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In Space, No One Can Hear You Contest Jurisdiction: Establishing Criminal Jurisdiction of the Outer Space Colonies Tomorrow

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**IN SPACE, NO ONE CAN HEAR YOU CONTEST
 JURISDICTION: ESTABLISHING CRIMINAL
 JURISDICTION ON THE OUTER SPACE
 COLONIES OF TOMORROW**

TAYLOR STANTON HARDENSTEIN*

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I. INTRODUCTION

IN JULY OF 1969, three men launched from Cape Canaveral, Florida, headed for Earth’s nearest neighbor: the Moon.¹ The nearly 238,000 mile journey climaxed when astronaut Neil Armstrong stepped foot on the lunar surface—the first human to do so in history.² Between 1969 and 1972, eleven other men es-

¹ *Apollo 11 Mission Overview*, NASA, https://www.nasa.gov/mission_pages/apollo/missions/apollo11.html [https://perma.cc/Y5GC-A77V].

² Tim Sharp, *How Far is the Moon?*, SPACE (June 21, 2013, 1:47 PM), <http://www.space.com/18145-how-far-is-the-moon.html> [https://perma.cc/LY6H-YTNH].

caped Earth's atmosphere and walked on an extraterrestrial body; yet ever since Apollo 17 left lunar orbit in 1972,³ humanity has been relegated to an existence solely on Earth, passing year after year without an off-Earth foothold in our solar system.

In 2012, however, a Dutch media group made international headlines when it announced an ambitious project to colonize Mars by 2023.⁴ According to its website, Mars One will send the first unmanned mission to Mars no later than 2020, with human settlers touching down by 2026.⁵ Though Mars One and its holding company have come under scrutiny in recent months from scientists and journalists alike,⁶ the venture nevertheless poses an interesting legal question: which nation's criminal jurisdiction will apply to the colonists if Mars One (or any other company looking to establish an outer space colony) succeeds in establishing a colony off-Earth?

The history of colonization on Earth is marred with blood and tears.⁷ The history of outer space colonization will (hopefully) be markedly different. Yet before any future cosmological colonist plants his or her boots on the extraterrestrial soil, two complex legal issues must be addressed before lift-off.

The first issue nations and private companies will face when mounting a colonization project is whether outer space colonization is even permitted under the current international and domestic legal frameworks that govern outer space activities. History contains many examples of national appropriation claims. From Christopher Columbus landing on the beaches of the Caribbean, to the global colonial dominance of the British Empire in the 1700s, to the United States and Manifest Destiny in the nineteenth century, the past 600 years have seen nation-states establish outposts and footholds in foreign lands, far away from the mother country. Over the next 600 years, humanity will witness the same endeavor, albeit one that takes place not on

³ *Apollo 17*, NASA, http://www.nasa.gov/mission_pages/apollo/missions/apollo17.html [<https://perma.cc/M5FK-SPV4>].

⁴ Press Release, Mars One, Mars One Will Settle Men on Mars in 2023 (May 31, 2012), <http://www.mars-one.com/news/press-releases/mars-one-will-settle-men-on-mars-in-2023> [<http://perma.cc/VTK9-YYXC>].

⁵ MARS ONE, <http://www.mars-one.com/> [<https://perma.cc/3TYZ-ACY5>].

⁶ Janey Tracey, *Yet Another Scientist Calls Mars One Mission 'Unfeasible' and 'Unsustainable'*, OUTER PLACES (Sept. 3, 2015, 11:20 AM), <http://www.outerplaces.com/science/item/9773-yet-another-scientist-calls-mars-one-mission-unfeasible-and-unsustainable> [<http://perma.cc/33QF-WYUZ>].

⁷ See generally Robert J. Miller, *The International Law of Colonialism: A Comparative Analysis*, 15 LEWIS & CLARK L. REV. 847 (2011).

Earth, but on the rocky craters of the Milky Way Galaxy and beyond. Yet as history has shown, the age of exploration and colonialism led to strife, fighting, and hardship between different peoples and societies.⁸ But in outer space, nations will be tasked with upholding the spirit of international cooperation.⁹ Only through this cooperation will outer space-faring nations be able to achieve the lofty ideals off-Earth colonization holds.

If colonization falls within the bounds of current legal doctrine controlling outer space, then terrestrial societies and interstellar colonists will soon face a far more pressing question: which nation's criminal law applies to their celestial outpost?¹⁰ Though the initial launch and first years of colonization will be filled with excitement, discovery, and opportunity, eventually a thriving outer space colony will run into an issue that plagues Earth-bound societies: "X infringed on my rights and caused me harm, and I want to press charges." In this case, millions of miles from the nearest court, outer space colonists would be left wondering, "Who governs?" "What law applies?" "Who adjudicates?"

This article takes a two-prong approach to determining jurisdiction on the outer space colonies that will be established in the near future. The first half of the article will briefly address outer space appropriation and whether a future outer space colony violates the non-appropriation language found throughout the various international outer space agreements. The second half will address what criminal jurisdiction framework should apply once humanity establishes colonies on distant celestial bodies. Part I of this article is the Introduction. Part II of this article traces the history of European appropriation throughout the Age of Discovery under the historical international legal principle Doctrine of Discovery. Part III briefly addresses whether outer space colonization is permitted under the current regulatory scheme governing outer space—particularly through the lens of the 1967 Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the

⁸ See generally Blake A. Watson, *The Doctrine of Discovery and the Elusive Definition of Indian Title*, 15 LEWIS & CLARK L. REV. 995 (2011).

⁹ See generally Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies, Jan. 27, 1967, 18 U.S.T. 2410, 610 U.N.T.S. 205 [hereinafter Outer Space Treaty].

¹⁰ This article will strictly address criminal jurisdiction and space colonization; civil jurisdiction in outer space colonies is a separate topic entirely, but it would likely be addressed through the same international treaties that currently govern outer space activities.

Moon and Other Celestial Bodies (Outer Space Treaty). Part IV and V then pivot, exploring two analogous territories and their criminal jurisdiction structures that could apply to future outer space colonies. Finally, Part VI argues for a natural extension of the current 1998 Intergovernmental Agreements of the International Space Station (ISS) to future outer space colonies while also exploring a number of potential criticisms to such extension.

II. NORTH, SOUTH, AND CENTRAL AMERICA, CIRCA 1492: THE ORIGINAL FINAL FRONTIER

When Christopher Columbus “discovered” the new world on October 12, 1492, he came ashore on what many historians consider to be modern day Watling Island in the Bahamas.¹¹ From his personal journal of the voyage, his priorities once landing were clear:

The Admiral bore the royal standard, and the two captains each a banner of the Green Cross, which all the ships had carried; this contained the initials of the names of the King and Queen each side of the cross, and a crown over each letter Arrived on shore, they saw trees very green many streams of water, and diverse sorts of fruits. The Admiral called upon the two Captains, and the rest of the crew who landed, as also to Rodrigo de Escovedo notary of the fleet, and Rodrigo Sanchez, of Segovia, to bear witness that he before all others took possession (as in fact he did) of that island for the King and Queen his sovereigns. . . .¹²

By planting the standard of Spain, Columbus staked a “legal claim [] of ownership and domination over the [newly discovered] lands,” in short, appropriating all he saw for his sovereigns, Ferdinand and Isabella of Spain.¹³

A. DEVELOPING THE DOCTRINE OF DISCOVERY: 1492–1850

World history post-1492 is rife with images and stories like Columbus’s, of intrepid explorers landing on foreign shores and driving national standards into the soil in the name of Spain,

¹¹ *Columbus Reaches the New World*, HISTORY.COM, <http://www.history.com/this-day-in-history/columbus-reaches-the-new-world> [https://perma.cc/TMN2-W5ZK].

¹² *Medieval Sourcebook: Christopher Columbus: Extracts from Journal*, FORDHAM U., <http://sourcebooks.fordham.edu/halsall/source/columbus1.asp> [https://perma.cc/YU8K-CGNG].

¹³ Miller, *supra* note 7, at 858.

England, Portugal, etc.¹⁴ This act, though symbolic, was but the first step in a complicated system of international law that the European nation-states crafted into the Doctrine of Discovery.¹⁵ Under this Doctrine of Discovery, the conquering nation laid claim to the discovered lands and all affixed to it, establishing a national interest in the sovereignty, commercial rights, and title of the newly acquired lands.¹⁶ In essence, the Doctrine of Discovery let the European nations appropriate all that they found, which in time fostered the establishment of colonies all over the globe.

1. *Native Title and the European Responses*

One issue that plagued European claims throughout this “Age of Discovery” was the native inhabitant’s original title to the “new” lands the explorers claimed for their sovereign.¹⁷ The Doctrine of Discovery has been criticized by historians and legal scholars alike as the tool the European powers developed to “justify the process of colonization and dominion” over the lands and native populations of the New World.¹⁸ Though the Doctrine of Discovery emerged from Spanish and Portuguese clashes over territory in the Western Hemisphere, England and France refined the doctrine, thus developing *terra nullius*.¹⁹ *Terra nullius*, or “land belonging to no one,”²⁰ was the theory that foreign lands “discovered” by European explorers were vacant of any preexisting title and, therefore, claimable.²¹

One major issue with *terra nullius* was the fact that the European explorers were claiming lands that were *not* vacant.²² England, France, Spain, Portugal, the Dutch, and even the United

¹⁴ *Id.* at 873–74.

¹⁵ *Id.* at 854.

¹⁶ Watson, *supra* note 8, at 997.

¹⁷ Miller, *supra* note 7, at 883 (The issue of native title of “discovered” lands will theoretically not surface once celestial colonies are established, in part because there will likely be no “native” species already claiming title to the land. In short, without the existence of intelligent life on the lands colonized on distant celestial bodies, the issue of native title will not affect the colonizing nation’s claim on the land.).

¹⁸ Watson, *supra* note 8, at 996–97.

¹⁹ Miller, *supra* note 7, at 864.

²⁰ Taylor R. Dalton, *Developing the Final Frontier: Defining Private Property Rights on Celestial Bodies for the Benefit of All Mankind*, CORNELL L. SCH. GRADUATE STUDENT PAPERS 21 (Apr. 22, 2010), http://scholarship.law.cornell.edu/lps_papers/25 [<https://perma.cc/9FJM-VAYU>].

²¹ Miller, *supra* note 7, at 864.

²² *Id.* at 878.

States all contended with native populations that physically inhabited the lands they “discovered” for their respective nation-states.²³ To combat native title, the European powers circumvented previous title holdings either with an outright denial of occupation, or with a claim that the lands “were occupied but not being used in a manner [any] European legal system recognized. . . .”²⁴

2. *The United States and Native Title*

Immediately after gaining independence from England, the United States passed a resolution exercising its exclusive control and rights over the native lands that England had controlled prior to the Revolution,²⁵ thus establishing the United States’ official and absolute right to lands once held by the British Crown and now controlled by the newly created United States. But eventually questions of native title to lands acquired by both the United States and its citizens reached the highest court in the new country. In the 1823 case, *Johnson v. M’Intosh*, the Supreme Court directly addressed the Doctrine of Discovery and Native American title to “vacant” lands.²⁶ *M’Intosh* centered on a controversy surrounding the purchase of Native American lands, which were then passed down once the purchaser died.²⁷ A separate individual, M’Intosh, obtained a land patent from the U.S. government, and an ejectment action was brought against M’Intosh.²⁸

Writing the opinion of the Court, Chief Justice John Marshall first traced the history of the Doctrine of Discovery, highlighting various charters and grants bestowed on the multitude of European explorers who conquered the Americas.²⁹ These discoveries of foreign shores would grant exclusive title to the nation represented by the discoverer, which would subsequently be secure from any other competing European claim.³⁰ Marshall noted that these charters were unique in that they not only granted political power to the founding nation, but also granted the exclusive rights to the land, soil, and waters of the newly

²³ *Id.* at 878–82.

²⁴ *Id.* at 864.

²⁵ *Id.* at 881.

²⁶ *Johnson v. M’Intosh*, 21 U.S. 543 (1823).

²⁷ *Id.* at 543–44.

²⁸ *Id.*

²⁹ *Id.* at 574–80.

³⁰ *Id.* at 573.

“discovered” lands.³¹ From here, Marshall stated that the Doctrine of Discovery diminished the rights of Native Americans to secure title in the lands they occupied;³² as a result, the power to grant title to land rested exclusively in the hands of the United States,³³ thus negating any Native American’s claim to the lands (even though the native populations had been there first, which would have granted them exclusive control of their lands had the Doctrine of Discovery applied to them as well).³⁴

The ruling in *M’Intosh* is paramount to the discussion of appropriation because it firmly established the Doctrine of Discovery in U.S. law.³⁵ As scholar Robert J. Miller points out, *M’Intosh* recognized the Doctrine of Discovery as a concrete “law of the American state and federal governments.”³⁶ By endorsing the Doctrine of Discovery in *M’Intosh*, Marshall acknowledged its power as a legitimate legal principle in U.S. law.³⁷ The Court thus established, as a legal fact, that discovery meant that when any European nation (and as a result of the American Revolution, the United States as well) “discovered” lands unknown to the Europeans prior to the discovery, “they automatically gained sovereign and property rights in the lands.”³⁸

B. THE DOCTRINE OF DISCOVERY IN OUTER SPACE?

Like Columbus and the other 15th century explorers, the outer space colonists of the future will be landing on planets and celestial bodies for the first time. If the Doctrine of Discovery still applied, this act would trigger a claim of title and sovereignty to the lands “discovered.”³⁹ In 1969, when Neil Armstrong and Buzz Aldrin became the first humans to land on the Moon, they spent roughly ten minutes completing an activity closely resembling what Columbus did on the beach in Octo-

³¹ *Id.* at 580.

³² *Id.* at 574.

³³ *Id.* at 587–88.

³⁴ Tonya Gonnella Frichner (Special Rapporteur on the Permanent Forum on Indigenous Issues), *Preliminary Study of the Impact on Indigenous Peoples of the International Legal Construct Known as the Doctrine of Discovery*, ¶¶ 32–33, U.N. Doc. E/C.19/2010/13 (Feb. 4, 2010).

³⁵ Miller, *supra* note 7, at 851.

³⁶ *Id.*

³⁷ Patricia Engle, *The Origins and Legacy of Justice Marshall’s “New Rule” of Conquest in Johnson v. M’Intosh*, HISTORY ON TRIAL (Jan. 2004), <http://digital.lib.lehigh.edu/trial/justification/court/essay/> [https://perma.cc/5PSN-DY5X].

³⁸ Miller, *supra* note 7, at 851.

³⁹ *See id.*

ber of 1492: they erected an American flag, driving it into the lunar surface in front of a camera broadcasting for the entire world to see.⁴⁰

But did the act of planting an American flag on the Moon constitute an act of appropriation on the part of the United States? One could argue that because the United States was the first nation in history to land on the Moon—and “discover,” according to the Doctrine of Discovery—the United States gained authority, control, jurisdiction, and sole title over the Moon under the Doctrine of Discovery. This worry was so imperative that prior to the Apollo 11 lunar landing, National Aeronautics and Space Administration (NASA) officials established the “Committee on Symbolic Activities for the First Lunar Landing” specifically to address whether erecting an American flag on the lunar surface could be seen as an act of appropriation to other nations around the world.⁴¹

The committee was tasked with selecting “symbolic activities that would . . . signalize the first lunar landing as an historic forward step of all *mankind*”⁴² Among the activities proposed included the raising of a United Nations (U.N.) flag, leaving a set of miniature flags of every nation, and establishing a commemorative plaque on the lunar surface.⁴³ Ultimately, the committee concluded that only the American flag should be raised during the mission.⁴⁴ Many wondered whether the raising of the American flag would create controversy in the international community.⁴⁵ However, after the flag was raised by Armstrong and Aldrin, there were no “formal protests from other nations [claiming] that the flag raising constituted an illegal attempt to claim the Moon” on the part of the United States.⁴⁶ One could look to the lack of objections from foreign nations as a sign that the Doctrine of Discovery would naturally be understood to no longer apply, especially in outer space. In actuality, the absence of international objection to the flag raising was due in large part to an international agreement—in part ad-

⁴⁰ ANNE M. PLATOFF, NAT’L AERONAUTICS AND SPACE ADMIN., NASA-CR-188251, WHERE NO FLAG HAS GONE BEFORE: POLITICAL AND TECHNICAL ASPECTS OF PLACING A FLAG ON THE MOON 5 (1993), <http://ntrs.nasa.gov/archive/nasa/casi.ntrs.nasa.gov/19940008327.pdf> [<https://perma.cc/F46W-WKE6>].

⁴¹ *Id.* at 2.

⁴² *Id.* (emphasis added).

⁴³ *Id.*

⁴⁴ *Id.*

⁴⁵ *Id.* at 5.

⁴⁶ *Id.*

dressing national claims in outer space—that was drafted two years prior to Neil Armstrong’s first step on the lunar surface: the Outer Space Treaty.⁴⁷

III. APPROPRIATE APPROPRIATION: ARTICLE II OF THE OUTER SPACE TREATY

To establish a foothold in the solar system away from Earth, the United States is—at least for the moment—required to comply with the language of the Outer Space Treaty. This means the first issue plaguing any U.S.-sponsored extra-terrestrial colony is: would a U.S. colony on a celestial body other than Earth constitute national appropriation, thus violating the terms found in Article II of the Outer Space Treaty?

A. RETRO-FUTURISM: COLD WAR FEARS AND OUTER SPACE APPROPRIATION

On October 4, 1957, the USSR launched Sputnik I into outer space, the world’s first man-made satellite.⁴⁸ With it came the fear that if the enemy could launch a satellite into outer space, what would stop them from launching ballistic missiles up into outer space and back down onto U.S. cities and military installations.⁴⁹ Soon after, however, an equally disheartening issue arose—one that questioned whether a nation could theoretically acquire absolute sovereignty over all or a section of outer space, or a celestial body, such as the Moon.⁵⁰

As early as 1959, the American Bar Association declared in a resolution that outer space should be the dominion of all mankind, therefore “not be subject to exclusive appropriation” by any nation.⁵¹ In the same year, the U.N. Committee on the Peaceful Uses of Outer Space concluded that if a nation claimed exclusive rights over celestial bodies, issues between those nations on Earth could arise.⁵²

⁴⁷ See Outer Space Treaty, *supra* note 9; Bureau of Arms Control, Verification, and Compliance, *Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies*, DEP’T OF STATE, <http://www.state.gov/t/isn/5181.htm> [<https://perma.cc/JW8A-NL5G>].

⁴⁸ FRANCIS LYALL & PAUL B. LARSON, *SPACE LAW: A TREATISE* 507 (2009).

⁴⁹ *Id.*

⁵⁰ Paul G. Dembling & Daniel M. Arons, *The Evolution of the Outer Space Treaty*, 33 J. AIR L. & COM. 419, 421 (1967).

⁵¹ *Id.*

⁵² *Id.*

Partly in response to the growing concern of security, sovereignty, and national appropriation in outer space, President Johnson issued a statement calling for the creation of a treaty governing the exploration of the Moon and other celestial bodies in May of 1966.⁵³ Among those points outlined by Johnson, the first dealt with appropriation in outer space: “The [M]oon and other celestial bodies should be free for exploration and use by all countries. No country should be permitted to advance a claim of sovereignty.”⁵⁴ One month later, Arthur Goldberg, then U.S. Ambassador to the U.N., issued a first draft of a treaty on June 16, 1966, which echoed Johnson’s remarks, stating in Article I that “[c]elestial bodies . . . are not subject to national appropriation by claims of sovereignty”⁵⁵ That same day, USSR Ambassador to the U.N., P. Morozov, wrote a letter to the chairman of the Legal Subcommittee on the Peaceful Uses of Outer Space, which contained the Soviet’s proposed draft of the Outer Space Treaty.⁵⁶ Article II of the Soviet draft contained the non-appropriation clause, wherein it stated, “Outer Space and celestial bodies shall not be subject to national appropriation by claim of sovereignty, by means of use or occupation, or by any other means.”⁵⁷ Clearly, the issue was worrying enough to place it at the very forefront of the original drafts of the Outer Space Treaty.

Less than a month later, on July 12, 1966, the Fifth Session of the Legal Subcommittee commenced in Geneva where the non-appropriation language was hammered out.⁵⁸ Six months later, in January 1967, the members of the U.N. passed the finalized draft of the Outer Space Treaty.⁵⁹ Article II of the Outer Space Treaty explicitly states: “Outer Space, including the Moon and other celestial bodies, is not subject to national appropriation by

⁵³ Lyndon B. Johnson, *209 – Statement by the President on the Need for a Treaty Governing Exploration of Celestial Bodies*, AM. PRESIDENCY PROJECT (May 7, 1966), <http://www.presidency.ucsb.edu/ws/?pid=27581> [https://perma.cc/M9CZ-8XWU].

⁵⁴ *Id.*

⁵⁵ Letter from Arthur Goldberg to Chairman of the Committee on the Peaceful Uses of Outer Space (June 16, 1966), http://www.unoosa.org/pdf/limited/c2/AC105_C2_L012E.pdf [https://perma.cc/A3AF-PXY3].

⁵⁶ Letter from P. Morozov to Chairman of the Committee on the Peaceful Uses of Outer Space (July 11, 1966), http://www.unoosa.org/pdf/limited/c2/AC105_C2_L013E.pdf [https://perma.cc/H9PM-4S95].

⁵⁷ *Id.*

⁵⁸ Dembling & Arons, *supra* note 50, at 420.

⁵⁹ Outer Space Treaty, *supra* note 9, art. XVII.

claim of sovereignty, by means of use or occupation, or by any other means.”⁶⁰

B. ARTICLE II OF THE OUTER SPACE TREATY

Outer space law experts have grappled with the meaning and limits of Article II since just after the adoption of the Outer Space Treaty. Two years after adoption, outer space law expert Stephen Gorove wrote an article specifically interpreting the language, meaning, and extent of Article II.⁶¹ Gorove posed many questions unanswered at the time: Does collecting resources in outer space constitute appropriation?⁶² Can a nation, state, or municipality appropriate territory for its own use in outer space?⁶³ Do private actors not affiliated with nation-states have the power to appropriate areas of outer space?⁶⁴ These are questions that are still relevant—and to an extent, still unanswered—in today’s legal environment. Yet the main issue Gorove examines is that of Article II and its relation to *national* appropriation in outer space.

The issue with appropriation is one of language: what does appropriation mean in the context of the Outer Space Treaty? Are we to read appropriation as all-encompassing, meaning that every single object that occupies space in outer space may be covered under appropriation, thus violating Article II? Or does Article II only limit nation-states from demarcating specific tracts of territory in outer space and claiming them as being under that nation’s exclusive zone of control?

1. *Outer Space Settlements and Appropriation*

Case law on the subject of outer space appropriation is understandably light.⁶⁵ The history of outer space exploration is also insufficient to clearly answer the appropriation question, in part

⁶⁰ *Id.* art. II.

⁶¹ See generally Stephen Gorove, *Interpreting Article II of the Outer Space Treaty*, 37 *FORDHAM L. REV.* 349 (1968).

⁶² See generally Fabio Tronchetti, *The Moon Agreement in the 21st Century: Addressing its Potential Role in the Era of Commercial Exploitation of the Natural Resources of the Moon and Other Celestial Bodies*, 36 *J. SPACE L.* 489 (2010).

⁶³ See generally Gorove, *supra* note 61, at 352.

⁶⁴ See generally Claudia Pastorius, *Law and Policy in the Global Space Industry’s Lift-Off*, 19 *BARRY L. REV.* 201 (2013).

⁶⁵ One case that dealt with outer space appropriation was a 2004 Nevada case, *Nemitz v. United States*, No. CV-N030588-HDM, 2004 WL 3167042, at *1 (D. Nev. Apr. 26, 2004). Nemitz attempted to claim ownership over an entire asteroid, on which NASA landed a spacecraft in 2001. The court ignored the appropriation

because man has operated in outer space for less than seventy-five years. For answers, one must turn to the language of Article II. Appropriation, according to Gorove, is the “taking of property for one’s own or exclusive use with a sense of permanence.”⁶⁶ Under this legal definition, the language of Article II would clearly prohibit an individual from chalking out a tract on the Moon and declaring sole ownership over it.

When he wrote back in 1969, Gorove asked whether the establishment of permanent outer space settlements—colonies, for our purposes—would violate Article II.⁶⁷ Based on his own definition, Gorove concluded “[u]nder such interpretation the establishment of a permanent settlement . . . by nationals of a country on a celestial body may constitute national appropriation if the activities take place under the supreme authority (sovereignty) of the state.”⁶⁸

Here, Gorove brings up an interesting topic in the appropriation debate: sovereignty. Article II explicitly prohibits “appropriation by claim[s] of sovereignty.”⁶⁹ Returning to Columbus on the shores of modern day Bahamas, once he planted his flag and laid claim to the “vacant” lands—under the Doctrine of Discovery—Columbus declared Spanish sovereignty over the newly acquired territory.⁷⁰ In essence, once Spain established sovereignty over its new holdings, it gained the power to deny access to other nations. If this thinking—appropriation by claims of sovereignty—applied to outer space colonies, then the controlling nation would have absolute power to exclude other nations from entering into and performing activities on the controlling nation’s celestial claim or base—a flat out rejection of the international cooperation that the Outer Space Treaty is built upon.⁷¹

2. *International Cooperation in Outer Space*

For the drafters of the Outer Space Treaty, as well as the nations that eventually signed the final document, international cooperation between nations in outer space was a chief con-

aspects of the case, instead dismissing Nemitz’s claim on the theory that he possessed no legitimate title to the property in question. *Id.* at *1–2.

⁶⁶ Gorove, *supra* note 61, at 352.

⁶⁷ *Id.*

⁶⁸ *Id.*

⁶⁹ Outer Space Treaty, *supra* note 9, art. II.

⁷⁰ See generally Miller, *supra* note 7.

⁷¹ See generally Outer Space Treaty, *supra* note 9.

cern.⁷² As noted above, the Outer Space Treaty originated during a time of great conflict between the superpowers on Earth—the Cold War.⁷³ From the late 1950s into the 1960s, the United States and the USSR constantly “one-upped” the other in the Space Race, beginning with the USSR’s launch of Sputnik I.⁷⁴ In response to this competition between the two superpowers, as well as the growing threat of nuclear war, many nations around the world feared that Cold War actions would directly bleed into the expanse above Earth.⁷⁵ To combat this fear, the drafters of the Outer Space Treaty enacted various articles in the treaty to ensure that outer space would not be appropriated for military purposes.⁷⁶ Even a cursory glance at the language of the Outer Space Treaty shows a call for international cooperation in the new and untraversed expanse.⁷⁷ The opening declarations from the parties to the treaty highlight this desire for cooperation.⁷⁸ Among the points listed, the parties commit to: (1) “[r]ecognizing the common interest of all mankind . . . in the use of outer space”; (2) “[d]esiring to contribute to broad international [co]operation”; and (3) “[r]ecalling [U.N. Resolution 1884], calling upon [Member] States to refrain from placing [nuclear weapons] in orbit around Earth . . . or from installing such weapons on celestial bodies”⁷⁹

This call for international cooperation runs throughout the Outer Space Treaty, wherein the drafters repeatedly used language such as “international [co]operation”⁸⁰ and “mutual assistance.”⁸¹ Nowhere is this more apparent than in Article I, which states: “Outer space . . . shall be free for exploration and use by all states without discrimination of any kind.”⁸² During the drafting of the Outer Space Treaty, U.S. Ambassador Goldberg issued an opinion on the language of Article I, stating “[Article I] make[s] clear . . . that outer space and celestial bodies are open

⁷² Letter from Arthur Goldberg, *supra* note 55.

⁷³ LYALL & LARSON, *supra* note 48, at 506–07.

⁷⁴ *Id.* at 507.

⁷⁵ *Id.*

⁷⁶ See Outer Space Treaty, *supra* note 9.

⁷⁷ See *id.*

⁷⁸ See *id.* pmb1.

⁷⁹ *Id.*

⁸⁰ See, e.g., *id.* art. I.

⁸¹ See, e.g., *id.* art. IX.

⁸² *Id.* art. I

not just to the big powers or the first arrivals[,] but shall be available to all, both now and in the future.”⁸³

At the July 1966 U.N. Fifth Session of the Legal Subcommittee meeting, the delegates spent little time deliberating the language of Article II in the proposed drafts.⁸⁴ This might be due, in large part, to the fact that all parties involved wanted to ensure that outer space remained free and open to all back on Earth. Indeed, in an address to the U.N. Political Committee of the General Assembly, U.S. Ambassador Goldberg explained that the major reasoning for the non-appropriation language of Article II was to “reinforce the free access language” imposed by Article I,⁸⁵ thereby promoting the Outer Space Treaty’s spirit of international cooperation.

3. *Article XII of the Outer Space Treaty*

The chief concern addressed within Article II of the Outer Space Treaty was that of one nation appropriating whole tracts of outer space, thereby limiting the free access to those regions claimed by that country.⁸⁶ By denying one nation the opportunity to claim sovereign territory in outer space, whether on celestial bodies or in the emptiness above, the drafters ensured that outer space would be free for all, now and into the future.⁸⁷

The fundamental problem with Article II, though, is that a colony on the Moon, Mars, or beyond will *physically* take up land—land that has yet to be claimed by any nation in history. By physically occupying territory in outer space, that nation would indeed be chalking out a place in the moon dust, which would certainly count as appropriation under both Columbus’s and Gorove’s definitions.⁸⁸

Luckily, the drafters of the Outer Space Treaty seemed to have taken into account the problem Article II poses to nations attempting to establish outer space colonies when drafting the final version of the Outer Space Treaty by including Article XII.⁸⁹ Article XII states:

All stations, installations, equipment[,] and [outer] space vehicles on the Moon and other celestial bodies shall be open to rep-

⁸³ Dembling & Arons, *supra* note 50, at 430.

⁸⁴ *Id.* at 431.

⁸⁵ *Id.*

⁸⁶ Outer Space Treaty, *supra* note 9, art. II

⁸⁷ *Id.* art. I.

⁸⁸ Gorove, *supra* note 61, at 352.

⁸⁹ Outer Space Treaty, *supra* note 9, art. XII.

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.⁹⁰

Here, on first glance, the drafters of the Outer Space Treaty are simply providing yet another vehicle to ensure that outer space activities retain the spirit of international cooperation by explicitly requiring “all stations, installations, equipment[,] and [outer] space vehicles” to remain open to representatives of other nations.⁹¹ Yet in doing so, the drafters provide an outlet for national actors to establish “stations, installations, [and] equipment” on the Moon and other celestial bodies.⁹² From a pure language analysis, one can surmise that an outer space colony on Saturn’s moon Titan would, in fact, operate like a station or installation, thanks to the language of Article XII.⁹³

Additionally, one can argue that outer space colonies do not violate the non-appropriation language of Article II because other parts of the treaty allow for freedom of scientific exploration. In his early analysis of the Outer Space Treaty, Gorove made a point to separate the use of celestial territory for scientific purposes with the general appropriation of outer space.⁹⁴ The treaty proclaims in Article I that “there shall be freedom of scientific investigation . . . and states shall facilitate and encourage international [co]operation in such investigation.”⁹⁵ Gorove posited that appropriation could be allowed under the treaty if it is done in the name of science.⁹⁶ “Since the [Outer Space] Treaty proclaims freedom of scientific investigation in outer space . . . [and] if the appropriation takes place in the name of science or in the course of a scientific investigation in outer space[,] . . . then such use would not be prohibited under the [Outer Space] Treaty.”⁹⁷

Currently, all outer space activities undertaken by NASA generally have a scientific purpose—whether it be in studying the

⁹⁰ *Id.*

⁹¹ *Id.*

⁹² *Id.*

⁹³ *Id.*

⁹⁴ Gorove, *supra* note 61, at 352.

⁹⁵ Outer Space Treaty, *supra* note 9, art. I.

⁹⁶ Gorove, *supra* note 61, at 352–53.

⁹⁷ *Id.* at 353.

atmosphere, analyzing the effects of living in zero gravity on human bodies, or gathering scientific data on Mars.⁹⁸ The focus of an outer space colony would, at least in the early years following its establishment, be skewed toward the gathering of scientific data on the new world—not to mention the study of the biological effects that the colonists' new home would have on their bodies.

Regardless of the activities performed on the U.S. colony, establishing an outer space colony on Mars would not violate Article II's non-appropriation language. This is good news, considering that in October 2015 NASA released a detailed plan calling for the establishment of a permanent human presence on Mars.⁹⁹

Yet nowhere in the thirty-six-page plan does NASA address¹⁰⁰ which nation's criminal law will apply to the new settlement—a major issue facing the future colonists should humanity achieve off-Earth colonization, millions of miles away from the nearest police precinct or courtroom.

IV. JURISDICTION IN ANTARCTICA

Outer space colonization will be a wholly different entity than the Western-centric colonization that engrossed the planet beginning in the 15th century.¹⁰¹ For one thing, outer space colonization will be rooted in a multilateral legal framework that multiple nations around the world have already developed and adopted.¹⁰² Because of the language of the Outer Space Treaty—and because the Doctrine of Discovery is an arcane tool that led to more problems than it solved¹⁰³—questions of criminal jurisdiction and whose law governs an outer space colony currently has no clear answer. Will criminal jurisdiction be based on international law or will each nation's colony be under an extension of the nation's laws on Earth? Perhaps the answer

⁹⁸ See generally *What Does NASA Do?*, NASA, http://www.nasa.gov/about/highlights/what_does_nasa_do.html [<https://perma.cc/8DQW-WLSN>].

⁹⁹ *NASA's Journey to Mars*, NASA (Oct. 2015), http://www.nasa.gov/sites/default/files/atoms/files/journey-to-mars-next-steps-20151008_508.pdf [<https://perma.cc/8LRT-P6V2>].

¹⁰⁰ This is understandable, when one considers that NASA is not an agency dedicated to the creation of legal policies. *Id.* at 1–36.

¹⁰¹ See generally Miller, *supra* note 7.

¹⁰² See generally Outer Space Treaty, *supra* note 9, pmbl.

¹⁰³ See generally Frichner, *supra* note 34.

lies not in the cold recesses of outer space, but in the cold recesses of Antarctica.

A. U.S. COURT DECISIONS REGARDING ANTARCTICA

A number of U.S. court cases have dealt with Antarctic general (civil) jurisdiction and whether U.S. law extends to those traversing the snowy continent. In 1984, the D.C. Circuit heard a case that asked: “Is Antarctica, a continent [that] is not now subject to the sovereignty of any nation, a ‘foreign country’ within the meaning of the [Federal Tort Claims Act (FTCA)]?”¹⁰⁴ In *Beattie v. United States*, an Air New Zealand aircraft crashed in Antarctica, killing all onboard; plaintiffs filed suit in the U.S. District Court for the District of Columbia against the United States for wrongful death under the FTCA.¹⁰⁵ The D.C. Court of Appeals looked to the “Nature of Antarctica,” briefly summarizing the points of The Antarctic Treaty (Antarctic Treaty) before listing the various activities the United States was then engaged in on the continent.¹⁰⁶ The government essentially argued that there exist two areas of the world—the United States and foreign countries.¹⁰⁷ The court rejected this thinking, highlighting other areas that U.S. citizens operate in that are neither option: outer space, the high seas, and, as indicated in this case, Antarctica.¹⁰⁸ The court concluded that under the FTCA’s “foreign country exception,” Antarctica does not constitute a foreign country. Because of this, the court determined that venue was proper, meaning D.C. law applied to the claim.¹⁰⁹

Less than ten years later, a carpenter under contract with the National Science Foundation was killed, instigating a wrongful death action against the United States.¹¹⁰ *Smith v. United States* eventually reached the Supreme Court, which had to ultimately decide once and for all whether the FTCA applied to tort claims arising in Antarctica. Writing for the majority, Chief Justice Rehnquist took the opposite approach of the D.C. Court of Appeals in *Beattie*, ruling that the “FTCA’s waiver of sovereign immunity does not apply to tort claims arising in Antarctica,” reasoning that the 79th Congress would not have “included a

¹⁰⁴ *Beattie v. United States*, 756 F.2d 91, 93 (D.C. Cir. 1984).

¹⁰⁵ *Id.* at 92–93.

¹⁰⁶ *Id.* at 93–94.

¹⁰⁷ *Id.* at 105.

¹⁰⁸ *Id.*

¹⁰⁹ *Id.*

¹¹⁰ *Smith v. United States*, 507 U.S. 197 (1993).

desolate and extraordinar[il]y dangerous land such as Antarctica within the scope of the FTCA.”¹¹¹

B. THE ANTARCTIC TREATY SYSTEM

From these decisions, one could posit a case with similar issues being filed in U.S. federal or state court, just with Antarctica swapped for an outer space colony on Mars as the cause of action’s location. This link between Antarctica and outer space is not hard to see. Both areas share many similar qualities: both are cold, harsh, and inhospitable. Both regions are also subject to varying international and domestic treaties that attempt to provide a legal framework over a barren area.¹¹² The Antarctic Treaty,¹¹³ much like the Outer Space Treaty, was created during a tense period of history that saw superpowers vying for control and dominance. The Antarctic Treaty was officially signed and adopted in 1959;¹¹⁴ likewise, the Outer Space Treaty came a few years later in 1967.¹¹⁵

1. *An Overview of the Antarctic Treaty*

As one scholar noted, “[a] major reason for the successful implementation of The Antarctic Treaty lies in its clever mix of specificity and vagueness,” much like the Outer Space Treaty.¹¹⁶ A side-by-side comparison of the Antarctic Treaty and the Outer Space Treaty is striking because they both cover similar ground, and do so in a way that sounds strikingly similar. Article I of the Antarctic Treaty calls for Antarctica to “be used for peaceful purposes only”;¹¹⁷ so does the preamble of the Outer Space Treaty.¹¹⁸ Article II of the Antarctic Treaty calls for the “[f]reedom of scientific investigation in Antarctica,”¹¹⁹ which is the same language used in Article I of the Outer Space Treaty.¹²⁰ Article V of the Antarctic Treaty bans the use of nu-

¹¹¹ *Id.* at 204–05.

¹¹² *Antarctica Analog Studies*, NASA (June 10, 2015), <https://www.nasa.gov/hrp/research/analog/antarctica> [<https://perma.cc/UFM9-JUQ3>].

¹¹³ The Antarctic Treaty, Dec. 1, 1959, 12 U.S.T. 794, 402 U.N.T.S. 71.

¹¹⁴ *Id.*; see also *Antarctic Treaty*, DEP’T OF STATE, <http://www.state.gov/t/avc/trty/193967.htm> [<https://perma.cc/95PW-R7LL>].

¹¹⁵ Outer Space Treaty, *supra* note 9, pmbl.

¹¹⁶ Kurt M. Shusterich, *Antarctic Treaty System: History, Substance, and Speculation*, 39 INT’L J. 800, 806 (1983).

¹¹⁷ The Antarctic Treaty, *supra* note 113, art. I.

¹¹⁸ Outer Space Treaty, *supra* note 9, pmbl.

¹¹⁹ The Antarctic Treaty, *supra* note 113, art. II.

¹²⁰ Outer Space Treaty, *supra* note 9, art. I.

clear weapons,¹²¹ which is a provision mirrored in Article IV of the Outer Space Treaty.¹²² And in keeping with the international cooperation, Article VII of the Antarctic Treaty allows for free access to “[a]ll areas of Antarctica, including all stations, installations[,] and equipment”¹²³—a similar idea contained in Article XII of the Outer Space Treaty.¹²⁴

Because of their inherent similarities, both in the form of the treaty and in the physical properties of both regions, one would think that Antarctica and its treaty system would be a suitable model to base outer space colonial jurisdiction. Like the Outer Space Treaty, Article IV of the Antarctic Treaty expressly does not recognize, dispute, or establish territorial sovereignty claims.¹²⁵ Furthermore, the treaty does not allow for any new claim to be established while the treaty is in force.¹²⁶ Currently, seven nations lay “claim” to territory in Antarctica: Argentina, Australia, Chile, France, New Zealand, Norway, and the United Kingdom.¹²⁷ By the 1950s, eight other nations asserted their interest in the “potential” right to lay claim to Antarctic territory—Belgium, Germany, Japan, Poland, Sweden, South Africa, the United States, and the former USSR—but none have officially made any claims.¹²⁸

2. *General Jurisdiction in Antarctica*

Because the treaty does not recognize or establish territory or sovereignty claims—much like the Outer Space Treaty and its prohibition on appropriation of territory—jurisdiction over people and places in Antarctica falls to Article VIII of the Antarctic Treaty, which provides for general jurisdiction over observers and scientists by their own nations.¹²⁹ Article VIII states: “[T]o facilitate the exercise of their functions under the present treaty[,] . . . observers . . . and scientific personnel . . . shall be subject *only* to the jurisdiction of the Contracting Party of which they are nationals . . . while they are in Antarctica

¹²¹ The Antarctic Treaty, *supra* note 113, art. V.

¹²² Outer Space Treaty, *supra* note 9, art. IV.

¹²³ The Antarctic Treaty, *supra* note 113, art. VII.

¹²⁴ Outer Space Treaty, *supra* note 9, art. XII.

¹²⁵ *Id.* art. II; The Antarctic Treaty, *supra* note 113, art. IV.

¹²⁶ The Antarctic Treaty, *supra* note 113, art. IV.

¹²⁷ D. MICHAEL HINKLEY, THE USA, THE ANTARCTIC TREATY, AND TERRITORIAL CLAIMS: IS REASSESSMENT IN ORDER? 1, 8 (1989).

¹²⁸ *Antarctic Treaty*, *supra* note 114, narrative.

¹²⁹ The Antarctic Treaty, *supra* note 113, art. VIII.

...¹³⁰ Nowhere else in the Antarctic Treaty is there any discussion of jurisdiction or prosecutorial power should a crime occur on the continent.¹³¹ Essentially, Article VIII provides that every scientist, observer, explorer, and tourist in Antarctica is subject only to the laws of his or her home country; so under the Antarctic Treaty, an American geologist working on the continent is subject only to U.S. law.¹³²

This national jurisdiction would be acceptable if there were some sort of provision detailing a process that Member States could take in the event of a criminal claim arising between two Antarctic visitors of different nationalities. But the Antarctic Treaty provides no concrete plan as to how nations are to cooperate in prosecuting a crime involving nationals of different Member States.¹³³ Instead, a vague provision is included at the end of Article VIII, which states “the Contracting Parties concerned in any case of dispute with regard to the exercise of jurisdiction in Antarctica shall immediately consult together with a view to reaching a mutually acceptable solution.”¹³⁴

C. THE SHORTCOMINGS OF JURISDICTION IN ANTARCTICA

But herein lies the issue with this structure. The Antarctic Treaty provides for no national enforcement of criminal jurisdiction over any Member State’s bases or installations.¹³⁵ The Antarctic Treaty also fails to establish guidelines for international cooperation between signatories concerning jurisdiction and prosecution powers should an incident occur between nationals of different Member States or to a national in or on another nation’s claimed territory.¹³⁶ Furthermore, the United States has neither claimed territory in Antarctica nor recognized any of the territorial claims of the seven nations that have claimed territory in Antarctica.¹³⁷ By attaching jurisdiction exclusively to nations, coupled without any grant of territorial jurisdiction or clear-cut system of international cooperation in the event of a criminal incident, the Antarctic Treaty essentially

¹³⁰ *Id.* (emphasis added).

¹³¹ *Id.*

¹³² *Id.* This type of jurisdictional basis is called the “nationality principle,” which will be discussed more in-depth in Section V *infra*.

¹³³ *See id.* art. VIII.

¹³⁴ *Id.*

¹³⁵ *Id.* art. IV.

¹³⁶ *Id.* art. VIII.

¹³⁷ *Antarctic Treaty*, *supra* note 114, narrative.

guarantees jurisdiction and prosecution problems will occur should a crime occur on the continent.

1. *The Mysterious Death of Dr. Rodney Marks*

Take, for example, the story of Dr. Rodney Marks, an Australian astrophysicist who died under mysterious circumstances in 2000.¹³⁸ Marks became increasingly ill over the course of a few days while working at a U.S.-run research station in Antarctica; eventually he died and his death was determined to be due to natural causes.¹³⁹ By the time Marks died, weather conditions were too poor to fly his body out of Antarctica, so he was *literally* put on ice for six months.¹⁴⁰

Eventually, Dr. Marks's remains were transferred to New Zealand by plane and examined by a coroner who found lethal levels of methanol in his system.¹⁴¹ Based on the coroner's findings, the New Zealand authorities investigating Marks's death could not rule out "that [Marks's death] was . . . the direct result of the act of another person."¹⁴² The investigation brings to light the numerous issues attached to current Antarctic jurisdiction. The United States had an interest in discovering the cause of Marks's death because Marks was a U.S. contractor and his death occurred on a U.S.-run base.¹⁴³ But New Zealand also had an interest in the investigation because the U.S.-run base was located in the Ross Dependency, one of New Zealand's territorial claims in Antarctica.¹⁴⁴ The case came to a stalemate, in large part because the Antarctic Treaty fails to establish how Member States are to cooperate when an incident overlaps the jurisdiction of different nations.¹⁴⁵ As of 2008, the mystery surrounding Marks's death had yet to be explained,¹⁴⁶ but since

¹³⁸ Todd F. Chatham, *Criminal Jurisdiction in Antarctica: A Proposal for Dealing with Jurisdictional Uncertainty and Lack of Effective Enforcement*, 24 EMORY INT'L L. REV. 331, 331–32 (2010).

¹³⁹ *Id.*

¹⁴⁰ *Id.*

¹⁴¹ *Id.* at 332.

¹⁴² *Id.*

¹⁴³ *Id.* at 332–33.

¹⁴⁴ *Id.* at 333.

¹⁴⁵ *Id.* at 333–34.

¹⁴⁶ Jarrod Booker, *NZ Probe into Death Hits Icy Wall*, N.Z. HERALD (Sept. 25, 2008, 4:00 AM), http://www.nzherald.co.nz/nz/news/article.cfm?c_vid=1&objectid=10534046 [<https://perma.cc/7G3P-TA78>].

then, many legal experts have called for the reform of Antarctica's jurisdictional system to avoid future cases like Marks's.¹⁴⁷

2. *Dr. Marks in Outer Space?*

Imagine, for a minute, that Dr. Marks is an astrophysicist stationed not in Antarctica, but on a remote colonial outpost on Mars, where even the speed of current communication technology impairs instantaneous communication between Mars and Earth.¹⁴⁸ Dr. Marks's death highlights the critical need to concretely determine criminal jurisdiction not just in Antarctica, but in future outer space colonies as well. Furthermore, the botched investigation and the fallout from Marks's death, due in large part to the vying interests of the United States and New Zealand, highlights the need to establish some sort of cooperative agreement in the event that another tragedy occurs in Antarctica.

These same issues plaguing Antarctica must be addressed prior to the first colonists landing on any extraterrestrial surface to avoid another tragedy like Marks's, albeit one that occurs billions of miles from the nearest U.S. district court. But the legal framework that governs activities in Antarctica is ill-equipped to apply to outer space colonies. Because the Antarctic Treaty neither denounces national claims of sovereignty nor establishes them, Member States have no power to enforce jurisdiction over non-nationals who instigate incidents in that Member State's base or installation. Couple this with the fact that the Antarctic Treaty provides no system allowing Member States to extend their criminal jurisdiction over non-nationals, issues as to who controls—and whose law reigns supreme—will ultimately arise, especially in the remote regions of Antarctica (and outer space), where individuals are cut off from the court system, law enforcement agencies, and legislative bodies.

When addressing the legal needs—both current and eventual—of outer space, Francis Lyall and Paul Larson argue that “[t]he temptation, to which we will succumb to occasionally, is to have recourse to analogy. When considering new problems, lawyers have an ingrained tendency to analogize from the known to the unknown, but for the future requirements of

¹⁴⁷ Chatham, *supra* note 138, at 333.

¹⁴⁸ See generally Thomas Ormston, *Time Delay Between Mars and Earth*, ESA MARS EXPRESS BLOG (May 8, 2012), <http://blogs.esa.int/mex/2012/08/05/time-delay-between-mars-and-earth/> [<https://perma.cc/ZAC9-W8JX>].

[outer] space, that tendency may have to be curbed.”¹⁴⁹ Thus, perhaps the laws governing Antarctica might not be the best recourse for establishing criminal jurisdiction over extraterrestrial colonial outposts. The answer lies not on the south pole, but in the sky.

V. JURISDICTION ON THE INTERNATIONAL SPACE STATION

The ISS is a football field-sized space station, manned by a crew of six, orbiting at a speed of five miles per second.¹⁵⁰ Officially completed in 2000, the ISS has hosted over 200 scientists, researchers, and military personnel from fifteen nations around the world.¹⁵¹ Since 1998, the ISS has been governed by a multilateral agreement between fifteen nations, referred to as Partner States in the language of the International Space Station Intergovernmental Agreement (1998 IGA).¹⁵²

A. SIMILARITIES BETWEEN THE OUTER SPACE TREATY AND THE 1998 IGA

When viewed side-by-side, the 1998 IGA and the 1967 Outer Space Treaty illustrate just how far humanity has come since Sputnik I launched into space in 1957.¹⁵³ Whereas the Outer Space Treaty contains seventeen articles dealing with nation-state operations in outer space, the 1998 IGA contains twenty-eight separate articles.¹⁵⁴ Topics discussed in the 1998 IGA that are not covered in the Outer Space Treaty include “Treatment of Data and Goods in Transit” (Article 20), “Intellectual Property” (Article 21), “Exchange of Data” (Article 19), and “Customs and Immigration” (Article 18).¹⁵⁵

One topic that *is* outlined in both the 1998 IGA and the Outer Space Treaty is jurisdiction. Article 5 of the 1998 IGA

¹⁴⁹ LYALL & LARSON, *supra* note 48, at 559–60.

¹⁵⁰ Mark Garcia, *About the Space Station: Facts and Figures*, NASA (Apr. 10, 2016), https://www.nasa.gov/mission_pages/station/main/onthestation/facts_and_figures.html [https://perma.cc/HP5A-JCJN].

¹⁵¹ *Id.*

¹⁵² Agreement Among the Government of Canada, Governments of Member States of the European Space Agency, the Government of Japan, the Government of the Russian Federation, and the Government of the United States of America Concerning Cooperation on the Civil International Space Station, Jan. 29, 1998, 1998 U.S.T. LEXIS 303, T.I.A.S. No. 12927 [hereinafter 1998 IGA].

¹⁵³ *Id.*; see generally Outer Space Treaty, *supra* note 9.

¹⁵⁴ 1998 IGA, *supra* note 152; Outer Space Treaty, *supra* note 9.

¹⁵⁵ 1998 IGA, *supra* note 152.

states: “Pursuant to Article VIII of the Outer Space Treaty . . . , each Partner [State] shall retain jurisdiction and control over the elements it registers . . . and over personnel in or on the [ISS] who are its nationals.”¹⁵⁶ This clause echoes the language of the jurisdiction and non-appropriation clauses found in the Outer Space Treaty.¹⁵⁷ Furthermore, Article 6 states that each Partner State “shall own the elements . . . that they respectively provide.”¹⁵⁸

1. *Flag Jurisdiction in Maritime Law and Its Outer Space Law Analogue*

Numerous articles have explored whether maritime and admiralty law should apply to activities conducted and objects launched into outer space.¹⁵⁹ One concept from maritime law that has received attention from outer space law scholars and practitioners is that of “flag jurisdiction.”¹⁶⁰ “Flag jurisdiction derives from the treatment of ships as the sovereign territories of the nation whose flag they fly.”¹⁶¹ If a ship in international waters flies an American flag, U.S. law and jurisdiction reigns supreme over the vessel, the crew, and any passengers aboard. This jurisdictional concept stems from “territorial jurisdiction,” where a state may exercise control and jurisdiction over conduct that occurs within its territory.¹⁶² In short, the law of the nation where the ship is registered is the law that governs the vessel, wherein the vessel becomes an extension of the registering nation’s territory.¹⁶³

Like maritime law, the registration of *launched* objects is paramount to the past, present, and future of outer space exploration. This type of registration is territorial-based jurisdiction because it establishes that those registered objects launched are the sole jurisdiction of the launching, or registering, nation.¹⁶⁴ In 1967, the Outer Space Treaty established that not only do

¹⁵⁶ *Id.* art. 5.

¹⁵⁷ Outer Space Treaty, *supra* note 9, art. VIII.

¹⁵⁸ 1998 IGA, *supra* note 152, art. 6, sec. 1.

¹⁵⁹ See generally Hans P. Sinha, *Criminal Jurisdiction on the International Space Station*, 30 J. SPACE L. 85 (2004); Stacy J. Ratner, *Establishing the Extraterrestrial: Criminal Jurisdiction and the International Space Station*, 22 B.C. INT’L & COMP. REV. 323 (1999).

¹⁶⁰ Sinha, *supra* note 159, at 94.

¹⁶¹ *Id.*

¹⁶² *Id.* at 93.

¹⁶³ *Id.*

¹⁶⁴ Ratner, *supra* note 159, at 330–31.

Member States retain this jurisdiction over launched objects, but they are also internationally liable for any damage caused by said objects.¹⁶⁵ Then, in 1972, the Member States of the Outer Space Treaty enacted a set of rules governing the liability of launching Member States when conducting outer space activities on and off Earth.¹⁶⁶ Three years later, the Member States enacted the 1975 Convention on Registration of Objects Launched into Outer Space (Registration Convention), which took the liability rules from the previous two treaties and added the registration requirements, which concretely attached registration of objects to liability.¹⁶⁷ Simply put, between the three above-mentioned treaties, any nation that registers and launches an object into outer space holds jurisdiction over and is liable for that object.

B. ARTICLE 5 OF THE 1998 IGA: GENERAL JURISDICTION

Article 5 of the 1998 IGA is referred to as the “general jurisdictional article”¹⁶⁸ because it provides a broad grant of jurisdictional control to Partner States.¹⁶⁹ The idea of territorial jurisdiction—and its maritime offshoot, flag jurisdiction—is present in Article 5, declaring that “each Partner [State] shall retain jurisdiction and control over the elements it registers in accordance with [the Registration Convention].”¹⁷⁰

Problems arise if territorial jurisdiction is the only framework that governs inhabitants on the ISS. The ISS is made up of numerous different parts and pieces, all built, registered, launched, and installed by separate Member States.¹⁷¹ For example, there are three separate laboratory modules on the ISS, each built, registered, and operated by separate Member States.¹⁷² So, hypothetically, if an issue occurs in the U.S. habita-

¹⁶⁵ Outer Space Treaty, *supra* note 9, art. VII.

¹⁶⁶ Convention on International Liability for Damage Caused by Space Objects, Mar. 29, 1972, 24 U.S.T. 2389, 961 U.N.T.S. 187 [hereinafter Liability Convention].

¹⁶⁷ Convention on Registration of Objects Launched into Outer Space, Sept. 15, 1975, 28 U.S.T. 695, 1023 U.N.T.S. 15 [hereinafter Registration Convention].

¹⁶⁸ Sinha, *supra* note 159, at 107.

¹⁶⁹ *Id.*

¹⁷⁰ 1998 IGA, *supra* note 152, art. 5, sec. 2.

¹⁷¹ NAT'L AERONAUTICS AND SPACE ADMIN., REFERENCE GUIDE TO THE INTERNATIONAL SPACE STATION—UTILIZATION EDITION 10–13 (2015) [hereinafter REFERENCE GUIDE], <https://www.nasa.gov/sites/default/files/atoms/files/np-2015-05-022-jsc-iss-guide-2015-update-111015-508c.pdf> [https://perma.cc/FX6Y-7C5P].

¹⁷² *Id.*

tion module that also affects the Japanese lab, then there immediately exists a jurisdictional issue because both the United States and Japan have competing claims.

To counter this type of incident, a separate and contrasting jurisdictional principle eliminates the issues of borders and territorial claims. This concept is the “nationality principle,” which states that a nation may exercise control and jurisdiction over any of its nationals abroad.¹⁷³ Like territorial jurisdiction, the nationality principle is also present in Article 5, wherein each Partner State shall have control and jurisdiction “over *personnel* in or on the [ISS] who are its nationals.”¹⁷⁴ Here, unlike territorial jurisdiction, a U.S. citizen in China who commits an offense is subject not only to Chinese jurisdiction attached to the territory in which the offense was committed, but also to any U.S. law because his citizenship attaches U.S. jurisdiction to him, thus allowing the United States to also regulate his conduct.

Like the problems facing an ISS controlled only by territorial jurisdiction, there too exist problems with a nationality principle-only approach to jurisdiction on the ISS. Unlike many unmanned objects that are registered and launched into outer space, the ISS is essentially a giant satellite that houses individuals of differing nationalities.¹⁷⁵ If an interaction between individuals from different Partner States were to occur—initiating a legal cause of action—then, under the nationality principle, both nations would have a stake in exerting jurisdiction over the perpetrators; but if the interaction also occurred in a third Partner State’s module, without territorial jurisdiction tied to the registration of that element, that third nation would be estopped from exerting jurisdiction. The nationality principle also ensures that Partner States retain jurisdictional control over their citizens even if that citizen is not currently present in his Partner State’s registered modules.

Without territorial jurisdiction, an issue arising in one registered section of the ISS by individuals of differing nations would lead to quarrels about which Partner State’s law governs the incident. But without the nationality principle, Partner States would be left out of exerting jurisdiction over incidents occurring between its nationals if it occurs in a module not registered and controlled by them. Article 5 of the 1998 IGA solves this di-

¹⁷³ Sinha, *supra* note 159, at 95.

¹⁷⁴ 1998 IGA, *supra* note 152, art. 5.

¹⁷⁵ REFERENCE GUIDE, *supra* note 171.

lemma by “[linking] a Partner [State’s] ability to exert its jurisdiction over individuals on board the ISS to registration *and* nationality.”¹⁷⁶

C. ARTICLE 22: CRIMINAL JURISDICTION ON THE ISS

Luckily, the drafters of the 1998 IGA took jurisdiction a step further than the general jurisdiction of Article 5. Article 22 states that “Canada, the European Partner States, Japan, Russia, and the United States may exercise *criminal* jurisdiction over personnel in or on any flight element who are their respective nationals.”¹⁷⁷ This grant of power to the Partner States to establish and enforce criminal jurisdiction aboard the ISS represented a major shift in the legal framework of outer space activities.¹⁷⁸ Yet between the creation of the original Intergovernmental Agreement for the ISS in 1988 (1988 IGA) and the rewrite that occurred in 1998, Article 22 underwent significant changes—changes that shifted the power to exercise criminal jurisdiction and prosecute inhabitants from a U.S.-centric regime to a more cooperative agreement.

1. 1988 IGA Article 22

In 1988, the original Partner States (excluding Russia, who joined the ISS endeavor in the mid-1990s after the fall of the USSR) drafted a first set of Intergovernmental Agreements,¹⁷⁹ which included Article 22, outlining criminal jurisdiction aboard the ISS.¹⁸⁰ With the signing and ratification of the 1988 IGA, criminal jurisdiction in outer space went from the realm of academia and science fiction into concrete international law.

The 1988 version of Article 22 can be broken down into two main jurisdictional categories: (1) criminal jurisdiction based on the territorial and nationality principles; and (2) a grant of criminal jurisdiction extending over all of the ISS, possessed solely by

¹⁷⁶ Sinha, *supra* note 159, at 107.

¹⁷⁷ 1998 IGA, *supra* note 152, art. 22 (emphasis added).

¹⁷⁸ Sinha, *supra* note 159, at 87.

¹⁷⁹ Agreement Among the Government of the United States of America, Governments of Member States of the European Space Agency, the Government of Japan, and the Government of Canada on Cooperation in the Detailed Design, Development, Operation, and Utilization of the Permanently Manned Civil Space Station, Sept. 29, 1988, Temp. State Dep’t No. 92-65, 1992 WL 466295 [hereinafter 1988 IGA].

¹⁸⁰ *Id.* art. 22.

the United States.¹⁸¹ Section 1 of the 1988 Article 22 reads: “The United States, the European Partner States, Japan, and Canada may exercise criminal jurisdiction over the flight elements they respectively provide *and* over personnel in or on any flight elements who are their respective nationals”¹⁸² Present in Section 1 is both the territorial jurisdiction (“jurisdiction over the flight elements”)¹⁸³ as well as the nationality principle (“jurisdiction . . . over personnel in or on any flight elements who are their respective nationals”).¹⁸⁴ This grant of territorial jurisdiction as well as the nationality principle ensured that the Partner States retained the option to exercise control over both their personnel *and* any incident occurring aboard their respective flight elements.

But the 1988 IGA also provided the United States alone with an extraordinary amount of power over the ISS. Section 2 of Article 22 provided that the United States “may exercise criminal jurisdiction over misconduct committed by a non-U.S. national in or on a non-U.S. element of the manned base or attached to the manned base.”¹⁸⁵ With such a grant of power, the United States was free to exert control over any individual stationed on any part of the ISS, regardless of nationality or physical location onboard the ISS.¹⁸⁶ Section 2, Subsection A and B provided that to prosecute a non-national, the United States must first consult with the Partner State whose national caused the alleged incident and either retain the “concurrence” of the Partner State or have failed to receive indication that the Partner State will prosecute its national.¹⁸⁷

This grant of exclusive jurisdiction to the United States was unprecedented. As many have noted, Section 2 had no clear basis in any particular jurisdiction principle, due in large part to the ambiguity the clause creates in its presentation.¹⁸⁸ Furthermore, the extraordinary grant of jurisdiction to the United States constituted a flagrant disregard not only to the international character of the ISS venture, but also to the language of

¹⁸¹ *Id.*, see Sinha, *supra* note 159, at 109.

¹⁸² 1988 IGA, *supra* note 179, art. 22, sec. 1 (emphasis added).

¹⁸³ *Id.*

¹⁸⁴ *Id.*

¹⁸⁵ *Id.* art. 22, sec. 2.

¹⁸⁶ Sinha, *supra* note 159, at 112.

¹⁸⁷ 1988 IGA, *supra* note 179, art. 22, sec. 2.

¹⁸⁸ Sinha, *supra* note 159, at 114.

international cooperation set forth in the Outer Space Treaty twenty-one years prior.¹⁸⁹

2. 1998 IGA Article 22

With the arrival of Russia, the Partner States reassembled in 1998 to redraft portions of the 1988 IGA. The drafters eliminated territorial jurisdiction in Section 1 of Article 22 and replaced it with a clear, concise nationality-principle-approach to criminal jurisdiction,¹⁹⁰ allowing a Partner State to “exercise criminal jurisdiction over personnel in or on any flight element who are their respective nationals.”¹⁹¹

With the elimination of territorial criminal jurisdiction in Article 22, Section 1 came the issue of Partner States not having the authority to exercise jurisdiction and prosecutorial power over non-nationals that commit an offense against its own national. Recall, for a moment, the jurisdiction clause in the Antarctic Treaty, wherein Member States retain jurisdiction over their personnel *but not* over their bases or installations.¹⁹² Without the ability to regulate conduct within one nation’s installation (territory)—whether on the ISS or in Antarctica—tragedies, like Dr. Marks’s, turn into catastrophes where competing states vie for jurisdiction and where potential wrongdoing is never investigated nor punished.

To eliminate the issue of Partner States being unable to exercise jurisdiction over a non-national, the drafters of the 1998 IGA, in addition to redrafting Section 1, significantly overhauled Section 2 as well, providing the following in Section 2:

In a case involving misconduct on orbit that: (a) affects the life or safety of a national of another Partner State or (b) occurs in or on or causes damage to the flight element of another Partner State, the Partner State whose national is the alleged perpetrator shall, at the request of any affected Partner State, consult with such [Partner] State concerning their respective prosecutorial interests. An affected Partner State may, following such consultation, exercise criminal jurisdiction over the alleged perpetrator provided that, within 90 days of the date of such consultation or within such other period as may be mutually agreed, the Partner State whose national is the alleged perpetrator either: (1) concurs in such exercise of criminal jurisdiction, or (2) fails to pro-

¹⁸⁹ *Id.* at 115.

¹⁹⁰ *Id.* at 116.

¹⁹¹ 1998 IGA, *supra* note 152, art. 22, sec. 1.

¹⁹² The Antarctic Treaty, *supra* note 113, art. VIII (emphasis added).

vide assurances that it will submit the case to its competent authorities for the purpose of prosecution.¹⁹³

This grant explicitly gives Partner States affected by an incident involving a non-national the ability to request jurisdiction and prosecution power over the non-national. As one scholar noted, “[t]his is a much improved method of allocating the actual exercise of criminal jurisdiction between the primary . . . and the secondary or affected . . . Partner States.”¹⁹⁴ The 1998 IGA—specifically Article 22—is “the only positive source of criminal law that currently exists in outer space.”¹⁹⁵ Under Article 22, each Partner State retains jurisdiction over its nationals, regardless of where they are currently located on the ISS.¹⁹⁶ The scholar also noted that the language of Article 22, Section 1 simply states that no matter “where on the ISS a Partner [State’s] national may commit an offense, that Partner [State] has primary criminal jurisdiction over such national.”¹⁹⁷

D. THE BRILLIANCE OF ARTICLE 22

Discussions on the 1998 IGA have focused on the excision of the grant of U.S. supreme jurisdictional power in the 1988 IGA from the 1998 IGA,¹⁹⁸ but with regard to criminal jurisdiction in future outer space colonies, the decision to excise territorial jurisdiction from Article 22 of the 1998 IGA is incredibly important. Movement in outer space is fluid, not rigid; astronauts aboard the ISS move freely between separately registered modules. To have jurisdiction based on territory and international borders on the ISS is arcane, considering that astronauts easily move from one nation’s registered module to another separately registered module. By attaching jurisdiction to individuals per Section 1 and allowing for the transfer of jurisdiction and prosecution powers over one national to a separate Partner State per Section 2, Article 22 establishes a simple, clear framework for criminal jurisdiction. Article 22 of the 1998 IGA will likely be the foundation on which humanity will base all future outer space jurisdiction.¹⁹⁹

¹⁹³ 1998 IGA, *supra* note 152, art. 22.

¹⁹⁴ Sinha, *supra* note 159, at 119.

¹⁹⁵ P.J. Blount, *Jurisdiction in Outer Space: Challenges of Private Individuals in Space*, 33 J. SPACE L. 299, 312 (2007).

¹⁹⁶ 1998 IGA, *supra* note 152, art. 22.

¹⁹⁷ Sinha, *supra* note 159, at 117.

¹⁹⁸ *See generally* Blount, *supra* note 195; Sinha, *supra* note 159.

¹⁹⁹ Sinha, *supra* note 159, at 120.

The future of outer space exploration will almost certainly include outer space colonies established, operated, and populated by nationals of nation-states that are signatories to the 1998 IGA. Unlike the ISS, which orbits only 220 or so miles above Earth,²⁰⁰ the outer space colonies of the future will, at least for the near future, be cut off from most legal resources on Earth for extended periods of time, if not forever.

This theory sounds extreme, but look no further than the efforts of Mars One to see the reality of this issue. Mars One emphasizes that human colonists will live on the colony planet for the *rest of their lives*.²⁰¹ Once they blast off, they will never again set foot on Earth. Hopefully, the colonists will thrive in their new environment. Eventually, however, some problem will likely occur between two or more colonists, triggering, at best, a civil cause of action or, at worst, a criminal action (a terrifying thought).²⁰² If the latter occurs, what then? Which nation-state on Earth exercises jurisdiction? It is for this reason that outer space colonial criminal jurisdiction must be explicitly defined and established before any colonist leaves Earth. And Article 22 of the 1998 IGA is the perfect solution to these questions.

²⁰⁰ Remy Melina, *International Space Station: By the Numbers*, SPACE (Aug. 3, 2010, 4:49 PM), <http://www.space.com/8876-international-space-station-numbers.html> [<https://perma.cc/8GAH-GELK>].

²⁰¹ Sarah Cruddas, *Mars One: 'We're All Going to Die, But It's Important What You Do Before You Die'*, CNN (Feb. 18, 2015, 9:26 AM), <http://www.cnn.com/2015/02/17/tech/mars-one-final-100/> [<https://perma.cc/7CSA-8DK8>].

²⁰² During the early years of the United States' quest to send men to outer space, a chief concern was "space madness," a mental state many believed might arise when astronauts were subject to the isolation and inherent dangers associated with outer space travel. Jeremy Hsu, *Why 'Space Madness' Fears Haunted NASA's Past*, DISCOVERY NEWS (Apr. 16, 2012, 3:00 AM), <http://news.discovery.com/adventure/activities/space-madness-120416.htm> [<https://perma.cc/E536-UPHM>]. In response, NASA stepped up screening of the astronauts culled from military service; as a result, the majority of U.S. astronauts that were and continue to be sent into outer space have military backgrounds in an effort to maintain a sense of professionalism and bravery in the face of the danger. *Id.* But with the advent of outer space tourism and Mars One-like colonization endeavors, more and more citizens with little or no military training will be subject to the rigors of life in outer space, heightening concerns of outer space criminal incidents occurring between astronauts and colonists as the result of the stresses posed by life away from the relative safety of Earth. *Id.*

VI. A SOLUTION: TRANSFER ARTICLE 22 TO FUTURE OUTER SPACE COLONIZATION ENDEAVORS

“Criminal [j]urisdiction can be a slippery thing: a crime can be blatantly committed, but if there is no entity with jurisdiction to prosecute the crime[,] then it can go unpunished.”²⁰³ This problem exponentially increases with outer space colonization due in large part to the distance between the Earth-bound “mother” state and her extraterrestrial colonies.

A. THE DISTANCE BETWEEN FUTURE COLONIES AND “MOTHER PLANETS” EXACERBATES CRIMINAL JURISDICTION PROBLEMS

On any given day, the Moon is approximately 238,000 miles away from Earth.²⁰⁴ The Apollo astronauts endured a three-day journey to the Moon and another three to get back home.²⁰⁵ But three days is practically instantaneous compared to the average travel time between Earth and Mars. Current rocket science allows for, at best, an eight-month trip between Earth and Mars.²⁰⁶ Furthermore, due to the difference in orbits around the sun, current technology allows for the “opportunity to embark [on a mission] to Mars [once] every [twenty-six] months.”²⁰⁷ So if a crime were to occur on a Martian colony that required extradition of the accused back to Earth, then at best he or she would have to wait roughly eight months, at worst almost three years—nevermind the Sixth Amendment issues here for U.S. colonists.

During the age of exploration and the advent of the Doctrine of Discovery, once the European powers had discovered and claimed their lands in the new world, the first issue that arose was which law governed.²⁰⁸ This will be the first question asked once humanity leaves Earth and establishes a foothold in outer space. Colonists in 1500 C.E. Florida asked and colonists in 2100

²⁰³ Blount, *supra* note 195, at 306.

²⁰⁴ Tim Sharp, *How Far is the Moon?*, SPACE (June 21, 2013, 1:47 PM), <http://www.space.com/18145-how-far-is-the-moon.html> [<https://perma.cc/LY6H-YT-NH>].

²⁰⁵ Matt Williams, *How Long Does It Take to Get to the Moon?*, UNIVERSE TODAY (Jan. 10, 2016), www.universetoday.com/13562/how-long-does-it-take-to-get-to-the-moon/ [<https://perma.cc/Q2ZB-HB69>].

²⁰⁶ *Mars Planning Frequently Asked Questions*, NASA, <http://www.nasa.gov/offices/marsplanning/faqs/> [<https://perma.cc/N57C-A74B>].

²⁰⁷ *Id.*

²⁰⁸ Dieter Dorr, *The Background of the Theory of Discovery*, 38 AM. INDIAN L. REV. 477, 479 (2013).

C.E. Mars will ask, “which legal rules should apply to the relation between the [colonies] and the [home] states?”²⁰⁹

To answer this question, one must determine whether the relationship between the nation-state and the colony is governed by domestic or international law.²¹⁰ Luckily, the outer space colonists will have an easier time than their colonial ancestors when answering these questions. Because the Outer Space Treaty is a body of international law, international law will continue to dominate interactions and activities in outer space for the foreseeable future.²¹¹

1. *The Problem with a Territorial Jurisdiction-Only Approach to Outer Space Colonies*

The bestselling novel *The Martian*, recently made into a blockbuster film, briefly touches upon the laws governing outer space interactions, particularly that of a “colonist.”²¹² The novel tells the story of one American astronaut left stranded on the Martian surface for years after his crew mistakes him for dead during a freak Martian sandstorm. After surviving on the planet for close to four years, the stranded astronaut ponders what law applies to his self-made “colony” while cut off from Earth:

I’ve been thinking about laws on Mars There’s an international treaty saying no country can lay claim to anything that’s not on Earth. And by another treaty, if you’re not in any country’s territory, maritime law applies. So Mars is “international waters.” NASA is an American non-military organization, and it owns the Hab. So while I’m in the Hab, American law applies. As soon as I step outside, I’m in international waters. Then when I get in the Rover, I’m back to American law. Here’s the cool part: I will eventually go to Schiaparelli crater and commandeer the Ares 4 lander. Nobody explicitly gave me permission to do this, and they can’t until I’m aboard Ares 4 and operating the comm[unication] system. After I board Ares 4, before talking to NASA, I will take control of a craft in international waters without permission. That makes me a pirate!²¹³

Essentially, this passage implies a territorial-based jurisdiction over installations and vehicles in which the main character lives,

²⁰⁹ *Id.* at 479.

²¹⁰ *Id.* at 479–80.

²¹¹ *Space Law*, UNITED NATIONS, <http://www.unoosa.org/oosa/en/ourwork/spacelaw/index.html> [<https://perma.cc/SGM9-TFAC>].

²¹² See generally ANDY WEIR, *THE MARTIAN* (2011).

²¹³ *Id.* at 259–60.

works, and ultimately survives. If the “international treaty” that the main character refers to is in fact the Outer Space Treaty, then the legal basis would technically be sound, considering we have seen that Article II of the Outer Space Treaty forbids appropriation.²¹⁴ Yet this passage above highlights the problem that would occur should territorial jurisdiction be the only criminal jurisdictional concept attached to outer space colonies.

If territorial jurisdiction were to govern colonial bases in outer space, the territory would be only the physical installation. Therefore, if an incident were to occur outside the installation, then the law of the installation’s registering state would not apply because the registering or controlling state’s law cannot extend outside the registered object; if it did, then that would be a clear violation of the non-appropriation article in the Outer Space Treaty. However, if Article 22 of the 1998 IGA applied to outer space colonies as well, then any incident involving a national occurring outside the physical installation would fall under the jurisdiction of at least one state because the nationality principle embedded in Article 22, Section 1 attaches a Partner State’s jurisdiction to any of its nationals, irrespective of where the incident occurred. This would mean a Mars colony governed by an Article 22-like provision would (sadly) defeat any claim of space piracy, *a lá The Martian*.²¹⁵

2. *The Benefits of the Nationality Principle in Outer Space Colonies*

Applying the nationality principle-based jurisdiction of Article 22 to outer space colonies is the natural extension. For one thing, the 1998 IGA was specifically drafted to govern activities in outer space, whereas the Antarctic Treaty only deals with an Earth-based region. Likewise, the application of Article 22

²¹⁴ Outer Space Treaty, *supra* note 9, art. II (this is assuming that Weir is implying that the “international treaty” to which his main character refers is in fact the Outer Space Treaty. On a separate note, this passage also implies that Mars is “international waters,” which would be technically incorrect, considering that in 1979 a number of nations convened and drafted the Agreement Governing the Activities of States on the Moon and Other Celestial Bodies, which attempted to overlay the principles outlined in the United Nations Convention on the Law of the Sea to outer space, but it was met with overwhelming disapproval by the rest of the world, particularly from the outer space-faring nations. *See generally* Tronchetti, *supra* note 62).

²¹⁵ Not to say that “space piracy” is technically impossible; theoretically, once the technology exists for private ventures, an individual living on a colony could certainly renounce his or her citizenship and plunder the stars, though this is unimportant to the argument at hand. *See* WEIR, *supra* note 212.

defeats Lyall and Larson's conclusion that the future of outer space law should be governed not by analogy, but by concrete law tailored for the troubles of outer space. Furthermore, applying not only Section 1 of Article 22, but also Section 2—dealing with the transfer of jurisdiction to other Partner States—ensures the continuation of international cooperation that the original Outer Space Treaty and the subsequent agreements strongly promote.

But perhaps the biggest reason to apply the 1998 IGA and not the current Antarctic Treaty is that the Antarctic Treaty does not explicitly outline criminal jurisdiction on the continent.²¹⁶ The 1998 IGA, conversely, not only provides a general jurisdictional grant to Partner States,²¹⁷ but also has an entire article devoted to criminal jurisdiction on the ISS.²¹⁸

To have an outer space colony governed primarily by territorial jurisdiction would perhaps lead to the “closing off of [outer] space,” which is the very fear the drafters of the Outer Space Treaty felt would occur should appropriation of outer space be permitted. Once bases are cordoned off, what would stop those registered owners on Earth from denying access to non-nationals? Attaching a nationality-based criminal jurisdiction to individuals and not borders ensures the freedom of movement and cooperation that has marked outer space exploration for more than sixty years.

3. *A Few Potential Problems Plaguing Outer Space Colonies*

One criticism that has surfaced regarding Article 22 of the 1998 IGA is the vagueness surrounding the term “personnel.”²¹⁹ In 2001, Dennis Tito became the first tourist to visit the ISS as a guest of the Russian government.²²⁰ Technically, Tito was not enlisted in the military, nor was he a scientist or researcher (though he previously worked for NASA as an engineer).²²¹ Tito was simply a tourist in every sense of the word. If something had happened to Tito, would he have been considered “personnel,” even if he held no certification or training from NASA or any

²¹⁶ See The Antarctic Treaty, *supra* note 113.

²¹⁷ 1998 IGA, *supra* note 152, art. 5.

²¹⁸ *Id.* art. 22.

²¹⁹ Blount, *supra* note 195, at 313.

²²⁰ *Id.* at 302.

²²¹ Jim Slade & Willow Lawson, *World's First 'Space Tourist' Lifts Off*, ABC NEWS (Apr. 29, 2001), <http://abcnews.go.com/Technology/story?id=98612> [<https://perma.cc/9ZL9-3F83>].

other Earth-based outer space agency? Moving forward, if Article 22 of the 1998 IGA is going to apply to future outer space colonies on the Moon, Mars, and beyond, then personnel must be *explicitly* defined. As the language of Article 22 currently stands, personnel would likely include only those living and working on the colony, not intergalactic tourists or visitors.

Perhaps the best course is to redefine personnel as any individual currently housed in *or* on the outer space colony, to be all-inclusive. If personnel were limited to those individuals operating in a scientific or administrative capacity in the colony, then it would limit not only those colonists who brought spouses and children to the outer space colony, but also those like Dennis Tito who are visiting the colony in a tourist-only capacity. With the outer space tourism industry growing with each passing day, it is not hard to imagine tourists vacationing on far-flung outer space colonies.

Yet another response might be: “how is jurisdiction going to be enforced on the new outer space colony on Mars?” This criticism returns once more to the distance issue. With the controlling nation-state billions of miles away, the nearest law enforcement agency and court attendant will be hard pressed to enforce the court’s will on a transgressor colonized on Mars. This is not a problem the legal field can fix. Instead, science and technology will solve this conundrum by continuing to develop faster and more convenient technology that allows for a better link between the colony and Earth.

VII. CONCLUSION

In the lead up to the creation of the Outer Space Treaty, many writers and legal scholars felt the legal principles that evolved from the exploration of Earth’s surface would be “potentially applicable” to outer space exploration and expansion.²²² The conclusion reached was that the application of terrestrial laws on outer space was not desirable.²²³ From this thinking came the Outer Space Treaty, which has guided mankind’s expansion into outer space since the treaty’s enactment. Quoting the late Neil Armstrong, soon humanity will make its next “giant leap” further into outer space by establishing manned colonies away from Earth. Theorists and legal experts will have to grapple with the establishment of a new set of laws

²²² Dembling & Arons, *supra* note 50, at 421.

²²³ *Id.*

and jurisdictional boundaries on these far away colonies. Perhaps one instinct will be to mirror the law of Antarctic outposts on Earth. But as has been shown, the Antarctic Treaty's jurisdiction solution is ill-equipped to handle the stresses and unique issues that extraterrestrial colonies place on the legal system. For this reason, the answer to outer space colonial jurisdiction lies in the already created, tailor-made-for-outer-space Article 22 of the 1998 IGA.