Oct. 21, 1966).

Property."[54] In other words, ownership can flow from the use of the land.

A.F. van Ballegoyen points out,

> Before the emergence of the nation-state it was both normal and self-explanatory for non-state actors to own territory. Contemporary emphasis on the state as sole organizer and regulator of both domestic and world affairs ignores the enormous potential of non-state actors to efficiently organize affairs up to a certain point.[55]

In sum, there appears to be no explicit ban on private property claims in the Outer Space Treaty, as there would have been in the Moon Treaty. In addition, there is no explicit ban on nations recognizing such private property in good faith, and what is not explicitly prohibited in international law is generally permitted.

VI. CONFUSION WITH INVALID ATTEMPTS TO CLAIM

Others who feel that land claims recognition would be a violation of international law are confusing recognition of a settlement's land claim with what Dennis Hope, a seller of novelty Lunar land deeds, does[56] or are confusing it with a covert U.S. seizure of the land for itself. In fact, the "Space Settlement Prize Act"[57] legislation proposed by co-author Alan Wasser as an example of one way such legislation could be formed shows how a land claims recognition law could be structured so that claims would only be based on true occupation and use of the land, with the U.S. not seizing or claiming the land in any way.

The only claims recognized would be those made by permanently inhabited settlements—made by people who are, by then, inhabitants of the Moon, and are no longer "Earthlings."[58] If residents of Earth want to own an acre of Lunar land, they

---

[54] JOHN LOCKE, TWO TREATISES OF GOVERNMENT 290 (Peter Laslett ed., Cambridge Univ. Press 1988) (1690).

[55] van Ballegoyen, *supra* note 37, at 37. Similarly, Seneca, in *De Beneficiis*, said ". . . to kings belongs authority over all; to private persons, property. CHARLES M. MCILWAIN, THE GROWTH OF POLITICAL THOUGHT IN THE WEST: FROM THE GREEKS TO THE END OF THE MIDDLE AGES 394 (1932).

[56] Dennis Hope, The Lunar Embassy Website, http://www.lunarembassy.com. (last visited Mar. 21, 2008).

[57] Alan Wasser, Space Settlement Inst., Draft of an Act Proposed, http://www.spacesettlement.org/law (last visited Mar. 21, 2008) [hereinafter The Space Settlement Prize Act].

[58] *See id.*

would have to pay the residents of the Moon for it, thus rewarding these "Lunarians" for risking their lives and fortunes to open the space frontier for all mankind.[59]

When the IISL recently issued a statement aimed at discrediting claims like Dennis Hope's claims to the Moon (i.e., claims with no legal basis such as use and occupation), some of those who confuse The Space Settlement Initiative[60] with Hope's "Lunar Embassy" claims, tried to pretend that the IISL statement applied to both.[61] One of the authors of this paper, Alan Wasser, contacted the Board of the IISL to ask if the statement did, in fact, apply to both.

Dr. Nandasiri Jasentuliyana replied personally to say that it certainly did not. He wrote "the Statement was without prejudice to any future regime which might or should be developed. The statement indeed implies that there is a need for further work to be done to cover the future developments relating to activities on the Moon and other celestial bodies."[62]

Noted space lawyer Declan J. O'Donnell states that the legal basis for Lunar land claims recognition, as described in the Space Settlement Prize Act, is "a valid approach to real property rights in space resources." He further stated that compared to most of the proposals out there, [the] basic assumptions are not radical at all."[63]

---

[59] *See id.* at § 4(7). Before the Outer Space treaty, it was always assumed, and almost common knowledge, that the people who first settled on the Moon would own it. For example, in Robert Heinlein's 1961 science fiction classic *Stranger in a Strange Land*, the Federation High Court rules the Moon, which is owned by a group of men who were sent, on the second ship to land there, by a private, American-controlled Swiss corporation, launched from an island leased from Ecuador. *See generally* ROBERT A. HEINLEIN, STRANGER IN A STRANGE LAND (1961). Heinlein's court ruled that, although another ship, sent by the U.S. and Canada, had been to the Moon first, it hadn't left anyone behind, and so "the real owners were the flesh-and-blood men who had maintained the occupation—Larkin and associates. So they recognized them as a sovereign nation and took them into the Federation." *Id.* at 43.

[60] *See* Space Settlement Initiative, *supra* note 9.

[61] Wayne White argues that the Space Settlement Prize Act would violate the Outer Space Treaty, citing the IISL Statement. Wayne White, *Homesteading the High Frontier*, AD ASTRA, Fall 2005, at 34–35.

[62] E-mail from Nandasiri Jasentuliyana, President, International Institute of Space Law, to Alan Wasser, Chairman, The Space Settlement Institute (Oct. 26, 2004, 20:54) (on file with author). Dr. Nandasiri Jasentuliyana is the President of the International Institute for Space Law, which can be accessed at http://www.iafastro-iisl.com/.

[63] E-mail from Declan J. O'Donnell, Esq., to Alan Wasser, Chairman, The Space Settlement Institute (Jan. 10, 2005, 13:24) (on file with author).

Passing land claims recognition legislation now would mark the beginning of a new legal regime that would fill the current vacuum of enabling legislation. This regime would base property rights outside of this planet on natural and civil law.

VII. NOT A U.S. LAND GRAB

Some of those who have written on this subject recognize the need for property rights as an incentive for space development and the ambiguity of the Outer Space Treaty, but are still mired in the concept that space development can only be achieved as it was during the Cold War—by nations and for parochial national interests. For example, in his *Seton Hall Law Review* article, lawyer Brandon Gruner portrays the question of whether the Outer Space Treaty permits private property solely in terms of whether a nation, presumably the U.S., could use that permission to cheat the no-sovereignty rules.[64] What Gruner does not mention is the possibility of good faith claims made by genuine private enterprise settlements, rather than citizens of any single nation, and not acting as a front for any nation trying to slip national appropriation past the rest of the world. But such good faith property claims are the only kind that should be encouraged and allowed.

Any effort to establish a human space settlement is almost certainly going to be a multi-national effort. No U.S. company could build a Lunar settlement alone.[65] Participation by international companies will be a requirement in practice and could be made part of the law.[66] Financially, building a settlement will be so expensive that it will have to be financed and owned by

---

> Yes, the Space Settlement Institute has a valid approach to real property rights in space resources. In fact, compared to most of the proposals out there, your basic assumptions are not radical at all. Remember, until there is an answer there is no answer. Only time and effort and our working in the vineyard of space governance will solve the riddle. Technically, space resources appear to be public property. That is my starting place. Then research it and discover that individuals can get property rights in public properties, (but not in monuments). How to effect that is the open issue.

Id.

[64] Brandon Gruner, Comment, *A New Hope for International Space Law: Incorporating 19th Century First Possession Principles Into the 1967 Space Treaty for the Colonization of Outer Space in the 21st Century*, 35 SETON HALL L. REV. 299, 332–33 (2004).

[65] *See* HARRISON H. SCHMITT, BUSINESS APPROACH TO LUNAR BASE ACTIVATION 1–2, 4–5 (2002).

[66] The Space Settlement Prize Act, *supra* note 57, at § 9 (1–3).

stockholders from many different countries.[67] The Settlement would have to use rockets and other components built in many countries, be inhabited by the citizens of many other countries, and would almost certainly launch from someplace outside the U.S., such as Kazakhstan or the Kourou launch pad in French Guiana.[68]

As Fountain describes it:

> Given the high cost of space development, the formation of international partnerships among private entities will be crucial in any future development of outer space. Such cooperation has the added benefit of ensuring that no one state monopolizes too many of the resources. Additionally, partnerships would provide developing states the opportunity to participate in ventures on a modest scale . . . . Such states could provide scientists, engineers, and/or a smaller percent of investment capital in exchange for a smaller percent of the profits.[69]

Therefore, there is no reason at all for a settlement company to place itself on the U.S. registry or choose to be under U.S. jurisdiction, and there are good reasons for not doing so. Today, few, if any, ocean-going ships, choose U.S. registry rather

---

[67] *See* SCHMITT, *supra* note 65, at 6.

[68] A new Boeing airliner these days has to use components and whole sections built in many different countries, and of course a lunar settlement would be much more complex and expensive. The International Space Station is another example of the need to use components and personnel from many different countries for big projects, and, again, a lunar settlement would be much more complex and expensive. No one company, no matter how large, has—or wants to have—enough manufacturing capacity to do the whole job itself. Besides that, the cost of manufacturing, especially labor, can be significantly reduced by doing most of the work in multiple non-U.S. factories. Even more important, the financing of really big projects requires raising money all over the world (often from sovereign wealth funds) and, to please those international sources of funding and their governments, the expenditure of funds must also be spread around. Similarly, international investors and their governments would certainly insist that the settlement's crews include citizens from their countries. As to where to launch from, commercial space launches from the U.S. are difficult, expensive, and involve a huge amount of red tape. Other countries are likely to be much more eager for the business and therefore much more accommodating. Some might well offer significant financial incentives to use their space port. Onerous U.S. regulations force almost all U.S. owned ocean going ships to register under a flag of convenience like Panama and Liberia—and that reasoning will apply even more in the case of big commercial space launches. Finally, the Kourou launch pad in French Guiana, being closer to the equator than any U.S. launch site can be, would probably be the most practical, efficient site to launch from.

[69] Fountain, *supra* note 38, at 1778, 1787 n.161.

than a "flag of convenience."[70] Therefore, the fact that the U.S. chooses to recognize the land claims of Kazakh or Guyanese companies, for example, could in no way be considered a U.S. attempt to appropriate the Moon.[71]

VIII. "RECOGNIZE" VERSUS "CONFER"

There are other critics of Lunar land claims recognition who, although they admit that the Outer Space Treaty does not prohibit a settlement from claiming private property, nevertheless claim it would be an act of "national appropriation," and hence a violation of the treaty, for any nation to publicly recognize that fact.[72] Their position boils down to the following: it is acceptable for a private entity to claim property, but it is a crime for a nation to recognize such a claim publicly. The reason these individuals fall into a "do not ask, do not tell" approach appears to be a misunderstanding or a confusion between the terms "recognize" and "confer."

"To recognize" means to "acknowledge the existence, validity, or legality of,"[73] or "accepts, acquiesces to, decides not to con-

---

[70] *Vessel Operations Under Flags of Convenience and Their Implications on National Security: Hearing Before the Special Oversight Panel on the Merchant Marine of the H. Comm. on Armed Services*, 107th Cong. 6 (2002) (statement of Rep. Hunter, Chairman, House Comm. on Armed Servs.).

[71] As Henry R. Herzfeld & Frans G. von der Dunk, point out:

> States are liable if they qualify as "launching State(s)" under Art I(c) of the [Convention on International Liability for Damage Caused by Space Objects, usually called] the Liability Convention, which provides the following definition "(i) A State which launches or procures the launching of a space object; (ii) A State from whose territory or facility a space object is launched. Whether "[a] State which launches or procures the launching of a space object" includes a state whose citizens undertake an action in space depends critically on the circumstances; the mere fact of a citizen being active in space and thereby causing damage does not attach liability to the state of which that individual is a citizen, at least according to the Liability Convention.

Hertzfeld & von der Dunk, *supra* note 48, at n.11 (citations omitted). Of course, no state would be launching or procuring the launch of a private settlement's ship, so the "launching State" would be the state from whose territory the space craft is launched.

[72] *See, e.g.*, Jijo George Cherian & Job Abraham, *Concept of Private Property in Space—An Analysis*, 2 J. OF INT'L COM. L. & TECH. 211, 213 (2007); Lawrence D. Roberts, *Ensuring the Best of All Possible Worlds: Environmental Regulation of the Solar System*, 6 N.Y.U. ENVTL. L. J. 126, 140–41 (1997).

[73] COMPACT OXFORD ENGLISH DICTIONARY (3d ed. 2005), *available at* http://www.askoxford.com/concise_oed/recognize?view=uk. Similarly, BLACK'S LAW DICTIONARY defines "recognition" as: "1. Confirmation that an act done by an-

test."[74] In contrast, "to confer" means to "grant (a title, degree, benefit, or right)."[75] If a nation claims the right to confer, give, or grant title to Lunar land, then it could be violating the ban on national appropriation. But if a settlement is established and the settlers claim private ownership of land around their settlement, and a dozen of Earth's nations recognize the settlers' claim, it is not reasonable to say that all dozen nations are trying to appropriate the land and thus are violating the Outer Space Treaty.[76]

As the proposed Space Settlement Prize Act points out,

> U.S. courts already recognize, certify, and defend private ownership and sale of land which is not subject to U.S. national appropriation or sovereignty, such as a U.S. citizen's ownership (and right to sell to another U.S. citizen, both of whom are within the U.S.) a deed to land which is actually located in another nation. U.S. issuance of a document of recognition of a settlement's claim to land on the Moon, Mars, etc., can be done on a basis analogous to that situation.[77]

---

other person was authorized . . . . 2. The formal admission that a person, entity, or thing has a particular status." BLACK'S LAW DICTIONARY 1299 (8th ed. 2004).

[74] Space Settlement Initiative, *supra* note 9.

[75] COMPACT OXFORD ENGLISH DICTIONARY (3d ed. 2005), *available at* http://www.askoxford.com/concise_oed/confer?view=uk. Similarly, *Black's* defines "grant" as: "1. To give or confer (something) with or without compensation . . . . 2. To formally transfer (real property) by deed or other writing." BLACK'S LAW DICTIONARY 720 (8th ed. 2004).

[76] Sometimes it is hard to tell whether writers are confusing "recognizing" and "granting a claim" deliberately, or just through semantic carelessness. For example, author Bill Carswell claims that Vigilu Pop said: "[F]or a private appropriation of land to survive it must be endorsed by a state, but that state endorsement of a private appropriation is interpreted legally as a form of state appropriation and is therefore disallowed by the Outer Space Treaty." Bill Carswell, *The Outer Space and Moon Treaties and the Coming Moon Rush*, SPACE DAILY, Apr. 18, 2002, *available at* http://www.spacedaily.com/news/oped-02c.html. But he gives no hint of whether he is using "endorse" here, to mean "recognize" or "grant." *See id.* If a genuine permanent human settlement was established on the Moon, with a space line shuttling between it and Earth, and it (as opposed to a Dennis Hope) made a claim to private ownership of a reasonable amount of land around it's base, the authors of this paper and many others would heartily "endorse" the settlers' claim. Would that "endorsement" be interpreted legally as a form of state appropriation—by us or the nations we are citizens of? The answer is no. That "endorsement" would obviously mean "recognizing," not "granting," the claim. So why couldn't every nation on Earth "endorse" the claim in exactly the same "recognition" meaning of "endorse" without violating the OST (as they would have if "endorse" meant "granting" a claim)?

[77] The Space Settlement Prize Act, *supra* note 57, at § 2(13).

IX. ARTICLES VI, VII, AND VIII OF THE OUTER SPACE TREATY

Other critics attempt to construct a ban on private property claims in space from various provisions of Articles VI through VIII of the Outer Space Treaty.[78] Articles VI and VII make states responsible to other states if, for example, a privately owned rocket launched from their country lands in another country and causes damage.[79] Article VII says "The State [Party to the Treaty] on whose registry an object launched into outer space is carried shall retain jurisdiction and control over such object, and over any personnel thereon," and Article V says that the appropriate State Party to the Treaty must authorize and supervise its non-governmental entities and assure "that national activities are carried out in conformity with the principles set forth in the present Declaration."[80]

But the treaty clearly does not contain any language explicitly saying that states may not authorize their citizens to do anything that they themselves cannot do, contrary to what some authors appear to assume. The treaty does not say that what is prohibited to states is therefore prohibited to private entities nor that what is prohibited to the regulator is therefore always prohibited to the regulated. A baseball coach gives "authorization and continuing supervision" to his players. Does the fact that the coach is not allowed to run onto the field to catch a fly ball mean the players he supervises cannot either? There are plenty of long-standing precedents demonstrating actions that the U.S. itself cannot perform legally, but which it can authorize its citizens to do and can recognize when they have done so, such as adopting a particular religion, numerous trade and commercial activities, getting married,—or claiming land on the Moon on the basis of use and occupation.

Private citizens do not suddenly become mere legal parts, "creatures," or branches of the State because the State authorizes and supervises their space activities.[81] Citizens retain their independent existence as separate legal entities.[82] Therefore, if the framers of the Outer Space Treaty had intended to mean

---

[78] Outer Space Treaty, *supra* note 13, arts. VI–VIII.

[79] *See id.* arts. VI–VIII.

[80] *See id.* arts. VII, V.

[81] *See* John C. Yoo, *Laws as Treaties? The Constitutionality of Congressional Executive Agreements*, 99 MICH. L. REV. 757, 794–95 (2001).

[82] *Id.*

that States may not authorize their citizens to do anything which they themselves cannot do, they would have written such language into the Treaty explicitly. However, the framers did not do this.[83] They deliberately required only undefined "authorization and continuing supervision" and compliance with the Treaty.[84] Declassified U.S. State Department records of the treaty negotiations between the delegations headed by Arthur Goldberg of the U.S. and Platon D. Morozov of the U.S.S.R. show how these articles came to impose only that nominal burden on private enterprise in space.[85] The Americans, adamantly opposed to the Communist proposal to ban all private enterprise space activity, stood fast until the U.S.S.R. agreed to those substantially meaningless face-saving formulations.[86]

A.F. van Ballegoyen says of the Outer Space Treaty,

> [I]t concerns only obligations and rights of states. The link between states and non-state actors comes in the form of the principle of responsibility. States would be, as they are now, responsible for activities of their nationals or companies founded under its law. It would be simple for the U.S. to insert rules of behavior into licenses required by companies before they can venture into space.[87]

The phrase "carried out in conformity with the provisions set forth in the present Treaty" means just what it says. It requires that non-governmental entities abide by what is in the rest of the Treaty. Other than this phrase, the Treaty does not add any new provisions. If the remainder of the Outer Space Treaty does not contain any provision that bans private property in space, and in this paper the authors have attempted to show it does not, then "carried out in conformity with the provisions set forth in the present Treaty" cannot be re-interpreted as a ban on private property either.[88]

---

[83] *See* Outer Space Treaty, *supra* note 13.

[84] *See id.* art. V.

[85] *See generally* Position Paper, *supra* note 15.

[86] *Id.*

[87] van Ballegoyen, *supra* note 37, at 37.

[88] It is also worth remembering that, as mentioned earlier, there is no reason at all for a multi-national settlement company to put itself on the U.S. registry or to choose to be under U.S. jurisdiction, and good reasons for it not to do so. If it is a problem, the U.S. need not be "the appropriate State Party to the Treaty" to authorize and supervise a ship owned by, for example, a Swiss-registered company, owned by stockholders from all over the world (even if a majority of them are American), crewed by citizens of a dozen countries, launched from Kazakhstan or Guyana and flying a flag of convenience. See discussion infra Part VII.

Some experts argue that the very obligation to regulate private space activities authorizes and requires states like the U.S. to establish reasonable interim regulations for private property ownership in space until a new treaty is negotiated that resolves the current ambiguities.[89]

Professor Gabrynowicz proposes that the treaty could be modified by the establishment of,

> . . . national laws that fill in or clarify legal gaps in the international regime. Like the development of the maritime law that preceded it, the national laws of spacefaring and space-using nations can develop space law. This approach has been taken in numerous space activities: launches, telecommunications, commercial remote sensing, Earth observations and astronaut codes of conduct, among others.[90]

And, she adds, "[n]ow this is a particularly relevant time for this particular route."[91]

Robert P. Merges and Glenn H. Reynolds suggest that,

> . . . some purely national law will emerge as a standard, or at least as a model for other countries to follow. In other legal areas, national leaders have effectively established patterns that have been followed by other countries: commercial law in the United States (as seen in the United Nations Convention on the International Sale of Goods) and patent law in Great Britain come to mind. Similarly, in the space context, other countries could adopt the basic framework devised in the pioneer country. Alternatively, private entities could specifically "opt into" coverage under the pioneer country's laws—for example, by choice of law provisions in private contracts.[92]

Thus, they argue a jurisdictionally limited legal regime could emerge as the de facto international standard.[93]

X. WHAT TO DO ABOUT AMBIGUITIES

Regardless of their views on the questions raised so far, the one observation on which nearly every expert agrees is that, as space lawyer Ezra Reinstein states:

> The Outer Space treaty is riddled with ambiguities. It is silent, outside of affirming freedom of "exploration and use," as to what

---

[89] *See* Gabrynowicz, *supra* note 27, at 31.

[90] *Id.*

[91] *Id.*

[92] Robert P. Merges & Glenn H. Reynolds, *Space Resources, Common Property, and the Collective Action Problem*, 6 N.Y.U. ENVTL. L. J. 107, 112 (1997).

[93] *Id.*

> sort of rights parties can claim in celestial bodies. It is silent as to the circumstances under which these unspecified property rights might vest, that is, what a person must do to gain whatever property right are available.[94]

In fact, the framers of the Outer Space Treaty were deliberately ambiguous about private property, as opposed to nationally owned property, to allow ratification of the Treaty by both the U.S., which wanted to encourage private enterprise in space, and the U.S.S.R., which did not.[95]

The U.N.'s Dr. Ogunsola Ogunbanwo, a space lawyer, is one of those who declares that the ambiguities were not only deliberate but also the right thing for the time—"This was not a pressing concern in 1967, when the Outer Space Treaty was ratified. It was perfectly acceptable at the time to consign a deeper discussion of property rights to future negotiation, as the United Nations did."[96]

As prominent space lawyer Rosanna Sattler wrote in the *University of Chicago Law Review*, "The provision of the Outer Space Treaty which has caused the greatest controversy and discussion is found in Article II . . . . The appropriation provision of the treaty is arguably unclear and undefined and therefore unwork-

---

[94] Ezra J. Reinstein, *Owning Outer Space*, 20 Nw. J. Int'l L. & Bus. 59, 71 (1999). A different expert, who disagrees with us about private property, Milton L. Smith, nonetheless comes to the same conclusion about the Outer Space Treaty's ambiguity. Milton L. Smith, *The Commercial Exploitation of Mineral Resources in Outer Space*, *in* Space Law: Views of the Future 47 (Tania L. Zwaan et al. eds., 1988). Smith expresses his personal opinion that authorities who adopt the "literal interpretation of the non-appropriation clause" and considers that the non-appropriation clause applies only to nations go too far. *Id.* at 47. Then he debates whether the Outer Space Treaty also bans taking exclusive possession of minerals mined on the Moon, but concludes it does not. *Id.* at 48–50. He writes:

> In summary, mining is a permissible exercise of the freedom of use guaranteed by the Outer Space Treaty. Both the non-appropriation and the freedom of use provisions, however, raise potential problems for exclusive claims in outer space. The language of the Outer Space Treaty is so broad and general that these provisions are susceptible to varying interpretations. Since disagreement on these issues exists, the Outer Space Treaty, of itself, cannot provide a satisfactory legal regime . . . .

Id. at 50. He also says there are two ways to create a "commercially suitable legal regime:" a new U.N. agreement, which he considers unlikely, or a private agreement among the spacefaring nations, reached outside of the U.N., which he says "would be fully compatible with the Outer Space Treaty." *Id.* at 54.

[95] *See* Position Paper, *supra* note 15, at 7.

[96] Reinstein, *supra* note 94, at 71 (citing Ogunsola O. Ogunbanwo, International Law and Outer Space Activities 70–71 (1975)).

able."[97] There is even some argument that this provision conflicts with the requirements of other multi-lateral treaties.[98]

Kurt Anderson Baca goes even further. He points out that Article II's provision on use and appropriation conflicts with other multi-lateral treaties, contradicts other parts of the Outer Space Treaty, and is so vague and ambiguous that it can only be considered an expression of a wish, rather than a binding rule on anyone.[99] The most obvious of those self-contradictions is that the very first words of the Outer Space Treaty are, "[The States Parties to this Treaty], Inspired by the great prospects opening up before mankind as a result of man's entry into outer space, Recognizing the common interest of all mankind in the progress of the exploration and use of outer space for peaceful purposes . . . ."[100] Yet, by confusing the question of private property and thereby discouraging private investment, the Treaty itself has blocked that "common interest of all mankind" for more than three decades now. Unfortunately, in this kind of international law, unlike normal domestic law, there is no judge nor court with the authority to provide a binding ruling, so the difference of opinion and ambiguity will persist.[101]

When a treaty is ambiguous, each signatory must interpret for itself what its obligations are.[102] Therefore, regarding the ques-

---

[97] Rosanna Sattler, *Transporting a Legal System for Property Rights: From the Earth to the Stars*, 6 CHI. J. INT'L L. 23, 28–29 (2005).

[98] Baca, *supra* note 23, at 1066.

[99] *Id.* at 1068.

> The interpretation of the Outer Space Treaty that allows property holding in space and quasi-sovereignty must, by inference, allow for some form of reasonable first use method of allocation. Since the Outer Space Treaty envisions use of space, but does not establish any regulatory regime to oversee allocations of outer space, first use is the only possible form of allocation. This could take the form of occupation and reasonable use. But, it is still difficult to distinguish this private appropriation with national sanction under national jurisdiction from a form of national appropriation at some level. The Outer Space Treaty may simply be vague, and hence merely precatory, on the issues of use and appropriation. The consequence of this could be to make the treaty non-binding as creating no specific rule on these issues by analogy to the treatment of Article I.

Id. at 1067–68.

[100] Outer Space Treaty, *supra* note 13, pmbl.

[101] *See* Gruner, *supra* note 64, at 340–41.

[102] *Id.* at 351. Gruner points out many advantages of U.S. withdrawal from the Outer Space Treaty but then adds: "Yet, unilateral withdrawal from the 1967 Space Treaty by the United States is not the only way to implement a model of first possession; rather, any State might incorporate principles of first possession

tion of whether the U.S. should recognize a settlement's claims, the opinion of the U.S. government matters most. If the government decides it would not be an exercise of sovereignty, then it would not be an exercise of sovereignty.

White points out that The Law of Treaties states: "A treaty shall be interpreted in good faith in accordance with the ordinary meaning to be given to the terms of the treaty in their context and in the light of its object and purpose."[103] Clearly, the ordinary meaning of the term "national appropriation" is appropriation by a nation.

XI. A PRECEDENT: THE DEEP SEABED HARD MINERAL RESOURCES ACT

An excellent precedent illustrating how ambiguities of international law are, and should be, handled is the Deep Seabed Hard Mineral Resources Act,[104] which has been on the books in the U.S. since the mid-1980s and renewed and reaffirmed several times since then. Many have argued that it would be an exercise of sovereignty for the United States to award its citizens exclusive licenses to mine the deep ocean floor under the high seas of international waters.[105] Many in the U.N. thought it would be an exercise of sovereignty, and they drafted a Law of the Sea Treaty trying to make the resources below international waters "the common heritage of mankind."[106]

The U.S. Congress disagreed. Excerpts from the Deep Seabed Hard Mineral Resources Act illustrate that the U.S. explicitly renounced its sovereignty:

> § 1401. Congressional findings and declaration of purpose
> 12) it is the legal opinion of the United States that exploration for and commercial recovery of hard mineral resources of the deep seabed are freedoms of the high seas subject to a duty of reasonable regard to the interests of other states in their exercise of those and other freedoms recognized by general principles of international law;

---

into an interpretation of the 1967 Space Treaty that retains the Treaty's broader philosophical ideals." *Id.*

[103] Vienna Convention on the Law of Treaties art. 31, May 23, 1969, 1155 U.N.T.S. 331.

[104] Deep Seabed Hard Mineral Resources Act, Pub. L. No. 96-283, 94 Stat. 553 (codified as amended at 30 U.S.C.A. §§ 1401–1473 (West 2007)).

[105] *See* Lea Brilmayer & Natalie Klein, *Land and Sea: Two Sovereignty Regimes in Search of a Common Denominator*, 33 N.Y.U. J. INT'L L. & POL. 703, 736–37 (2001).

[106] *Id.* at 736.

(13) pending a Law of the Sea Treaty, and in the absence of agreement among states on applicable principles of international law, the uncertainty among potential investors as to the future legal regime is likely to discourage or prevent the investments necessary to develop deep seabed mining technology;

(16) legislation is required to establish an interim legal regime under which technology can be developed and the exploration and recovery of the hard mineral resources of the deep seabed can take place until such time as a Law of the Sea Treaty enters into force with respect to the United States.[107]

§ 1402. International objectives

(a) Disclaimer of extraterritorial sovereignty

By the enactment of this chapter, the United States—

(1) exercises its jurisdiction over United States citizens and vessels, and foreign persons and vessels otherwise subject to its jurisdiction, in the exercise of the high seas freedom to engage in exploration for, and commercial recovery of, hard mineral resources of the deep seabed in accordance with generally accepted principles of international law recognized by the United States; but

(2) does not thereby assert sovereignty or sovereign or exclusive rights or jurisdiction over, or the ownership of, any areas or resources in the deep seabed.[108]

This is just the sort of thing the Congress could do—and just the wording it could use—to create that tremendous prize for the first true private space settlement. The U.S. could "recognize" (acquiesce to or decide not to contest) the legitimacy of a land claim made by the settlement which is using and occupying the land itself, acting as a *de facto* but not *de jure* sovereign. At the same time, the U.S. could state that it does not thereby assert sovereignty or exclusive rights or jurisdiction over, or the ownership of, any areas or resources in space—just exactly as it does under the high seas.

The analogy between private ownership rights without national sovereignty as conferred by the Deep Seabed Hard Mineral Resources Act and a land claims recognition law for celestial bodies is customary and accepted legal reasoning. For example, General Counsel for NASA, Edward A. Frankle, in a 2001 letter denying Gregory Nemitz's quixotic claim to ownership of the asteroid 433 Eros, said:

---

[107] 30 U.S.C.A. § 1401.

[108] 30 U.S.C.A. § 1402.

> Your [(Nemitz's)] individual claim of appropriation of a celestial body (the asteroid 433 Eros) appears to have no foundation in law. It is unlike an individual's claim for seabed minerals, which was considered and debated by the U.S. Congress that subsequently enacted a statute, The Deep Seabed Hard Mineral Resource Act, P.L. 96-283, 94 Stat. 553 (1980), expressly authorizing such claims. There is no similar statute related in outer space.[109]

Frankle clearly implies that, if Congress did enact a statute like the Deep Seabed Hard Mineral Resource Act for space, it would be a valid basis for an ownership claim under the law. Most importantly, unlike the Nemitz claim to Eros, the claimant's actual occupation and use of the land on the celestial body would be an essential requirement.[110]

Julie Jiru adds:

> The fact that the United States would use its own initiative to invent a system with which it could live, rather than be subject to the control of non-mining states and be forced to share profits, is important to understanding the current position that the United States takes in relation to space and space law. The United States' reaction to the III LOS [Third Law of the Sea Convention] may be a good indication of the likely reaction to its questionable obligations under the Outer Space Treaty.[111]

XII. ANOTHER PRECEDENT: OWNERSHIP OF LUNAR MINERALS

When the experts discuss the ambiguities of the Outer Space Treaty, they usually mention two: 1) the ownership of minerals removed from the land, and 2) the ownership of the land itself.[112] The U.S. and Soviet governments resolved the first ambiguity by simply taking Moon rocks and declaring ownership of them.[113] As Thomas Gangale and Marilyn Dudley-Rowley, who oppose Lunar land claims recognition, say in their AIAA paper:

> Has there ever been a serious challenge to the US or Soviet/Russian governments over their ownership (or at least their control) of the material they brought back from the Moon? These

---

[109] Letter from Edward Frankle, Gen. Counsel, NASA, to Gregory Nemitz, Chief Executive Officer, Orbital Development (Apr. 9, 2001), *available at* http://www.orbdev.com/010409.html.

[110] *See id.*

[111] Julie A. Jiru, *Star Wars and Space Malls: When the Paint Chips Off a Treaty's Golden Handcuffs*, 42 S. TEX. L. REV. 155, 161 (2000).

[112] Sattler, *supra* note 97, at 28–29.

[113] GANGALE & DUDLEY-ROWLEY, *supra* note 46, at 1.

precedents established a principle of customary law that "if you take it, it's yours." Essentially, this derives from the Roman legal principle of *uti possidetis*: "as you possess," so you may continue to possess.[114]

The second ambiguity could similarly be resolved by an international private settlement simply landing on and taking possession of a hunk of Lunar land.[115] The settlers could then offer to sell pieces of their land to anyone on Earth in order to recoup the cost of setting up the settlement and running a space line open to all paying passengers, regardless of nationality.[116] All any nation of the world would have to do is not contest the settlement's right to sell Lunar land deeds to its citizens.[117]

XIII. A THIRD PRECEDENT: FLEXIBILITY (THE U.S.-IRAN TREATY OF 1957)

Article VI of the U.S. Constitution says all treaties made under the authority of the United States shall be "the supreme Law of the Land."[118] Those who demand the strictest possible interpretation of the Outer Space Treaty sometimes cite that phrase, rejecting any flexible interpretation.[119] In practice, however, the U.S. government reserves to itself extreme flexibility to decide what it can and cannot do under treaties,[120] providing flexibility far, far greater than the authors are suggesting in the case of the Outer Space Treaty.

For one of many examples of that flexibility, consider the Treaty of Amity, Economic Relations, and Consular Rights Between the United States of America and Iran (the U.S.-Iran Treaty of 1957), signed into law by President Eisenhower in

---

[114] *Id.*; BLACK'S LAW DICTIONARY 1582 (8th ed. 2004) ("uti possidetis= [Latin] 1. Int'l Law. The doctrine that colonial administrative boundaries will become international boundaries when a political subdivision or colony acieves independence."). Obviously, that doctrine may have a further role to play in the future of the Moon and Mars.

[115] Planets for Sale! Dave Wasser, Alan Wasser, and Tom Gangale in Conversation, http://pweb.jps.net/~gangale/opsa/spaceEx/PlanetsForSale2.htm (last visited Mar. 21, 2008).

[116] Jobes, *supra* note 11, at 6.

[117] *See id.* at 9.

[118] U.S. CONST. art. VI, cl. 2.

[119] *See, e.g.*, Kenneth Silber, *A Little Piece of Heaven*, REASON, Nov. 1998, *available at* http://www.reason.com/news/show/30796.html.

[120] *See* Lawrence J. Block et al., *Arms Control Treaty Reinterpretation: Commentary: the Senate's Pie-In-the-Sky Treaty Interpretation: Power and the Quest for Legislative Supremacy*, 137 U. PA. L. REV. 1481, 1506–07 (1989).

1957.[121] Because it is a self-executing treaty, was approved by a two-thirds majority of the Senate, and despite ample provocation was never amended or withdrawn, the Constitution dictates that this treaty is still the "supreme Law of the Land."[122]

In Article VIII and elsewhere, the U.S.-Iran Treaty guarantees the U.S. will give Iran as favorable trade rules as it gives any other nation.[123] But in 1987, President Reagan, in reaction to the Iran-Contra scandal, reportedly ordered a ban on trade with Iran.[124] For the past twenty years, in spite of the U.S.-Iran Treaty, the U.S. government has prohibited commercial trade with Iran.[125] Although challenged in federal courts several times, judges have always avoided this apparent conflict between the theoretical supreme law of the land and the actual law as it is enforced by the U.S.[126]

XIV. PURPOSE AND LIMITATIONS

Some critics assume that the purpose of Lunar (and similarly Martian) land claims recognition is to protect Lunar residents from claim jumping (stealing someone else's claim after it is staked out but before it is recorded) and to allow them to completely exclude others from their Lunar land.[127] This assumption is incorrect on three different counts.

First, the sole purpose of land claims recognition is to generate an incentive for privately funded space development and settlement by creating the only product that a successful space settlement could sell to the public back on Earth for sufficient profit to justify the tremendous cost of establishing the space line and settlement.[128] This product is hundreds of millions of paper deeds that are recognized by the U.S. government as

---

[121] Treaty of Amity, Economic Relations, and Consular Rights Between the United States of America and Iran, U.S.–Iran, Aug. 15, 1955, 8 U.S.T. 899 [hereinafter Treaty of Amnity].

[122] *See* U.S. CONST. art. VI, cl. 2.

[123] Treaty of Amity, *supra* note 121, art. II.

[124] Elaine Sciolino, *Reagan Bans All Iran Imports and Curbs Exports*, N.Y. TIMES, Oct. 27, 1987, at A12.

[125] *See* Akbar E. Torbat, *Impacts of the U.S. Trade and Financial Sanctions on Iran*, 28 THE WORLD ECONOMY 407, 410–11 (2005).

[126] *See* U.S. CONST. art VI, cl. 2; *see also* Lawsuits Against the U.S. Government, http://www.soudavar.com/index_files/Page431.htm (last visited Mar. 25, 2008).

[127] *See* Leonard David, *NEAR Landing Sparks Clain-Jumping Dispute*, SPACE, Feb. 14, 2001, *available at* http://www.space.com/missionlaunches/missions/near_claim_010214.html.

[128] Jobes, *supra* note 11, at 9.

bona fide deeds to acres of Lunar or Martian land, printed on Earth for pennies apiece, but sold to Americans and anyone else on Earth for investment or speculation, for perhaps one hundred dollars each.

A claim for a circle of land with a radius of about 437 miles around a settlement's initial base would contain about 600,000 square miles, which is about the size of Alaska and approximately four percent of the Moon's surface.[129] That 384,000,000 acres would be worth nearly forty billion dollars, even at the conservative average price of one hundred dollars an acre.[130] That is the purpose of Lunar land claims recognition.

Second, unlike a gold rush mining camp, claim jumping is not going to be a problem in early Lunar settlements. The settlement and space line control access to the Moon, as well as everyone's oxygen and food supply and ability to ship anything back to Earth.[131] The value of the land, at least in the early years, is in the ability to sell deeds to speculators and investors on Earth, and no one would buy stolen land from someone who is not the recognized owner.[132] Since the settlement will be eager to sell land and/or provide transportation to and from the Moon at reasonable prices, it would make no sense to spend billions building one's own space line and then waste it stealing already claimed land.[133]

Third, the Outer Space Treaty will limit the ability to exclude all others from your land. Article XII states:

> All stations, installations, equipment and space vehicles on the moon and other celestial bodies shall be open to representatives of other States Parties to the Treaty on a basis of reciprocity. Such representatives shall give reasonable advance notice of a projected visit, in order that appropriate consultations may be held and that maximum precautions may be taken to assure safety and to avoid interference with normal operations in the facility to be visited.[134]

---

[129] *Id.* at 7.

[130] *Id.* at 8.

[131] *See* NARAYANAN KOMERATH, JAMES NALLY, ELIZABETH ZILIN TANG, POLICY MODEL FOR SPACE ECONOMY INFRASTRUCTURE 8, http://www.adl.gatech.edu/archives/adlp05101701.pdf (last visited Mar. 31, 2008); *see also* Space Settlement Initiative, *supra* note 9.

[132] Jobes, *supra* note 11, at 7.

[133] *See id.*

[134] Outer Space Treaty, *supra* note 13, art. XII.

All settlements and property owners will have to accept this rule until and unless the Treaty is ever changed. Of course, even on Earth, most private property is subject to such visits by officials of local, regional, and national governments, especially if they obtain the appropriate court orders.[135]

Another limitation is imposed by the "benefit of all" requirement in the Outer Space Treaty's very first article, which says, "The exploration and use of outer space, including the moon and other celestial bodies, shall be carried out for the benefit and in the interests of all countries . . . ."[136] This is what would require the space line and settlement to be open to all paying passengers, regardless of nationality, as long as they are peaceful and abide by the rules.

XV. REDUCTIO AD ABSURDUM[137]

The falsehood of the proposition that the Outer Space Treaty prohibits ownership of private property on the Moon[138] can be further demonstrated by carrying it to its logical conclusion. Imagine the Moon has been settled for a century. Hundreds of thousands of people live there. Ships to and from various parts of the Earth and Mars come and go from the main Lunar space port every hour.

Will those hundreds of thousands of Lunar citizens still do without any private property rights because of the two-century-old Outer Space Treaty? Will no one own the land where they—or their grandfathers—built their homes and factories? Will no one ever own the land where that space port's giant terminal buildings stand?

Even if that restrictive view of the Outer Space Treaty were to prevail, sooner or later, and probably as soon as possible, Lunar colonists would most certainly decide to scrap it and start claiming ownership of the land they occupy.[139] Whether or not the settlement is recognized as a government, it will certainly acquire many of the attributes of a government, like deciding which of its citizens owns what.

---

135 U.S. CONST. amend. IV; Los Angeles County, California v. Rettele, 127 S. Ct. 1989, 1993–94 (2007).

136 Outer Space Treaty, *supra* note 13, art. I.

137 In logic, disproof of an argument by showing that it leads to a ridiculous conclusion. BLACK'S LAW DICTIONARY 1305 (8th ed. 2004).

138 *See* Carswell, *supra* note 76.

139 *See Homesteading the High Frontier*, *supra* note 61.

At that point, the governments of the Earth will have to decide what to do. Go to war against the Lunar colonists over it? Of course not. They will spend endless hours in legal wrangling about it, but in the end, they will have no choice but to acquiesce to some sort of reasonable Lunar property regime. The U.S., and every other nation on Earth, will eventually have to agree to accept and/or recognize the settlement's claims.

XVI. HOW MUCH IS TOO MUCH LAND FOR A SPACE SETTLEMENT TO CLAIM?

Some critics ask whether an Alaska-sized claim on the Moon would not be more land than a settlement could use, thus invalidating a land claim based on "use and occupation" under natural law.[140] The answer is: the amount of land that a settlement can—and must—use depends on what the land is being used for and how much land the settlement will need to survive.

Everyone remembers "forty acres and a mule," but a cattle ranch or modern agribusiness farm could not survive on that. When settling North America, French and Russian fur traders in the North needed vast territories to survive, much more than English farmers in Massachusetts needed.[141] Space settlements will need to be able to claim sufficient land to yield enough of the only "product" the settlement can sell profitably enough to guarantee its survival.

Space settlements cannot pay their bills by farming, fur trading, mining, or anything else that requires transporting a physical product back to the Earth. The only product identified so far that a settlement could sell back on Earth profitably enough to justify the settlement's creation is recognized land deeds.[142] When your livelihood depends on selling speculative Lunar land that has been surveyed for sub-division but is otherwise unimproved, you can, and must, use a lot more land than an 1800s dirt farmer could use.[143]

---

[140] *See id.*

[141] *See generally* Peter A. Thomas, *The Fur Trade, Indian Land and the Need to Define Adequate "Environmental" Parameters*, 28 ETHNOHISTORY 359, 373 (1981). *See also* Powell County Museum & Arts Foundation, The Fur Trade, www.pcmaf.org/fur_trade.htm (last visited Mar. 13, 2008).

[142] Jobes, *supra* note 11, at 5–6.

[143] It should be noted that the sale of speculative land deeds is intended to repay the huge initial costs of developing safe, affordable, reliable human transport to and from the Moon and Mars, and of using it to establish a space settlement and space line. It will also support the space settlement in its early days.

The ideal size for such a claim would be enough to justify a competition to develop safe, affordable, reliable space transport and establish a settlement, yet small enough to leave room for future settlements. The authors calculate that a potential, reasonable amount could be about 600,000 square miles, four percent of the Lunar surface—a circle of land about 437 miles around the initial base, roughly the area of Alaska.[144]

The next questions are how large a permanent settlement has to be to claim such a piece of land, and would there need to be at least one human being occupying each acre of land in the claim from the very beginning? Wayne White, whose own plan for Lunar property rights is strictly limited to such little land in a "safety zone" that it would not constitute any particular incentive for settlement, charges that Lunar land claims recognition fails the "use and occupation" test.[145] He claims: "[natural law] requires that claimants 'mix their labor with the soil' in order to establish property rights, but the Space Settlement Prize Act does not require actual occupation or physical improvement of an area before title is granted."[146]

White goes on to say "there is no precedent in terrestrial law for granting or recognizing property rights without a physical presence."[147] While physical presence certainly must be required, historical legal precedence is, in fact, very much in agreement with the standard described in the Space Settlement Prize Act concerning how much land can be claimed around a base.

For example, the Russian claim to what is now Alaska was based on the first permanent settlement established by Gregor Shelikhov on Kodiak Island in 1784.[148] He was a Russian private entrepreneur, and the fur-trading settlement established by his Shelikhov-Golikov Company was strictly a commercial venture.[149] Despite efforts to get the Russian government involved,

---

Eventually, however, the existence of the space settlement and space line will make possible the development of many other more sustainable revenue producing activities. Some are predictable now, from astronomical observatories to televised low-gravity sports, but surely there will be many which we can not yet predict.

144 Space Settlement Initiative, *supra* note 9.

145 *Homesteading the High Frontier*, *supra* note 61.

146 *Id.*

147 *Id.*

148 *See* Athanasius Schaefer, Fort Ross, http://www.athanasius.com/camission/ft_ross.htm (last visited Mar. 21, 2008).

149 *See id.*

almost all they received from the State were ceremonial swords and gold medals with the Empress' portrait.[150]

Even after eighteen months, the entire settlement consisted of only seven or eight individual dwellings, a number of bunkhouses, a counting house, barns, storage buildings, a smithy, a carpenter shop, and a ropewalk.[151] Its permanent Russian inhabitants could not have numbered even one hundred men, all clustered in one spot.[152] This was enough to claim about 600,000 square miles of Alaska and have the world accept it, and in 1867, the U.S. government paid the then huge sum of $7,200,000 for that claim.[153]

Even today, thousands of square miles of Alaska do not actually have a human being on them.[154] In fact, if you have ever flown over Alaska, you know how much of the state still, two centuries later, does not meet White's standard of actual occupation or physical improvement, but Alaska is universally considered "occupied" and "in use."[155] Alaska is an excellent precedent for ownership of land on the Moon.

It is not only farmers who "mix their labor with the soil." The pioneers who risk their lives and fortunes to establish the first Lunar settlement, surveying the land for sale to pay the settlement's bills, will have mixed their labor—and maybe their blood—with the soil, and have every right to claim it.

XVII. "CHICKEN OR THE EGG" PROBLEM #1: PROPERTY RIGHTS WILL EVOLVE NATURALLY

Another possible argument, based on the "inevitable" future, is that there is no need to push the legal envelope by passing Lunar land claims recognition now, because once a space settlement is established, a property rights regime will evolve naturally. It certainly is true that, if a permanent space settlement were established without prior legislation, there would be claims

---

150 *See id.*

151 *See id.*

152 *See* Sonoma.net, History of the Russian Settlement at Ft. Ross, California, http://www.parks.sonoma.net/rosshist.html (last visited Mar. 21, 2008).

153 U.S. Dep't of State, Purchase of Alaska, 1867, http://www.state.gov/r/pa/ho/time/gp/17662.htm (last visited Mar. 21, 2008).

154 *See* JAMES A. MILLER & R. L. WHITEHEAD, GROUND WATER ATLAS OF THE UNITED STATES – ALASKA, HAWAII, PUERTO RICO AND THE U.S. VIRGIN ISLANDS (1999), http://capp.water.usgs.gov/gwa/ch_n/N-AKtext1.html (last visited Mar. 21, 2008).

155 *See Homesteading the High Frontier, supra* note 61.

of property ownership in space that would have to be litigated at length in the courts of the United States and other countries. In fact, if no advance legislation has been passed, there will be outrageous property claims based on much lesser bases than actual settlement.[156] This legal uncertainty scares off space developers who fear that, after they have spent a fortune developing space, they will only win the right to spend another fortune on legal bills.[157] Worse, it would force unqualified judges to legislate in haste from the bench, possibly producing very bad rules.

Reinstein says, "A legal system that is unclear as to the rights of developers in the land they develop is almost as prohibitive of positive development as a system forbidding development altogether."[158] Antitrust and Trade Regulation lawyer David Everett Marko adds, "Free enterprise institutions simply cannot make significant investments in space while they are under the threat of lawsuits over the meaning of treaty terms . . . ."[159] Therefore, it is not at all surprising that, without the incentive that advanced legal certainty would provide, space settlement is not currently happening, and it probably never will.

A few space lawyers like Jim Dunstan argue that firm property rights are unnecessary for space development,[160] although this belies the fact that space settlement seems no closer today than it did twenty years ago when David Anderman said the same thing. That is why Lunar land claims recognition legislation is needed now, in order to create an incentive to make space settlement happen at all.

Even the President's 2004 Commission on Implementation of United States Space Exploration Policy recognized this need, saying,

---

156 *See* Risley, *supra* note 2, at 59–61, 68–69.

157 *See* Reinstein, *supra* note 94, at 71.

158 *Id.* at 71.

159 David Everett Marko, *A Kinder Gentler Moon Treaty: A Critical Review of the Current Moon Treaty and a Proposed Alternative*, 8 J. NAT. RESOURCES & ENVTL. L. 293, 315 (1993).

160 James E. Dunstan, Garvey, Schubert & Barer, Presentation to the National Academies: Space Settlement: Homesteading on the Moon? Can I Own that "Back Forty" on the Moon? Slide 16 (Oct. 26, 2006).

> "If I can own *pieces* of space, and I can effectively own *places* in space, and I can own *intellectual property* in space . . . . Do I really need a formal property rights regime? It is NOT the lack of firm property rights that has stopped space development, it is something else . . . . It is *expectations and perceptions* that are the problem."

Id.

> The issue of private property rights in space is a complex one involving national and international legal issues. However, it is imperative that these issues be recognized and addressed at an early stage in the implementation of the vision, otherwise there will be little significant private sector activity associated with the development of space resources, one of our key goals.[161]

Fountain says, "Another crucial element in attracting private industry to the development of outer space is the protection of property—both real and intellectual. Private industry will not invest in outer space unless there is a significant return on the investment."[162] Twibell says, "Although a viable and lucrative space industry exists, only a minute fraction of the industry's potential is reached as a result of uncertainty created by space law."[163]

Rosanna Sattler says about the security produced by a clear property rights protocol,

> The establishment of a reliable property rights regime will remove impediments to business activities on these bodies and inspire the commercial confidence necessary to attract the enormous investments needed for tourism, settlement, construction, and business development, and for the extraction and utilization of resources.[164]

Jiru agrees,

> By not providing clear legal guidelines concerning the possible property rights and rewards that make commercialization a venture at least worth trying, the repercussions of this treaty are confusion, resulting in ill-will between the space-faring and non space-faring nations, along with discouraging commercialization and resource development in outer space.[165]

Congressman Tom Feeney (R-FL) also points out that the lack of a private property regime is stifling investment in space,

> The current international legal scheme covering space resembles that governing the vastness of Antarctica. Similar results occur—a human presence limited to scientific outposts. Contrast this

---

[161] PRESIDENT'S COMM'N ON IMPLEMENTATION OF U.S. SPACE EXPLORATION POLICY, A JOURNEY TO INSPIRE, INNOVATE AND DISCOVER 34 (2004), *available at* http://www.nasa.gov/pdf/60736main_M2M_report_small.pdf.

[162] Fountain, *supra* note 38, at 1777.

[163] Ty S. Twibell, *Space Law: Legal Restraints on Commercialization and Development of Outer Space*, 65 UMKC L. REV. 589, 610 (1997).

[164] Sattler, *supra* note 97, at 27.

[165] Jiru, *supra* note 111, at 156.

> dearth of economic activity to that found in Alaska's harsh conditions.
>
> [The reason for the difference is] this legal regime creates great uncertainty about private property rights in space. Accordingly, no private enterprise will undertake the high risk venture of exploring for mineral or energy sources on celestial bodies or any other proposal to obtain economic gain from space activities.[166]

Still, some refuse to recognize this point. For example, Henry Herzfeld and Frans von der Dunk proclaim,

> Corporations exist to make profits, and property rights only matter to the extent that they are necessary to fulfill the objective of maximizing profit. Popular literature and the statements of corporate executives gives the impression that unless companies can obtain ownership to space territory, they will not be able to invest in space activities profitably. But in the reasonably near future, no company operating in space will likely need outright ownership of space territory, including land on the moon.[167]

Of course, in the reasonably near future, no company is going to operate beyond low-Earth orbit at all because there is no potential profit in it as things now stand. Herzfeld and von der Dunk overlook the fact that the only possible way that a legitimate space settlement might make a profit is by being allowed to legitimately claim, own, and sell recognized Lunar real estate around the settlement. They fail to recognize that, if the sellers of even ersatz claims (such as Dennis Hope) can make so much money, any settlement that could sell real land ownership could make a lot of money. Failing to pass a land claims recognition statute now is effectively forfeiting the chance to create an absolutely necessary incentive for space development.

As space businessman Gregory Bennett, then President of the Artemis Society International, said in 2003: "[Land claims recognition] clears the legal path for everything we want to do in the realm beyond the sky. This may be the most realistic and achievable way to accomplish our goal of establishing permanent human settlements on the moon. It is certainly a necessary step."[168]

---

[166] Tom Feeney, *Private Property and a Spacefaring People*, CPR NEWSL. (Coal. For Prop. Rights, Orlando, Fla.), July 22, 2004, *available at* http://www.proprights.com/newsviews/.

[167] Herzfeld & von der Dunk, *supra* note 48, at 91.

[168] *Moon Society and Artemis Society Endorse Space Settlement Initiative*, SPACEDAILY.COM, Apr. 30, 2003, http://www.spacedaily.com/news/mars-base-03b.html.

Another paper that shows a fundamental misunderstanding of the economics involved is by Thomas Gangale and Marilyn Dudley-Rowley. It asks:

> [I]f it were profitable for a company to go to the Moon and pick up rocks, it would. But it is not profitable at this time. So, how does it make it any more profitable if the company can claim title to the land for miles around the rocks that are too unprofitable for it to pick up, land that contains yet more unprofitable rocks?[169]

The simple, vital point these authors overlook is that net profit comes from sales price less expenses; revenues less expenditures.[170] Because of the astronomical expense of transporting rocks back to Earth for sale, it is impossible to make a profit selling rocks. But people on Earth would pay approximately the same price for a Lunar land deed as they do for Lunar rocks sold en masse once the settlement is established,[171] and the cost of printing millions of those deeds and delivering them to the customers is pennies apiece. Thus, even though picking up rocks is nowhere near profitable enough for an established settlement, the ability to sell legitimate, recognized ownership of the land the rocks are on would produce revenues in the scores of billions of dollars and earn billions of dollars worth profit. Those billions of dollars of potential profit could be a powerful incentive to develop space settlements.

A similar economic fallacy is the notion that land, in and of itself, is somehow worthless until one either extracts valuable materials or builds something valuable on it. If investors will pay millions of dollars for it even if no physical use of the land has yet been made, how can it be said the land is "worthless?" Anything, by definition, is "worth" what people will pay for it. In other words, the value is what the market will bear.[172] It has already been demonstrated that investors and the general public are willing to pay millions for Lunar land from which nothing

---

[169] GANGALE & DUDLEY-ROWLEY, *supra* note 46, at 5.

[170] BLACK'S LAW DICTIONARY 1246 (8th ed. 2004) (defining "profit" as "[t]he excess of revenues over expenditures in a business transaction").

[171] Space Settlement Initiative, *supra* note 9.

[172] BLACK'S LAW DICTIONARY 1639 (8th ed. 2004) (defining "worth" as "[t]he monetary value of a thing"); *Id.* at 1586 (defining "value" as "[t]he monetary worth or price of something; the amount of goods, services, or money that something will command in an exchange").

has been extracted, on which nothing valuable has yet been built, and nothing will be built for many years.[173]

People will line up to pay money for recognized titles to acres of speculative Lunar real estate just because they are part of mankind's first permanent space settlement, which offers regular transportation back and forth, so the land could someday be developed, and theoretically, they could visit someday.

It is amazing how many people have not yet adapted mentally to the changes in the American economy in the last century. These individuals still think that the only honest way to earn money is in basic industries like farming or mining. These people still have great difficulty believing that money earned selling intangibles (entertainment, advertising, securities and, yes, speculative real estate) is just as real as money earned picking up rocks and is a lot more profitable. If the customers get what they paid for, it is just as honest and legitimate of a way to make a profit.

Jeffrey Kargel, a planetary scientist at the U.S. Geological Survey, has written, "if you want to cross the bridge into the 21st century of space [development], then space must pay its way and give private investors a handsome early return on investment."[174] The only way to do that is to pass legislation now, setting the rules for property claims and legitimate land sales.

---

[173] *See* Jobes, *supra* note 11, at 7.

> It isn't necessary to guess what the rock-bottom value for lunar land would be, either. Over the last twenty-five years, an entrepreneur named Dennis Hope unwittingly conducted an experiment that indicates the potential market for lunar deeds . . . .
>
> A nationally recognized real estate expert. Dr. Jeffrey D. Fisher, believes Hope's sales of novelty deeds represent a fair comparison with the real lunar deeds that may one day exist. As the director of the Center for Real Estate Studies at the Indiana University School of Business and professor of real estate, Fisher is an expert in the science of property valuation . . . . He notes, "One way appraisers estimate value is the comparable sales approach. That Mr. Hope has been able to sell novelty deeds for lunar land at this price [$19.95 per acre] may be an indication of the actual novelty value per acre. If an entity were selling land sanctioned by the U.S. government, which would make the ownership rights more official, then I can see the value being even greater."

Id.

[174] Reinstein, *supra* note 94, at 72 (citing Jeffrey S. Kargel, *Digging For Gold: U.S. National Aeronautics and Space Administration's Plans for Mining Extraterrestrial Resources*, ASTRONOMY, Dec. 1997, at 48).

XVIII. "CHICKEN OR THE EGG" PROBLEM #2: REPLACING OR REVISING THE 1967 OUTER SPACE TREATY

Some experts suggest that, rather than trying to work with and around the Outer Space Treaty, the solution is to amend the Treaty, withdraw from it, or replace it with a new treaty.[175] Many propose specific provisions for a new international property rights regime for space, and some of these proposals are quite good.[176] The development of an international legal regime for recognizing and protecting extraterrestrial property rights, if it were set up to encourage rather than discourage privately funded space settlement, would probably provide an important stimulus for space development and settlement.

The problem is that there is no way to get the United Nations, the U.S. State Department, or the world's foreign affairs departments to even consider such a thing. Many have written about what the new treaties should say, but to the author's knowledge, not one has proposed a realistic way to "get there from here" . . . to make a new treaty actually happen.

As far as the world's diplomats are concerned, there are far too many problems in international relations to "waste" time arguing about space property rights just to promote space development.[177] The last thing they want to do is to add to their

---

[175] *See generally* Risley, *supra* note 2.

[176] Reinstein, *supra* note 94, at 72 (stating "[w]hat is needed is an amendment to the Outer Space Treaty, one that both clarifies and expands property rights in space."); *see also* Risley, *supra* note 2, at 56, 66 (stating "the United Nations or a body with authority to govern the activities in outer space . . . must amend the space law to allow nations and individuals to recover the costs of missions to space, and even acquire wealth from space."). Heidi Keefe suggests a global organization that represents all the people of the Earth be created to lease out land in space. Heidi Keefe, *Making the Final Frontier Feasible: A Critical Look at the Current Body of Outer Space Law*, 11 SANTA CLARA COMPUTER & HIGH TECH. L.J. 345, 367 (1995). Fountain proposes a "Regulatory Agency" to

> create an equitable, efficient, and stable legal environment for the commercial development of outer space . . . promote cooperation and opportunity for all interested states, as well as for private industry . . . to promote productivity, investment, and the development of expertise; to protect property and profits; to promote international cooperation; to develop a set of affirmative duties; and to provide a forum for dispute resolution.

Fountain, *supra* note 38, at 1776. But Fountain has no practical suggestion as to just how to make this agency actually come into being. None of the others deal with that problem either.

[177] *See, e.g.*, Merges & Reynolds, *supra* note 92, at 107–08; Douglas O. Jobes, Space Settlement Inst., After Appollo Why Didn't Space Settlement Happen?,

already huge work load by opening what will certainly be a can of worms, when they see no pressing reason to do so at this time. They also know that any attempt to get the United Nations to negotiate an effective new treaty offering huge financial rewards for space development could easily backfire and result in another effort by greedy leaders of many non-spacefaring nations to extort money, or other personal benefits for themselves, from those who want to promote human space settlement.[178]

There is too much affection for the good parts of the Outer Space Treaty, especially its ban on weapons of mass destruction in space, to expect the U.S. Congress to ever just pull out of the whole Treaty.[179] The U.N. could only take up the subject of revising the treaty or drafting a new one at the formal request of member states,[180] and there does not even seem to be much prospect of getting any state to do that. Why should they? In fact, it would probably be even more difficult to get the U.S. Congress to call for the U.N. to draft a new treaty on the subject of space property rights—or worse, withdraw unilaterally from the Outer Space Treaty—than it would be to get Congress to pass Lunar land claims recognition legislation.

But if the U.S. Congress passed such land claims recognition legislation—if it even looked like there was a serious possibility—then that, in itself, would force the world's diplomats to consider the subject. Suddenly, they would be forced to choose between coming up with a good new multi-national treaty, or continuing to do nothing and thereby leaving the U.S., and whatever nations decided to join it in bi-lateral agreements, to act independently.

The U.S. would have charted a clear alternative path that the space-faring nations could follow if a useful treaty cannot be negotiated. Therefore, there would be much less likelihood of a bad treaty emerging, since the space-faring nations could so easily refuse to ratify it. Therefore, the best, and possibly the only, way to make a new multi-national treaty actually happen is for the U.S. Congress to start the ball rolling by passing something like "The Space Settlement Prize Act."

---

http://www.space-settlement-institute.org/30years.htm (last visited Mar. 26, 2008).

178 *See* Fountain, *supra* note 38, at 1758–60.

179 *See* Jayantha Dhanapala, Under-Secretary-General for Disarmament Affairs, United Nations, Opening Remarks at The Outer Space Treaty at Thirty-Five (Oct. 14, 2002), *available at* http://disarmament.un.org/speech/14oct2002.htm.

180 Outer Space Treaty, *supra* note 13, art. XIV.

XIX. CONCLUSION

Despite certain conventional wisdom, the Outer Space Treaty does not in fact appear to ban private property in space. Nations could recognize land ownership claims made by private space settlements without being guilty of national appropriation or any other violation of the Treaty. Land claims recognition legislation would, therefore, be perfectly legal under existing international laws. Such legislation would be the best way to promote privately funded space settlement, and in fact, may be the *sine qua non* for the expansion of the habitat of humanity beyond the Earth.

This is not an arcane discussion of legal theory, but rather a call for immediate action—a single enabling act that will cost nothing but will act to lever the opening of the new frontier. The U.S. Congress should, in its next session, consider a bill like The Space Settlement Prize Act[181] to legitimize the property rights of individuals in space and create the financial reward system (at no cost to the government) that will make true space settlement actually happen.[182]

---

[181] The Space Settlement Prize Act, *supra* note 57.

[182] In September 2007, during a NASA-sponsored discussion of space property rights policy in Washington D.C., a NASA official raised the interesting question of whether a Presidential Executive Order could be used, instead of Congressional legislation, to establish land claims recognition as a national policy. This would certainly appear to be an idea worth further study.

Book Review


SOUTHERN METHODIST UNIVERSITY
DALLAS, TEXAS