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Lost in Space: The Copyright Dilemma

LOST IN SPACE

THE COPYRIGHT DILEMMA

SEDEF AYALP*

INTRODUCTION

Given the ever-advancing strides in technology and the push to extend the boundaries of space exploration, there will undoubtedly be new extraterritorial concerns with subject matter covered by copyright. Whether it is the launch of the first commercial spaceline, the installation of private space stations in the Earth's orbit, or the colonization of new celestial bodies, there will be issues in creating works and protecting newly developed works in outer space and potentially infringing existing terrestrial ones. Sorting through international copyright law on Earth can be an intricate ordeal in itself; however, it is vital to consider how this area will be affected by the newest space race.

Since copyright law is a nation-specific doctrine, laws regulating and enforcing copyrighted works lack international uniformity. Similarly, space law exists as domestic law in addition to various international treaties that provide guidance and encourage worldwide cooperation.¹ In order to

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1. "The term 'space law' refers to the body of international and national laws and customs that govern human activities in outer space." Matthew J. Kleiman, *Space Law 101: An Introduction to Space Law*, ABA, 2015.

determine issues that pertain, but are not limited, to jurisdiction and ownership, there needs to be better implementation of copyright structures in light of space law.

This paper will focus particularly on the current regimes implemented in countries leading innovation in space technologies such as the United States, the United Kingdom, and Russia.² Moreover, it will analyze three specific hypothetical situations that will require attention in light of copyrights: journeys in outer space that are short term, semi-prolonged, and prolonged or permanent.

THE LEGAL LANDSCAPE SURROUNDING COPYRIGHT LAW AND SPACE LAW

I. OVERVIEW OF EXISTING U.S. COPYRIGHT LAW

The foundation for copyright law in the United States is authorized under Article One, Section 8, Clause 8 of the Constitution, which reads “[t]he Congress shall have power . . . to promote the progress of science and useful arts, by securing for limited times to authors and inventors the exclusive right to their respective writings and discoveries.”³ This clause confers two separate powers unto Congress, the first of which is the power to grant authors the right to control what is done with their creative works for a specific duration of time.⁴ In other words, U.S. copyright law functions on the principle of incentives and rewards by offering limited time monopolies to copyright owners who create works of authorship in the effort to advance art and culture. Ownership over a copyright includes, but is not limited to, giving an author exclusive rights to derivative works, to sell and make copies of their own works, and to publicly display or perform those works.⁵

Substantively, U.S. copyright law is currently governed by the Copyright Act of 1976 (“1976 Act”) and is codified under Title 17 of the

2. Abby Ahmed, *7 Most Advanced Countries in Space Technology*, *Tech Insider*, Oct. 15, 2015, <http://www.techinsider.net/7-most-advanced-countries-in-space-technology/1127009.html>; *See also* Aleksandar Jevtic, *7 Most Advanced Countries in Space Technology*, *Insider Monkey*, Aug. 21, 2015, <http://www.insidermonkey.com/blog/7-most-advanced-countries-in-space-technology-365032/>.

3. U.S. Const. art. I, § 8, cl. 8.

4. Congress also has the power to secure inventors with the exclusive rights to their inventions via patents. *Id.*

5. *See generally* 17 U.S.C. §§ 102-103, 106-122 (2012).

U.S. Code.⁶ In general, the relevant subject matter encompasses “original works of authorship fixed in any tangible medium of expression, now known or later developed, from which they can be perceived, reproduced, or otherwise communicated, either directly or with the aid of a machine or device.”⁷ An author has exclusive rights to his or her works for a term of life of the author plus 70 years.⁸ However, this overall system is not internationally uniform.

II. OVERVIEW OF EXISTING INTERNATIONAL COPYRIGHT

Currently, there is no “international copyright” available that offers automatic worldwide protection for an author’s work.⁹ The scope of protection against unauthorized use in a specific country is subject to the respective national laws in that country. However, there are various global mechanisms to promote the protection foreign works.¹⁰ For instance, the United States is a member of numerous treaties, conventions, free trade agreements, and bilateral agreements affecting copyrights.¹¹ Some of these treaties and conventions, which the United Kingdom and Russia are also parties to, include the Berne Convention for the Protection of Literary and Artistic Works (“Berne Convention”) and the World Trade Organization (“WTO”).¹²

Moreover, the U.S. has had bilateral copyright relations with the United Kingdom since 1891, and while it has not had the same with Russia, the U.S. and Russia are both parties to the Brussels Convention Relating to

6. Congress passed the Copyright Act of 1976, Pub. L. No. 94-553, 90 Stat. 2541 (codified as 17 U.S.C. §§ 101-810 (1978)).

7. 17 U.S.C. § 102. “Works of authorship” encompass categories such as literary works, musical works, sound recordings, motion pictures, photographs, etc.

8. Congress passed the Copyright Term Extension Act of 1998, Pub. L. 105-298, 112 Stat. 2827 (codified as amended at 17 U.S.C. § 302 (1998)). The additional term of the copyright will transfer ownership to the author’s spouse, heirs, or estate after the date of his or her death. Moreover, it should be noted that under the CTEA works of authorship for corporations and works made for hire receive the earlier of 120 years after creation or 95 years after publication.

9. U.S. Copyright Office, *International Copyright Relations of the United States*, Circular 38a, Sept. 2015, <http://www.copyright.gov/circs/circ38a.pdf>.

10. *Id.*

11. *Id.*

12. *Id.* at 2-3, 7, 8. The Berne Convention is an international agreement and the primary foundation that governs copyright law abroad, and it functions on three basic doctrines: the principles of “national treatment,” “automatic protection,” and “independence of protection.” See *Summary of the Berne Convention for the Protection of Literary and Artistic Works (1886)*, WORLD INTELLECTUAL PROPERTY ORGANIZATION (Nov. 5, 2015) http://www.wipo.int/treaties/en/ip/berne/summary_berne.html.

the Distribution of Programme-Carrying Signals Transmitted by Satellite (“Brussels Convention”) since 1985.¹³ The Brussels Convention is important in this context because it obligates each Member State “to take adequate measures to prevent the unauthorized distribution on or from its territory of any programme-carrying signal transmitted by satellite.”¹⁴ The purpose of the convention is to “combat the misappropriation of satellite signals on an international level,” and in doing so, uphold the national copyright and communications laws of each Member State.¹⁵ These bilateral and international agreements also define “substantive obligations” as well as “points of attachment” that allow “an eligible work to be protected among . . . member countries.”¹⁶

III. SPACE LAW MECHANICS

There are two mechanisms in the United States that govern space activities. The first mechanism is domestic space law, which allows the U.S. government to regulate certain industries and activities pertaining to space. The second is international space law, which consists primarily of several international treaties that relate to space travel and activities.

a. U.S. domestic space law instruments

Domestic space law in the United States dates back to the 1958 National Aeronautics and Space Act (“NASA Act”), which created the National Aeronautics and Space Administration (“NASA”). This was later followed by several similar Acts, including the 1984 Commercial Space Launch Act (“CSLA”). The CSLA is particularly relevant in the framework of copyright law because it authorizes and controls private enterprises that aim to commercialize space and space technologies, and those enterprises are likely to be the sources of creation and infringement for copyrighted works in outer space. Thus, the CSLA can offer insight into how the U.S. government can monitor and regulate the entities that will need copyright protection in this context. Further, there are domestic mechanisms to

13. *Id.* at 2, 7, 8.

14. *Summary of the Brussels Convention Relating to the Distribution of Programme-Carrying Signals Transmitted by Satellite (1974)*, WORLD INTELLECTUAL PROPERTY ORGANIZATION (Dec. 17, 2015), http://www.wipo.int/treaties/en/ip/brussels/summary_brussels.html.

15. Marshall A. Leaffer, *Understanding Copyright Law* 585 (5th ed. 2011).

16. *Supra* note 9 at 1.

control interstate and foreign communications under the Communications Act of 1934, as well as for transmissions and use of the frequency spectrum by way of Federal Communications Commission (“FCC”) licensing. These are also particularly significant in analyzing how licensing to transmit copyrighted works in outer space will be regulated in the United States. unauthorized use and make money from their effort and investment.¹⁷

b. International space law instruments

International space law mainly consists of five global treaties that were developed by the United Nations. These include the Outer Space Treaty, the Rescue and Return Agreement, the Liability Convention, the Registration Convention, and the Moon Treaty.¹⁸ The principal instrument of “the outer space legal regime” is the 1967 Outer Space Treaty due to the role it played in establishing broad principles that have since been incorporated into various international treaties and domestic laws.¹⁹

Additionally, the Liability Convention and the Registration Convention are also important to copyright law because they aim to establish which State Parties will have control in terms of responsibilities and jurisdiction. The Liability Convention outlines circumstances when States shall be liable to other Parties in the event of injury to personnel or space objects.²⁰ Similarly, the Registration Convention expands on Article 8 in the Outer Space Treaty, which states that any State that registers a launched object retains “jurisdiction and control over such object.”²¹

Another source of international space law stems from the International Telecommunications Union (“ITU”), an agency formed by the United Nations that handles matters dealing with information and communication

17. National Aeronautics and Space Act of 1958, Pub. L. No. 85-568, 72 Stat. 426 (1958); 51 U.S.C. §§ 50901-50923.

18. Kleiman, *supra* note 1; *see also* 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, art. II, T.I.A.S. 6347 (hereinafter “Outer Space Treaty”); Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Space, 19 UST 7570, 672 UNTS 119, 7 ILM 149 (1968) (hereinafter “Rescue and Return Agreement”); Convention on International Liability for Damage Caused by Space Objects, 961 UNTS 187, 24 UST 2389, 10 ILM 965 (1971) (hereinafter “Liability Convention”); Convention on Registration of Objects Launched into Outer Space, 1023 UNTS 15, 28 UST 695, 14 ILM 43 (1975) (hereinafter “Registration Convention”); Agreement Governing the Activities of States on the Moon and Other Celestial Bodies, 1363 UNTS 21, 18 ILM 1434 (1979), 18 UST 2410 (hereinafter “Moon Treaty”).

19. Kleiman, *supra* note 1.

20. Liability Convention, art. I-VII; Outer Space Treaty, art. VI.

21. Outer Space Treaty, art. VIII.

technologies.²² The ITU is an international effort to govern the radio spectrum, monitor and control satellite orbits, and develop global technical telecommunications standards.²³ Therefore, the ITU may play a major role in monitoring space activities that transmit copyrighted material, in controlling copyrighted materials in orbit, or in forming policy that would set global standards for technologies in space that affect copyright rights.

The aforementioned treaties, along with agency efforts by the United Nations, will supply the foundation required to determine jurisdiction, and will aid in analyzing and defining ownership over intellectual property rights in outer space. However, more is needed to perform a complete legal analysis for copyrighted works in space.

IV. THE SCENARIOS

a. Scenario 1: Private Commercial Spaceflight

The future of prospective space tourism will bring with it the premise of commercial human spaceflight. Participants will have the ability to travel to outer space as readily and easily as on a commercial airliner. With this newfound freedom from the bounds of terrestrial exploration, however, come various legal issues. Suppose for instance, passengers on a hypothetical Virgin Galactic flight in outer space are treated to a short live song and dance performance by the crew, in which Virgin Galactic has copyrighted the song and choreography. A Russian passenger records the performance, applies edits to the video, and adds a catchy caption all before uploading it onto several social media websites under his username. Subsequently, the video catches the attention of several media outlets that then broadcast the video via satellite and cable television, leading it to being recorded onto digital video recorders (“DVR”) in customers’ private homes, within the United States and abroad

b. Scenario 2: Missions on Space Stations

Private space stations that aim to replace the International Space Station are not a far-off reality.²⁴ These space stations have the potential to serve as research facilities, “transfer nodes” for deep space bound vehicles,

22. *About ITU*, INTERNATIONAL TELECOMMUNICATIONS UNION (Nov. 20, 2015), <http://www.itu.int/en/about/Pages/default.aspx>.

23. *Id.*

24. *See generally* Douglas Messier, *Private Space Stations Could Be a Reality by 2025*, SPACE.COM (Aug. 25, 2015), www.space.com/30359-private-space-stations-reality-2025.html.

“propellant depots,” “on-orbit assembly stations for satellites,” and tourist attractions.²⁵ With this vast range of potential uses, space stations may very well generate multitudes of copyrightable works.

Imagine a situation where a crew of NASA and international astronauts live and work on a private space station, which is a joint venture between entities based in the United States, the United Kingdom, and Russia. The hypothetical crew, which consists of four American and two British astronauts, conducts research and experimentation in the facility. During this process, the crew often records the results of experiments and sends raw data back to NASA, on Earth. NASA then analyzes and compiles the data and distributes it to the public. Additionally, the crew uses a file-hosting service to view copyrighted movies, music, photographs, and other media that are uploaded for them by family and friends. The crew members also take pictures of the Earth and send them back to family and friends via the same service without editing the images.

c. Scenario 3: Colonization of Mars and Other Celestial Bodies

With the prospect of settling on Mars, comes the probability of creating and infringing copyrighted works. Any extraterrestrial colony will undoubtedly create new works of art, music, film, and so on. Envision a community of settlers permanently residing on Mars. In order to ensure that this society continues to advance art and culture, in addition to technological and scientific innovations, the settlers are provided with a repository of works that include digitized books, music, movies, and photographs; similar to the Google Books Library Project that was at suit in *Authors Guild v. Google, Inc.*²⁶ There is a British settler living in a facility on Mars, which is registered and owned by a private United States space corporation. The British settler is a movie producer. While skimming through the repository she decides to use *A Princess of Mars* to create the first movie filmed on Mars.²⁷ The producer goes on to create the first Martian motion picture, including an original musical soundtrack to

25. Jeff Foust, *Commercial Space Stations Face Economic and Regulatory Challenges*, SPACE NEWS (Nov. 6, 2015), <http://spacenews.com/commercial-space-stations-face-economic-and-regulatory-challenges/>.

26. See generally *Authors Guild v. Google, Inc.*, 804 F.3d 202 (2d Cir. 2015); see also Google Books Library Project, GOOGLE BOOKS (Dec. 16, 2015), <https://books.google.com/googlebooks/library/index.html>.

27. See generally Edgar R. Burroughs, *A Princess of Mars* (1912) (describing a fantasy world where the protagonist, John Carter, is mysteriously transported to Mars and embarks on an adventure where he must rescue a Princess and save the planet's inhabitants).

accompany it, and films scenes both inside the facility and outside on the surface of Mars. The producer edits the film in the facility, and then distributes his film to other settlers on Mars as well as transmits copies back to Earth. Certain stations broadcast the film without permission, and offer streams over the internet.

THE ANALYSIS: THE INTERSECTION OF COPYRIGHT LAW AND SPACE LAW

I. JURISDICTION AND APPLICABILITY OF LAWS

Many questions are presented by these theoretical scenarios that will need the application of both copyright law and space law in the analysis. For instance, several of the United Nations' instruments that deal with activities in space have provisions that are applicable in terms of satellite transmissions, the definition of territorial limits, establishing jurisdiction and liability, and more.²⁸ While none of these resources address copyright and related rights directly, they are nonetheless valuable in determining the aforementioned intermediary steps in the analysis. In addition to these United Nations provisions, the Berne Convention will be another international aid in recognizing basic rights granted by copyright abroad.

There will inevitably be issues concerning conflict of laws when discussing authority and application of relevant laws and regulations that involve multiple parties of different nationalities; both in terms of State jurisdiction over persons and objects and of judicial jurisdiction over persons' claims and actions. It is reasonable to assume that a national court faced with whether it has jurisdiction over a person's actions in space will adopt the same procedures as if it were determining State jurisdiction.²⁹ In other words, where said person has completed the action in a space vehicle under a particular country's jurisdiction, a court may apply the prevailing applicable law.³⁰ However, it will be important to determine control over astronauts, spaceflight participants, satellites, commercial spaceflight vehicles, private space stations, and bases and devices on celestial bodies

28. Relevant instruments in effect include: Outer Space Treaty arts. II, IV, VI, VII, VIII, IX; Registration Convention art. I, II, IV, VII; Liability Convention art. I-VIII.

29. J.A.L. Sterling, *Space Copyright Law the new dimension: A Preliminary Survey and Proposals*, 54 J. Copyright Soc'y U.S.A. 345, 354 (2007).

30. *Id.*

beforehand to avoid running into such issues.³¹ A possible solution to provide more clarity in these matters would be to create an extension of the Copyright Act that covers works created in space, similar to Section 105 of the Patent Act, as will be discussed later.

For instance, if copyright infringement occurs in a space object, such as a private space vehicle, the State of registry and the launching state could easily be traced and the jurisdiction determined.³² This determination could allow courts to apply pertinent national laws to their rulings. However, when such an act occurs in an extraterritorial location where there is no copyright law in effect and space law mechanisms cannot determine a clear jurisdiction to assign, problems could arise in how courts should proceed.

II. PUBLICATION IN SPACE

To have copyright eligibility under the Berne Convention, a published work must have copies available such that it satisfies the reasonable requirements of the public.³³ In the United States, following the 1976 amendment to the Copyright Act, publication is no longer required to secure a copyright, for domestic or foreign works.³⁴ Publication is a prerequisite for U.S. protection of already published foreign works if certain criteria are met. This is a much less stringent standard than the Berne Convention, but national origin of the work as determined by the international space treaties will dictate which laws govern.

Works created in outer space also present a problem in regard to publication, especially those following the Berne Convention, because it is unclear what actions sufficiently constitute making a work available to the public. Perhaps making a photograph available on the internet is adequate, but then there is concern over where the publication has occurred. Location of publication is vital in determining jurisdiction under Article Eight of the Outer Space Treaty, and thus applicability of laws.

31. Sterling, *supra* note 31.

32. See Outer Space Treaty Art. VIII; Registration Convention Art. II; Liability Convention Art. I.

33. Berne Convention for the Protection of Literary and Artistic Works, art. 3(3), Sept. 9, 1886, S. Treaty Doc. No. 99-27 (1986), 1161 U.N.T.S. 3 (hereinafter "Berne Convention").

34. Sterling, *supra* note 31.

III. EXCLUDED GOVERNMENT WORKS

Governments and their agencies will undoubtedly be involved in space activities. This is evident in the United States by the implementation of instruments that assign regulatory authority to agencies such as the Communications Act of 1934, which assigned the FCC to regulate interstate and foreign commerce in communications and in particular monitor and license the radio frequency spectrum.³⁵ In the United States especially, Section 105 of the 1976 Copyright Act excludes government works from copyright protection; however, there is the possibility that copyright may subsist for foreign government works.³⁶ Furthermore, under Section 105 NASA could still be a copyright holder if the copyright was transferred to it by assignment.³⁷ In contrast, in the United Kingdom any work submitted which fulfills the relevant criteria, even works of foreign governments, will be eligible for copyright protection.³⁸ This is more aligned with the Berne Convention, which holds that works excluded in their country of origin may still have copyright protection in other countries that are members of the Berne Convention, the Agreement on Trade-Related Aspects of Intellectual Property Rights (“TRIPS”), or the WIPO Copyright Treaty (“WCT”), if the respective criteria are fulfilled.³⁹ Therefore, governments may still be afforded certain copyright protections, even in the United States, in regards to space activities.

IV. SCENARIO 1: EFFECTS OF COMMERCIAL SPACEFLIGHT AND SPACEFLIGHT PARTICIPANT ACTIVITIES ON COPYRIGHT

The prospect of sending spaceflight participants into outer space is a matter that has recently been under much consideration. In November 2015, the U.S. Commercial Space Launch Competitiveness Act became law, and under the new legislation spaceflight participants must be recognized, bonded, and insured.⁴⁰ This legislation is an indication that the

35. See generally Communications Act of 1934 §§ 151, 301, 303, 307-310, Pub.L. 73-416, 48 Stat. 1064 (1934).

36. 17 U.S.C. § 105; see also Melville B. Nimmer, *Nimmer on Copyright*, §17.06B.

37. 17 U.S.C. § 105.

38. Copyright, Designs and Patents Act, c. 48, c. 1, §12(6) (U.K.).

39. Berne Convention for the Protection of Literary and Artistic Works, Sep. 28, 1979, Art. 5(2).

40. H.R. 2262, 114th Cong. (2015).

vision of commercial human spaceflight is ever closer to becoming a reality, and the initial step in analyzing a situation such as this would be to determine jurisdiction and control over all aspects of the potentially copyrighted works.

a. Validity of copyright and jurisdiction

Firstly, Virgin Galactic has a copyrighted song and choreography, and they have conducted a performance of both works on Virgin Galactic property. The Outer Space Treaty asserts that a “State Party to the Treaty on whose registry an object is launched into outer space

. . . shall retain jurisdiction and control over such object, and over personnel thereof.”⁴¹ Assuming that Virgin Galactic has been launching from the United States, a launching state for this space object (e.g. the commercial spacecraft) is the United States. Looking to Article I of the Liability Convention, a “launching state” is defined as either “a state which launches or procures the launching of a space object” or “a state from whose territory or facility a space object is launched.”⁴² Further, since the U.S. can be deemed a launching under the Liability Convention, it follows that it is also where the spacecraft is likely registered under the Registration Convention. More specifically, the Registration Convention states that a space object that is “launched into earth orbit or beyond” must be registered by the launching state in its own registry as well as with the Secretary-General of the United Nations.⁴³

The Federal Aviation Administration (“FAA”) is designated under the CSLA with the authority to regulate licensing on launches and reentries.⁴⁴ Therefore, Virgin Galactic would definitely need a license issued by the FAA in order to operate and launch its vehicles into outer space. In light of that, the United States is certainly a launching state that must have registered the space object and thus retains jurisdiction over the spacecraft. Professor Adrian Sterling, a longstanding international expert in copyright law, stated “where the act under consideration takes place in the territory of a State or in an object (such as a Space vehicle) under the jurisdiction of a

41. 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, , art. VIII [hereinafter Outer Space Treaty].

42. Convention on the International Liability for Damage Caused by Space Objects, Mar.29, 1972, art. 1[hereinafter Liability Convention]. Liability Convention, art. 1.

43. Convention on Registration of Objects Launched into Outer Space, Nov. 12, 1974, art. 2 [hereinafter Registration Convention].

44. See 51 U.S.C.S. §§ 50903, 50904 (2015).

State . . . the court will be able to apply the prevailing rules on applicable law.”⁴⁵ Therefore, a reasonable assumption would be that any actions for infringement in this situation should be brought under U.S. national laws. Accordingly, Virgin Galactic could seek civil action against the passenger for violating its Section 106(1) reproduction right, Section 106(2) adaptation right, and Section 106(5) public display right since the video will most likely be held to be a reproduction or a derivative work of the performance that was later displayed publicly on the internet.⁴⁶

The Russian passenger’s edited recording, uploaded onto the internet, adds another layer of complexity. While the passenger is a citizen of another country, the spacecraft (due to its registration in, and launch from within the United States) is under the jurisdiction of the United States. Therefore, U.S. copyright law should govern. The passenger recorded and significantly edited the performance before uploading it onto the internet, which is essentially a gigantic copying and distributing platform where publication may occur. Presumably he did not ask permission to record the performance, and under Section 106 of the Copyright Act, the original copyright owner has the right to make derivative works and control public displays of their copyrighted work.⁴⁷ However the passenger may not be completely out of luck because U.S. copyright law offers alleged infringers certain affirmative defenses, such as fair use.

b. Fair use doctrine

The fair use doctrine can be drastically different from nation to nation, which provides yet another weakness in extraterritorial copyright analysis. For instance, the United States paved the way for the doctrine with *Folsom v. Marsh*, which is regarded as the first “fair use” case.⁴⁸ *Folsom* set up the four-factor test for fair use, which was later codified in the 1976 Act and is still in use today.⁴⁹ The U.S. fair-use test includes four prongs: the purpose and character of use of the copyrighted work, the nature of the work, the quantity and quality used of the work, and the potential market effect of the use.⁵⁰ Here, the passenger is not using his video commercially. Additionally, the nature of the passenger’s video is different than the

45. Sterling, *supra* note **Error! Bookmark not defined.**

46. See 17 U.S.C. § 106 (2012).

47. 17 U.S.C. §§106(2), 106(5) (2012).

48. *Folsom v. Marsh*, 9 F.Cas. 342 (C.C.D. Mass. 1841).

49. *Id.* at 345; see also 17 U.S.C. § 107.

50. 17 U.S.C. § 107.

original, due to his edits and new audience; he has also cut out parts of the performance and has not used the entire piece, meaning the video would help rather than hurt Virgin Galactic's potential market effect. Therefore, it seems that a U.S. court would likely find that this was a fair use.

While U.S. fair use law has been influential for some countries, it still differs from much of the world. Comparatively, the United Kingdom has a fair dealing exception to its copyright law that is similar to, but more limited than, U.S. law.⁵¹ There is no reference, however, of fair use in Russia's Part IV of the Civil Code which governs intellectual property rights.⁵² Therefore, it helps the passenger greatly that the Outer Space Treaty designates the space flight under U.S. control since he would have the fair use affirmative defense available to him.

c. Conflict of laws doctrine

There is also precedent in U.S. case law concerning conflict of laws when determining copyright protection. In *Itar-Tass Russian News Agency v. Russian Kurier*, which involved a Russian language newspaper in New York City that copied and published material from a Russian news agency, the Second Circuit held that the laws of the country of origin must apply to determine ownership of a copyright, but the laws of the country where the claimed infringement occurred must apply to determine whether infringement has transpired.⁵³ This is a particularly useful guide when analyzing whether relief is warranted for a foreign copyright owner whose work was infringed within the jurisdiction of the United States. Here, the Russian passenger has used copyrighted work belonging to a U.S. company and has seemingly performed the infringing act on board a space object also under U.S. control. Russian law would not control in determining ownership and infringement.

The doctrines of choice of law and of national treatment, as governed by the Berne Convention, will be great legal resources in determining matters of copyright infringement related to space activities. Applying these resources after using space law mechanisms to determine jurisdiction aids in determining which legal authorities will preside over copyright actions occurring extraterritorially in outer space.

51. Copyright, Designs and Patents Act, c. 48, §§ 29, 30 (U.K.).

52. See generally Part IV of the Civil Code of the Russian Federation, ch. 69 §§ 1225-1551 (GK RF 2006) (Russ.).

53. *Itar-Tass Russian News Agency v. Russian Kurier, Inc.*, 153 F.3d 82, 91 (2d Cir. 1998).

d. Broadcasting and recording of works created in space

The broadcasting and private home DVR use adds a further level of complexity. A valid copyright exists for a work that was independently created and contains a modicum of creativity in order to fulfill the originality requirement.⁵⁴ The work must also be fixed in a tangible medium, and be of one of the categories cited in Section 102.⁵⁵ The passenger's video has been filmed, edited, and captioned with his own unique twists, thus likely satisfying the originality prong. Further, the audiovisual work is on his video recording device, which is a tangible medium. Since the passenger likely has a valid copyright in the video, have the broadcasting stations and the cable service providers storing material on DVRs violated his rights?

In the United States, the FCC is authorized to regulate broadcasting and satellite transmissions under the Communications Act.⁵⁶ For instance, one provision grants the FCC the authority to “regulate the provision of direct-to-home satellite services.”⁵⁷ In doing so, the Communications Act requires that broadcast stations and cable operators transmitting signals, whether they are interstate or foreign communications, be licensed and monitored by the FCC.⁵⁸ Furthermore, the Communications Act does not modify “the compulsory copyright license established in section 111 of title 17, United States Code, or . . . existing or future video programming licensing agreements between broadcasting stations and video programmers.”⁵⁹ Thus, the stations broadcasting the video must be licensed with the FCC, and must have a compulsory or video-programming license to transmit the copyrighted work or else the rights holder may seek action against copyright infringement.

There are also various judicial decisions ruling on whether use of certain types of transmissions constitutes a copyright violation. In *Gilliam v. American Broadcasting Company*, ABC obtained a license to broadcast a certain show in its entirety, but made significant cuts to the episodes before airing.⁶⁰ Here, the stations have not obtained a license to air the video, and it is arguable that the passenger did not give them an implied license to do so just because it was “published” on the internet. With regard to the DVR

54. See *Feist Publ'n, Inc., v. Rural Tel. Serv. Co.*, 499 U.S. 338, 346 (1991).

55. See 17 U.S.C. §101 (definition of “fixed”); see also 17 U.S.C. §102(a).

56. See 47 U.S.C. §151.

57. 47 U.S.C. § 303(v).

58. *Id.* at § 152(a).

59. *Id.* at § 325(b)(6).

60. See *Gilliam v. Am. Broad. Co.*, 538 F.2d 14, 18 (2d Cir. 1976).

run by the cable service provider, it is unlikely it will be found a direct infringement under either U.S. law or the Berne Convention, since automated copying of content at user request is not sufficient and neither is time shifting to replay content to an original audience.⁶¹ However, these are Second Circuit precedents, and the Russian passenger may wish to seek moral rights violations granted under the Berne Convention or other foreign law.

e. Moral rights concerns

The United States only recognizes moral rights for works of visual art.⁶² Moral rights are just another problem area in copyright because not all countries agree on how to handle them. The Berne Convention included the topic of moral rights in 1928, and subsequently many countries now protect the moral rights of authors.⁶³ For instance, France sees moral rights as perpetual and unalienable, while the United Kingdom and Canada see them as economic rights that can be waived if asserted.⁶⁴ Further, the United Kingdom has a specific regime established that grants an author certain moral rights.⁶⁵ However, as previously stated, the United States does not completely embrace or recognize moral rights in copyright law, save some individual state laws and a few specific federal statutory provisions.⁶⁶ Thus, these issues could cause disputes over rule of law when determining important factors in copyright analysis, such as ownership rights and remedies warranted for infringement. Without uniformity, it is still unclear where the Russian passenger could seek relief and remedies against the broadcasters.

61. See *Cartoon Network, LP v. CSC Holdings, Inc.*, 536 F.3d 121, 130, 133, 140 (2d Cir. 2008) (finding no direct infringement in the case of DVR storage and holding copying of streaming content for the purposes of buffering did not itself constitute unlawful copying).

62. See 17 U.S.C. §101. The definition of “visual art” includes paintings, drawings, prints, sculptures, and photographs existing in signed limited editions of fewer than 200 copies.

63. Roberta R. Kwall, *The Soul of Creativity: Forging a Moral Rights Law for the U.S.* 38 (Stanford University Press 2010).

64. See Art. L121-1 of the French Intellectual Property Code; Arts. 77-89, Copyright, Designs and Patents Act 1988 (C. 48), Chapter IV; Arts. 14.1, 14.2, Copyright Act (R.S.C., 1985, c. C-42).

65. See generally Copyright, Designs and Patents Act, c. 48, c. 4, §§ 77-89 (U.K.).

66. See Kwall at 37; see also The Visual Artists Rights Act of 1990 (codified at 17 U.S.C. § 106A) (U.S. only recognizes moral rights as they apply to listed works of visual art).

V. SCENARIO 2: EFFECTS OF ACTIVITIES ON MISSIONS TO PRIVATE SPACE STATIONS ON COPYRIGHT

In an intricate case such as this, we must again examine whether valid copyrighted works can exist, and under whose jurisdiction they will fall. Likewise, what complexities will international joint ventures add when determining if works created by government workers (e.g. NASA astronauts and astronauts of other nationalities) involving research, facts, data, and more, are eligible for copyright protection? Additionally, what enforcement and remedies would be available for copyrighted works that are transferred via file-sharing platforms between earth and outer space?

a. Jurisdiction and copyright in research and data

Commercial space stations are essentially habitable satellites in Earth's orbit, and they must be registered in order to be launched into outer space. Complexities arise when a satellite is a joint venture between entities from many nations, which was demonstrated in the co-operative International Space Station program. The Registration Convention has a provision stating that in the case of two or more launching States there shall be joint determination in "which one of them shall register the object."⁶⁷ Thus, the United States, the United Kingdom, or Russia will need to register the commercial space station according to the provisions in the Registration Convention and the Outer Space Treaty to retain complete jurisdiction and control.

However, instead of relying solely on the international space treaties, private entities could enter into intergovernmental agreements and bilateral implementing agreements like those reached for the International Space Station.⁶⁸ Under the International Space Station agreements, each partner State extends "national jurisdiction in outer space, so the elements they provide (e.g. laboratories) are assimilated to the territories of the Partners States."⁶⁹ In other words, each State is responsible for the elements that it provides and registers and for the personnel that are its citizens.⁷⁰ If a similar approach is taken in this situation, the United States, Russia, and the

67. See Registration Convention, Art. 2, *supra* note 20.

68. *International space station legal framework*, EUROPEAN SPACE AGENCY (Dec. 19, 2015), http://www.esa.int/Our_Activities/Human_Spaceflight/International_Space_Station/International_Space_Station_legal_framework.

69. *Id.*

70. *Id.*

United Kingdom all have components and personnel they would be responsible for and thus should enter into an agreement expressly outlining accountability and dominion in the station. If a NASA astronaut conducts the research in the American portion of the facility, then it seems evident that U.S. copyright law will govern any works created. For instance, if U.S. law were to apply, facts and research alone are automatically a part of the public domain and cannot be copyrighted.⁷¹ There are, however, exceptions for certain compilations of facts and data rights.⁷² Conversely, if a British astronaut does similar work in a Russian laboratory on the space station, then which nation's laws apply? It seems likely that the applicable law of the State owning the station component will apply, and not that of the State directing the personnel. It would be helpful, then, to have explicit agreements outlining such instances, to fill the gaps left by the international space treaties in such circumstances.

b. NASA's copyrightable works

As previously addressed, government works are generally excluded from copyright protection under Section 105, with the exception of those copyrights assigned to an agency.⁷³ NASA may still obtain ownership of the copyright in a work if an astronaut carries out a task resulting in an original work that complies with the relevant criteria for a valid copyright, and subsequently assigns that right to NASA. In other words, if the NASA astronauts produce eligible works on components of the space station under United States control, then NASA may acquire ownership of the rights through assignment from the crew. To ensure acquisition of such rights, NASA should enter into contractual agreements with the crew outlining prospective circumstances.

Similarly, the NASA Act permits legal agreements (e.g. Space Act agreements) where “work[s] of an inventive type . . . not being performed for NASA” to still be tailored by NASA to permit “the allocation of intellectual property rights according to the nature of the particular agreement and contributions of the parties.”⁷⁴ Thus any present or potential ownership of data rights, compilation rights, and more that result from the

71. See generally *Feist* at 1285 (holding information and facts alone without a modicum of original creativity cannot be protected by copyright, but compilations of facts may be if they fit certain criteria for selection and arrangement).

72. *Id.*

73. 17 U.S.C. § 105.

74. *Intellectual Property and Data Rights*, NASA (Dec. 19, 2015), <http://www.nasa.gov/offices/ogc/ip/1210.html>.

research and data collected may belong to NASA if agreed to between parties.

c. Satellites facilitating unauthorized file-sharing

If a crewmember on the space station uploads or downloads copyrighted material without permission onto the file-sharing platform, how could right holders take action, especially when multiple States are involved? As discussed previously, if a satellite permitting or facilitating unauthorized file-sharing is registered in the name of a specific State it is possible that it may be regarded as being located in that State.⁷⁵ The national laws of the State of registry will rule on any copyright issues present in unauthorized file-sharing, unless there is an express agreement designating jurisdiction over component parts of the station. Nevertheless, problems may still arise where satellites (e.g. space stations) are located in extraterritorial areas because there are currently no provisions with respect to importation of infringing material or copies into extraterritorial areas.⁷⁶

First, we must determine if crewmembers' pictures are copyrighted works. If a robotic or remote sensing device was being used to take the images then it is doubtful that the requisite originality for copyright eligibility exists under any domestic law or the Berne Convention, since there is no human authorship.⁷⁷ However, under the condition that the crew members are taking the pictures themselves, there is probably sufficient originality resulting from human input, selection, and arrangement of elements in the photographs.⁷⁸ If either NASA or another party were later to enhance the images by transforming, emphasizing, or showing new features, they could possibly get a separate copyright in the newly created and enriched image as well.⁷⁹

Next, assuming that a valid copyright exists in the unenhanced photograph, anyone who merely copies and distributes the exact image that was taken from the file-sharing network is infringing on the copyright holder's rights. Whether the satellite operator or the service provider is liable for secondary infringement, through contributory or vicarious liability, will expectedly be left to the pertinent laws of the controlling State. For instance, if U.S. law applies, both the operator and the provider

75. Sterling, *supra* note 31, at 362; *see generally* Outer Space Treaty, Art. VIII.

76. Sterling, *supra* note 31, at 362.

77. *Id.* at 372.

78. *Cf. Time Inc v. Bernard Geis Assoc.*, 293 F. Supp. 130, 143 (S.D.N.Y. 1968).

79. Sterling, *supra* note 31, at 372.

may be held liable because they should have known of the possibility of infringing acts occurring on the file-sharing platform, and they had the ability to control it as well as received a direct financial benefit.⁸⁰ It is still unclear what action a rights holder may take because there are concerns when multiple State interests exist. Different legal precedents may apply depending on the governing State. This is yet another indicator that there must be consistency in laws in order to reduce discrepancies caused by the contributions of multiple States in space activities.

VI. SCENARIO 3: EFFECTS OF THE ACTIVITIES OF PERSONS RESIDING ON CELESTIAL BODIES ON COPYRIGHT

The Mars settler's situation presents a plethora of questions. Will the film be subject to U.S. laws because of the location of the facility the movie was created in and distributed from, or British laws because of the settler's original nationality? Will copies of the film made on earth and transmitted to Mars be subject to the same regulations governed by the FCC even when the work is broadcast outside of the United States? How will duration and term be affected for copyrights that vest on Mars, when there is a significant change in date, time, and duration for signals transmitted between Earth and Mars? Assuming the Outer Space Treaty is still in effect, and that there is no hypothetical "Mars Copyright Act" in place, what law or laws will apply when these matters inevitably occur?

a. Validity of copyright and jurisdiction

First, we must determine if the settler could even produce this movie at all without infringing a copyrighted work himself. The novel on which he is relying was published in 1917, and was separately copyrighted in the United States and the United Kingdom.⁸¹ The novel remains protected under the Berne Convention in the United Kingdom and much of the world, but its copyright in the United States has long expired and it has therefore entered into the public domain.⁸² Before determining which law is

80. *Sony Corp. of Am. v. Universal City Studios, Inc.*, 464 U.S. 417, 417 (1984); *Fonovisa v. Cherry Auction*, 76 F.3d 259, 262 (9th Cir. 1996).

81. See Edgar Rice Burroughs, *A Princess of Mars* (A.C. McClurg & Co. 1917).

82. See *Barsoom*, WORLD PUBLIC LIBRARY PROJECT (Nov. 17, 2015), <http://self.gutenberg.org/articles/barsoom>. (Furthermore, the novel was published in 1917, thus under 17 U.S.C. §304 it would get 95 years of copyright protection after the date of first publication which would be until Dec. 31, 2012).

applicable, we must understand which State has control over the work in this circumstance. The novel is available for use without permission in the United States since it resides in the public domain, therefore if the facility is under the United States' jurisdiction, the same laws should apply for copyright as well.

The Outer Space Treaty defines what types of space objects State parties may have jurisdiction over. For instance, Article four of the Outer Space Treaty provides that “the use of any equipment or facility necessary for the peaceful exploration of the moon and other celestial bodies shall . . . not be prohibited.”⁸³ The American facility on Mars was expectedly intended as such a facility. Furthermore, Article Eight articulates that a launching state which has launched an object into outer space “shall retain jurisdiction and control over such object” where “ownership of objects launched” includes “objects landed or constructed on a celestial body,” and thus under such a definition the facility is under the jurisdiction and control of the United States.⁸⁴ Likewise, Section 105 of Title 35 of the U.S. Code, which covers patents for inventions in outer space, states:

Any invention made, used or sold in outer space on a space object or component thereof under the jurisdiction or control of the United States shall be considered to be made, used or sold within the United States for the purposes of this title, except with respect to any space object or component thereof that is specifically identified and otherwise provided for by an international agreement to which the United States is a party, or with respect to any space object or component thereof that is carried on the registry of a foreign state in accordance with the Convention on Registration of Objects Launched into Outer Space.⁸⁵

While this provision addresses patents directly, it offers insight into how some legislation has been adopted to protect intellectual property rights created in space. A special provision was needed to extend patent law into space because it is territorial in its application, and the Supreme Court held in *Deepsouth Packing v. Laitram Corp.* that the U.S. patent system has no extraterritorial effect and was not intended to apply to

83. Outer Space Treaty, Art. IV.

84. *Id.* at Art. VIII.

85. 35 U.S.C. §105(a).

activities occurring beyond U.S. jurisdiction.⁸⁶ Copyright law has very similar territorial limits and a comparable statute is needed for activities falling under copyright that occur in space as well. Currently, without such a provision, there are certain international treaties, such as the Berne Convention, which allow copyright owners to enforce some works if certain conditions are met. However, this is not extensive and not every work can be covered. Furthermore, U.S. courts do not have jurisdiction over cases of infringement occurring abroad. Thus, an explicit statute for Copyright law like Section 105 would be highly beneficial and would remove much of the associated uncertainty. Therefore, Section 105 of the Patent Act may act as guidance for relevant activities under copyright law that take place on space objects under the jurisdiction of the United States. In light of that, and the provisions in the Outer Space Treaty, we can determine whether the facility is likely under the jurisdiction of the United States. Therefore U.S. law may be applicable to the facility, meaning the novel is in the public domain and hence permission is not needed before use. The film, along with the soundtrack, will likely have valid copyrights under U.S. law and the producer may seek actions for infringement and remedies accordingly.

b. Satellite transmissions and broadcasting

The interception of satellite transmissions carrying copyrighted works is another problematic area. There are mechanisms in effect that aim to address these issues; however, more must be done to develop a reliable universal standard. As previously discussed, the Brussels Convention is an international agreement in force to “prevent the unauthorized distribution on or from its territory of any programme-carrying signal transmitted by satellite.”⁸⁷ This would be pertinent in analyzing distribution of particular satellite communications of programme-carrying signals, but the Agreement is not comprehensive. The Convention does not grant, for example, any explicit rights in “programmes” or signals, and thus a more inclusive approach is needed to determine how copyrighted works would be affected in space.⁸⁸

86. *Deepsouth Packing Co., Inc. v. Laitram Corp.* 406 U.S. 518, 519 (1972).

87. *Summary of the Brussels Convention Relating to the Distribution of Programme-Carrying Signals Transmitted by Satellite (1974)*, WORLD INTELLECTUAL PROPERTY ORGANIZATION (Dec. 17, 2015) http://www.wipo.int/treaties/en/ip/brussels/summary_brussels.html.

88. *Convention Relating to the Distribution of Programme-Carrying Signals Transmitted by Satellite*, Art. 1, May 21, 1974, 1144 U.N.T.S. 3 (“A ‘programme’ is a body

The Supreme Court also addressed this matter in *American Broadcasting Corporation v. Aereo*, holding that a service allowing subscribers to view both live and time-shifted streams of broadcast television over the internet violated copyright laws.⁸⁹ The Court had declared Aereo was more analogous to a community antenna television broadcaster rather than an equipment provider, and as such it was covered by the amended 1976 Copyright Act.⁹⁰ Therefore, any broadcaster of the film on Earth, especially in the United States, will likely be held to the same standard and will be judged to have violated copyright laws for airing the film without permission.

Additionally, there are several provisions in the 1976 Copyright Act that lend themselves to broadcasting and satellite transmissions. For instance, Section 111 establishes exemptions for liability on certain secondary transmissions.⁹¹ This provision emphasizes that transmission of signals must be done by a broadcast station licensed by the FCC.⁹² Secondary transmissions would therefore be an infringement on copyright if the signal being transmitted comes from a cable system. Subsequently, any copies transmitted back to Earth that air over cable television, without the producer's consent, will likely violate his exclusive rights in the copyrighted film.

Similarly, the Communications Act asserts that "a cable operator or satellite carrier generally must obtain retransmission consent from a commercial broadcast station before carrying its signal" and consequently "every three years . . . must elect whether to be carried under a retransmission consent agreement or the Communication[s] Act's mandatory carriage ('must-carry') rules."⁹³ Under the current framework, statutory licensing allows cable and satellite providers to avoid copyright liability while still fulfilling these Communications Act obligations.⁹⁴

of live or recorded material consisting of images, sounds or both, embodied in signals emitted for the purpose of ultimate distribution.").

89. See *Am. Broad. Corp. v. Aereo*, 573 U.S. ____ (2014).

90. *Id.*

91. 17 U.S.C. § 111.

92. *Id.*

93. *Compulsory Video Licenses of Title 17: Hearing Before Subcomm. on Courts, Intellectual Prop., and the Internet Comm. on the Judiciary*, 113th Cong. (2014) (statement of William Roberts, Jr., Acting Associate Register of Copyrights and Director of Public Information and Education, U.S. Copyright Office) (hereinafter "Hearing on Compulsory Video Licenses"); see also 47 U.S.C. §§ 325(b), 325(b)(2)(A).

94. See *Hearing on Compulsory Video Licenses*. A "statutory license" refers to use of another's copyrighted work without seeking the rights holder's consent by paying the rights holder a set fee for the license. U.S. statutory licensing provisions exist for public

Additionally, the FCC has authorized certain rules that aim to protect local television stations' rights to be exclusive providers of network programming in local markets.⁹⁵ These rules, however, are applicable only to "retransmissions of cable and satellite providers."⁹⁶ Thus, statutory licensing may provide a cable provider or satellite operator an avenue to escape copyright liability for airing the video since it would be a public broadcast, but protection for any local television stations airing the video will apply only if they are retransmitting it from a cable or satellite provider that has obtained such a license in the first place. Hence, the producer may receive either royalties or certain remedies (e.g. damages or injunctions) under U.S. law depending on the type of entity and the infringing act.

c. Other considerations: orphan works, mass digitization, and database rights in space

Orphan works are copyrighted works for which the owners cannot be determined, found, or contacted, while mass digitization is the large scale efforts to digitize works, such as books in digital libraries and data archives.⁹⁷ In an effort to clear uncertainties created by these issues, the Copyright Office recently distributed a report in which it initiated review of the problem and sought to provide a solution.⁹⁸ The Orphan Works and Mass Digitization report, takes into account what tools other countries are implementing in terms of orphan works and mass digitization, especially in Europe, and proposes a solution that mirrors some of what is being done in the international arena.⁹⁹ However, there is still a lack of global uniformity in dealing with orphan works and mass digitization, which could lend itself to aggravating situations involving copyrights in outer space.

In the situation where a digital repository of copyrighted works exists on another planet, determining actual ownership will prove to be extraordinarily difficult. Essentially, if an orphan work exists on another planet for which no owner has been listed, and a resident of that planet

broadcasting, retransmission by cable systems, subscription digital audio transmission, non-subscription digital audio transmission, etc. See 17 U.S.C. §§ 111(c), 114(d)(1), 114(d)(2), 118.

95. See 47 C.F.R. § 76.92.

96. *Hearing on Compulsory Video Licenses*, *supra* note 89.

97. Christine L. Borgman, *Scholarship in the Digital Age: Information, Infrastructure, and the Internet* 108 (MIT Press 2007).

98. *Orphan Works and Mass Digitization: A Report of the Register of Copyrights*, U.S. COPYRIGHT OFFICE (2015).

99. *Id.* at 18-32.

wishes to use the work, there will be no quick and easy way to conduct a search for ownership to request permission for use. The Mars movie producer would either have to take the risk of infringing a work, or skip use altogether which is also not desirable because that inhibits innovation.

There will also be concerns if the repository is either a physical storage device on Mars or an Internet or cloud based service. In the case of a physical device, jurisdiction and control over the device will understandably belong to the nation, which has launched and set it up in its facility (e.g. the United States in this scenario). This again stems from Article Eight of the Outer Space Treaty, which dictates that ownership and jurisdiction of space objects, including component parts of those launched and landed or constructed on a celestial body, still remain with the State of registry.¹⁰⁰ However, in the case of an Internet service that transmits and stores copies of works, there issues with satellite transmissions as previously mentioned and with storage of copyrighted works by Internet service providers.¹⁰¹ It is unclear then what actions could be sought, and what remedies could be provided for infringement.

Similarly, property rights may exist in compiling a database, which are distinct rights from copyright.¹⁰² This *sui generis* database right also varies from country to country. For instance, the European Space Agency follows Directive 96/9/EC, which grants European companies rights to non-creative databases for fifteen years from the date of creation.¹⁰³ The Directive “prohibits the extraction or re-utilization of any database in which there has been a substantial investment in obtaining, verifying or presenting the data contents.”¹⁰⁴ Likewise, Russian law gives a database owner certain legal protections of their data and network.¹⁰⁵ This varies greatly from U.S. law,

100. Outer Space Treaty, Art. VIII.

101. 17 U.S.C. § 512.

102. See *Intellectual Property Rights: Sui generis right protection*, EUROPEAN SPACE AGENCY (Nov. 19, 2015), http://www.esa.int/About_Us/Law_at_ESA/Intellectual_Property_Rights/Sui_generis_right_protection.

103. See *Intellectual Property Rights: Copyright and databases*, EUROPEAN SPACE AGENCY (Nov. 19, 2015), http://www.esa.int/About_Us/Law_at_ESA/Intellectual_Property_Rights/Copyright_and_databases; see also *Intellectual Property Rights: Sui generis right protection*, EUROPEAN SPACE AGENCY (Nov. 19, 2015), http://www.esa.int/About_Us/Law_at_ESA/Intellectual_Property_Rights/Sui_generis_right_protection; Directive 96/9/EC of the European Parliament and of the Council of 11 March 1996 on the legal protection of databases 1996 O.J. (L 77).

104. *Id.*

105. *Grazhdanski Kodeks Rossiiskoi Federatsii* [GK RF] [Civil Code] Part IV, Ch. 69 § 1225 (Russ.)

which does not recognize uncreative collections of facts, substantially limiting database rights does not exist within the United States.¹⁰⁶ In the scenario involving the Mars film director, a database of copyrighted works on Mars may or may not be eligible for copyright protection depending on the nation or nations most significantly involved. The Martian movie was filmed and created in an American facility, however the producer was British and may wish to air the film in England first and not the United States, in which case the nation most significantly involved would be harder to determine. This is further indication that uniformity is an absolute necessity for any material that may require copyright protection extraterritorially.

VII. INFRINGEMENT AND REMEDIES

To determine if potential remedies may be warranted for infringing activities in outer space, we must first assume that any States involved recognize that owners of copyrighted works should be granted extraterritorial rights. If the alleged infringement occurs in a registered space object or its component, such as a Martian facility or commercial space station, remedies could possibly be available because the activities could be traced back to a specific territory. However, if the infringing acts occur outside of such registered objects, such as on the outside surface of Mars, it is much harder to connect the act with an object in a territorial area, and therefore obtaining relief in any national court would be much more difficult.

Even in cases where infringement is established, there are bound to be problems with enforcement. There will certainly be issues when foreign judgments are rendered on acts in space that differ from those of a U.S. court.¹⁰⁷ There have been precedents in U.S. law, such as *Itar-Tass*, to account for this issue to some extent; however, there is no uniform system to ensure enforcement and protection when foreign nations dispute claims of infringement.¹⁰⁸ Without such a setup, there may be serious disputes for infringing copyright acts in space.

106. See generally *Feist* at 1283, 1288

107. See *Bridgeman Art Library Ltd. v. Corel Corp.*, 36 F. Supp. 2d 191, 192 (S.D.N.Y. 1999) (holding the photographs at issue were not original after first applying U.K. law to determine if the photographs were copyrightable and then applying U.S. law to determine whether infringement had occurred).

108. See *supra* note 55.

The most logical way to address enforcement and remedies for infringement in future instances such as these would be to develop a unified and systematic scheme in which member parties agree to specific remedies and sanctions for infringement of extraterritorial rights. This paper will not go into any proposals for such a scheme other than to generally state the potential benefit it would hold in this context.

CONCLUSION

The foregoing discussion and analysis indicates the existence of cracks in extraterritorial copyright protection in space that must be addressed sooner rather than later. With the hypothetical scenarios discussed in this paper, it is evident that the existing international space law mechanisms, such as the Outer Space Treaty, will not be sufficient and gaps will still occur. National mechanisms will not be enough to resolve those gaps because there will inevitably be conflict of laws issues that are made more complex by international joint ventures in space activities occurring in unbounded jurisdictions.

The United States in particular is once again recognizing the importance of space activities, which is evident in the recent H.R. 2262 law and the increase in funding awarded to NASA for the 2016 fiscal year.¹⁰⁹ Thus, addressing these problems now is important because it will offer a tactical advantage and save time in the future formation of policies and laws to govern more advanced space activities.

Many of the issues presented await resolution and demonstrate the need, both in regards to prospective space applications and the current schemes in use, for international agreement to create an ordered system of protecting copyright holders' rights in outer space. Section 105 of the Patent Act may serve as valuable guidance and a similar extension of the Copyright Act would be beneficial for works created in outer space. Likewise, in addition to a uniform international copyright system, the existing space law mechanisms will also need to be reexamined to keep up

109. H.R. 2262, 114th Cong. (2015); *see also* Jeff Foust, *NASA Receives \$19.3 Billion in Final 2016 Spending Bill*, SPACE NEWS (Dec. 18, 2015), <http://spacenews.com/nasa-receives-19-3-billion-in-final-2016-spending-bill/> (stating the final version of a 2016 spending bill will allocate NASA with nearly \$19.3 billion); Eric Berger, *Final NASA budget bill fully funds commercial crew and Earth science*, ARS TECHNICA (Dec. 18, 2015), <http://arstechnica.com/science/2015/12/final-nasa-budget-bill-fully-funds-commercial-crew-and-earth-science/> (stating that Congress has fully funded NASA's commercial crew program in an effort to end reliance on Russian transportation to the ISS by 2017).

with the changes in technology and the innovations that accompany activities in outer space.