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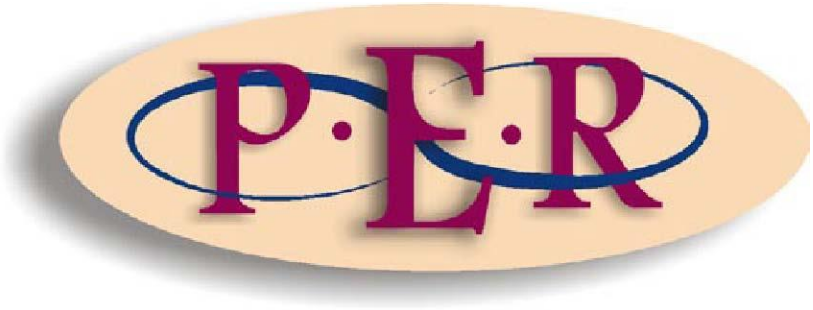

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RETHINKING *TERRA NULLIUS* AND PROPERTY LAW IN SPACE

W Erlank*

1 Introduction

With a new era dawning with regard to access to space and an increase in the number of nations capable of reaching and exploiting space, the field of space law as a whole needs to be re-evaluated.[1] One area where current legal thinking needs to be examined is with regard to the property rights to objects in space.[2] While it was sufficient in the past for governments to frown upon the institution of ownership in outer space and leave many space-related issues unresolved, one would need to re-examine the current body of space-law and related international instruments in the light of the ability of private enterprises' and other new players'[3] ability to partake in and commercially exploit space travel.

This paper[4] aims to investigate whether property rights should be available to space-faring nations and individuals, as well as how these rights could be acquired. Also very important is how these rights can be limited or structured in such a way as to not unnecessarily interfere with the aims of current space law. In order to know what property rights will be applicable, one also needs to re-define the objects to which those rights can be acquired. Characteristics such as the impersonality, tangibility, independence, susceptibility to control, and the usefulness and value for mankind will once again be of crucial importance when it is necessary to determine if an object in

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1 Not only is this a logical step, but also one that has been highlighted by a number of other authors. See Blount 2011 *Denv J Int'l L & Pol'y* 515; Ferreira-Snyman 2014 *PER* 5; Listner 2003 *Regent J Int'l L* 76.

2 It is important to note from the outset that although this article deals with aspects of space law, the focus is on the application of property law to property issues in space, and not international law.

3 Such as developing countries and also even developed countries which were not traditionally amongst the main space-faring nations. Also see Listner 2003 *Regent J Int'l L* 86-87.

4 This paper forms the introductory part of a discussion about ownership and property rights in space. It is followed by "Property Rights in Space: Moving the Goal Posts so the Players don't Notice" 2016 *PER* (forthcoming), which discusses an alternative method of recognising rights to property in space by means of either making use of contractual rights with property-like protection or alternatively by relying on lesser property rights than full ownership.

space can be classified as an object with regard to which one can have property rights. When, for example, one is able to start colonising and commercially exploiting heavenly bodies such as the Moon, Mars or even asteroids, it is only natural that people and governments will want to demarcate and protect their colonised territories and make use of the inherent ability to exclude others by means of property law to protect their investments and interests. These issues will be discussed as they relate to property law, and certain recommendations will be made as to how some of the problematic property law issues could be addressed for the benefit of all of mankind. This discussion will take place against the background of objects that are deemed to be *res nullius* (things belonging to nobody) as well as the theory of *terra nullius* (land belonging to nobody).

2 Property rights and objects in space

2.1 Introduction

With the realisation and commencement of commercial spaceflight,[5] it is perhaps fitting to return to some of the basic questions and assumptions about space law in order to re-evaluate[6] their worth in the new millennium.[7] Since space law covers such a wide range of topics and can be applied to almost all current areas of law, I will focus on the property law and related aspects of moving into space and exploiting property outside the confines of our lonely planet.[8] I will not approach this from a traditional space law perspective, but rather from a purely property law perspective with a focus on the Roman-Germanic tradition[9] of property law. However, before that

5 See Ferreira-Snyman 2014 *PER* 2-5 for a brief discussion of the history and development of commercial spaceflight, with a focus on space tourism.

6 Ferreira-Snyman 2014 *PER* 5, 38 deals with this from the perspective of the inception of the space tourism industry, while Blount 2011 *Blount 2011 Denv J Int'l L & Pol'y* 515, 532 deals with this from the perspective of likening the current legal regime to architecture. He states that since space law was created as a reactionary legal framework (an outer shell) on the underlying social and geopolitical structures (from the cold war), this creates a problem, since the legal framework (the outer shell) has not changed, while the underlying social and geopolitical (and technological) structure (the framework) has.

7 This introductory paper is the first in a series of articles dealing with issues of property law in space that will follow shortly on this one and will deal in more depth with the issues raised in this article.

8 See Dalton 2010 http://ssrn.com/abstract=1660163.

9 For a discussion on the different understandings of the property concept – see Erlank *Property in Virtual Worlds* 212-229. It is interesting to note that most of the property law questions relating to outer space are exactly the same as the property law questions that relate to virtual worlds and

can be done, a brief look at the *status quo* of international space law will need to be undertaken.[10]

The *Outer Space Treaty* is considered to be the first of the five[11] main treaties that deal with Outer Space.[12] Article I of the *Outer Space Treaty*[13] states that:

> The exploration and use of outer space, including the Moon and other celestial bodies, shall be carried out for the benefit and in the interests of all countries, irrespective of their degree of economic or scientific development, and shall be the province of all mankind. Outer space, including the Moon and other celestial bodies, shall be free for exploration and use by all States without discrimination of any kind, on a basis of equality and in accordance with international law, and there shall be free access to all areas of celestial bodies. There shall be freedom of scientific investigation in outer space, including the Moon and other celestial bodies, and States shall facilitate and encourage international cooperation in such investigation.

Article II states that:

> Outer space, including the Moon and other celestial bodies, is not subject to national appropriation by claim of sovereignty, by means of use or occupation, or by any other means.

These two articles read together clearly give an indication of the *status quo* with regard to the ownership of celestial objects. It would seem as if celestial bodies are regarded as the "property" of all of mankind and could therefore be seen as not being capable of being owned in the conventional sense of the word. This is often

virtual property. Hence the two fields can benefit from the same pool of research and inform each other.

10 Since the inception and writing of this article, the United States has signed into law the *US Commercial Space Launch Competitiveness Act* HR2262 of 2015, aiming to enable and provide legal and sovereign support for the commercial exploration and use of space resources. This new move by the United States will have a direct influence on the current situation. The effect of this law is outside the scope of this article, but it does underscore that the status quo needs to be re-assessed and that private ownership of space resources will inevitably become a reality in the future.

11 Listner 2003 *Regent J Int'l L* 76.

12 The five main treaties are: *Agreement Governing the Activities of States on the Moon and Other Celestial Bodies* (1979) *(Moon Agreement); Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space* (1968) *(Rescue Agreement); Convention on International Liability for Damage Caused by Space Objects* (1972) *(Liability Convention); Convention on Registration of Objects Launched into Outer Space* (1975); *Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies* (1967) *(Outer Space Treaty).*

13 *Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies* (1967) (hereafter *Outer Space Treaty*).

referred to as the "Non-Appropriation Principle".[14] Article II makes it even clearer and places the possibility of national or sovereign ownership out of the question.

Also of (academic) interest when dealing with issues relating to property in space is the *Moon Agreement*[15] Article 11 (2) and 11 (3):

> 2. The Moon is not subject to national appropriation by any claim of sovereignty, by means of use or occupation, or by any other means.
>
> 3. Neither the surface nor the subsurface of the Moon, nor any part thereof or natural resources in place, shall become the property of any State, international intergovernmental or non-governmental organization, national organization or non-governmental entity or of any natural person. The placement of personnel, space vehicles, equipment, facilities, stations and installations on or below the surface of the Moon, including structures connected with its surface or subsurface, shall not create a right of ownership over the surface or the subsurface of the Moon or any areas thereof. The foregoing provisions are without prejudice to the international regime referred to in paragraph 5 of this article.

However, while the *Moon Agreement* attempted to explicitly prohibit private and national property rights on the Moon, the *Moon Agreement* was never ratified by any of the main space powers and therefore is regarded as a failed treaty[16] and to be irrelevant.[17] I therefore do not regard the *Moon Agreement* as being an obstacle to property rights in space.

While the two conventions referred to above do in fact set out the current (international law) legal position regarding the ownership of celestial bodies, many questions and uncertainties exist regarding their applicability in various situations.[18]

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14 See Freeland "Outer Space" 85; Goh 2007 *Dispute Settlement* 18, 140; Van Wyk 2008 *African Skies/Cieux Africains* 90.

15 *Agreement Governing the Activities of States on the Moon and Other Celestial Bodies* (1979) (hereafter the *Moon Agreement*). The *Moon Agreement* is also sometimes referred to in literature as the *Moon Treaty*.

16 Unless otherwise stated, I will use "treaties", "agreements" and "conventions" interchangeably.

17 Listner 2003 *Regent J Int'l L* 85; Marks 2012 *NewScientist* 28; Reynolds 2008 http://www.popularmechanics.com/science/space/moon-mars/4264325; Listner 2011 http://www.thespacereview.com/article/1954/1; Fuentes 2015 http://www.thespacereview.com/article/2703/1.

18 See Freeland "Outer Space" 82, 96-97; Dalton 2010 http://ssrn.com/abstract=1660163 12-16. Both Freeland and Dalton argue that it is perhaps better to work within the confines of the already existing treaties so as to avoid high transaction costs (Dalton) and "to maintain a proper legal order and conflict-free use of outer space for the benefit and in the interests of all countries" (Freeland). While the sentiments reflected here are sound, maintaining the *status quo* will unfortunately not achieve these goals. As will be discussed below, the aim of acknowledging and allowing (private) property rights in space is not to undermine the economic and beneficial use of

One need only look at the wealth of popular, legal and scientific literature with regard to this issue to realise this.[19] With this uncertainty in mind, combined with the new developments in humankind's space faring capabilities and the commencement of commercial access and participation in Outer Space, I should like to re-examine the possibility of acquiring ownership or other property rights in space. In order to do this I will not be referring to the currently existing Outer Space conventions, treaties and protocols, but will rather examine the position in terms of general property theory and doctrine.

I should like to divide this article into two sections. In the first section the question concerning the objects in space to which one can acquire[20] ownership will be addressed. Can one make a distinction between movables and immovables in Space, and if so, what would the problematic issues be? The characteristics of impersonality; tangibility, independence, susceptibility to control, and the usefulness and value for mankind will be considered and will be of crucial importance to the determination of the question of whether one should recognise property rights in space. The focus in this section will be on the concepts of *res nullius*[21] and *terra nullius*[22] and how these concepts could be developed and applied to space law.

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space, nor to increase transaction costs. It is also not to destabilise the current space law regime, but rather to acknowledge that with the new technological, social, scientific and economic developments in the space arena, the law will have to adapt, precisely in order to continue functioning effectively.

19 See for example Dalton 2010 http://ssrn.com/abstract=1660163; Wasser and Jobes 2008 *J Air L & Com* 37; Ferreira-Snyman 2014 *PER* 5, 38; Blount 2011 *Denv J Int'l L & Pol'y* 515.

20 As noted above, there seems to be a large overlap between the questions of property in space and property in virtual worlds. See for example the discussion of the acquisition of property in virtual worlds: Erlank 2013 *De Jure*.

21 *Res nullius* (literally meaning things belonging to no-one) refers to things that are capable of being owned, but which do not belong to anyone in particular at the moment or at a particular time. See Van der Merwe and De Waal *Law of Things* 16. A wider use of the term includes reference to religious things and common things. See Badenhorst, Pienaar and Mostert *Silberberg and Schoeman's Law of Property* 32.

22 *Terra nullius* (literally meaning land belonging to no-one) is comparable to its more basic counterpart of *res nullius* (defined above) but with the difference that it deals with a more defined object – being land. Recently *terra nullius* has been associated with issues of colonisation, conquest and sovereignty. The basic meaning of *terra nullius* in international law is land that is not inhabited or controlled by civilised people. In space law, one will not have to deal with the distinction, since we have not yet found any forms of life other than our own. The two most prominent examples of *terra nullius* are Australia and Antarctica. See the well-known *Mabo*-case for an in-depth discussion of this understanding of *terra nullius*. In this case, the court rejected the doctrine of *terra nullius* and accepted the doctrine of native title in Australia. See *Mabo v State of Queensland* (1992) 175 *CLR* 1. Also see Van der Walt 2005 *Law and Critique* 332-333.

After discussing these objects of property law in space I will address the issues of property rights and attempt to answer the question whether or not it is possible to acquire ownership of a whole or part of a celestial body or object in space. If it is indeed possible, how should this possibility be defined and developed and what would the consequences be if private ownership were not recognised? Going hand in hand with the question of rights is the question of sovereignty and jurisdiction. Who controls what and how is this determined?

2.2 Objects in space

In the civil law tradition, things (objects) were traditionally classified according to their relation to man or according to their own nature.[23] The division according to their relation to man relates to the question of whether something is susceptible to private ownership or not.[24] This results in the distinction between things that are in commerce[25] (*res in commercium*) that can be traded or sold, and things that are outside of commerce (*res extra commercium*), that could not be traded or sold.[26] Things outside of commerce are further divided into common things (*res communes*), public things (*res publicae*), things belonging to corporate bodies (*res universitatis*) and religious things[27] (*res divini iuris*).[28]

The alternative division according to the nature of the objects[29] distinguishes between corporeals and incorporeals, single and composite things, movables and immovable, tangibles and intangibles, consumables and non-consumables, and divisible and indivisible things.

In traditional property law, objects of property law are usually divided into either movable or immovable property (with various subcategories of each). Generally this

23 Van der Merwe *Sakereg* 27; Badenhorst, Pienaar and Mostert *Silberberg and Schoeman's Law of Property* 24. For a more detailed discussion of how the meaning of objects of property can differ, see Minke "Objects of Property Rights" 651-668; Erlank *Property in Virtual Worlds* 213-231.

24 Van der Merwe and De Waal *Law of Things* 15.

25 Things that can be privately owned or can be the objects of other real rights: Badenhorst, Pienaar and Mostert *Silberberg and Schoeman's Law of Property* 24.

26 Things that are not susceptible to private ownership.

27 In Roman Law.

28 Van der Merwe and De Waal *Law of Things* 15; Badenhorst, Pienaar and Mostert *Silberberg and Schoeman's Law of Property* 24.

29 Or according to their own nature – as stated above.

division does not create too much confusion and one can readily accept that a car will be a movable and a house (or piece of land) will be immovable. Following this logic, one can make the analogy that spacecraft and satellites could be considered to be movables, while a lunar base or section of celestial real estate (it is hard not to use such contemporary words as land) will be considered to be immovable. However, what about celestial bodies in general – such as the Moon or Mars. Can any of these be defined as an object of property law as such, or are they something different? What about an asteroid or comet? How does one define these objects in terms of property law? These are not new questions and in fact, the distinctions have existed in property law for ages.

Traditionally, heavenly bodies were defined as objects of property law that fell outside of commerce (*res extra commercium*) and as such were not capable of being appropriated by private individuals.[30] They were grouped together as part of the *res communes omnium*.[31] Often the reason for something being classified as being outside of commerce (*res extra commercium*) was due to the requirement that something (an object) must be appropriable by people, or subject to human control. Therefore things like free flowing water and the air that one breathes were regarded as being outside of commerce.[32] The same logic applied to celestial bodies since no-one was able to appropriate or control a heavenly body.

However, as with most things in law, there are developments and exceptions. For example, free flowing water and the air that one breathes were clearly not subject to human control or private ownership (and therefore belonged to everyone), but if one were able to contain and control a specified amount or volume of the water or air, one could acquire ownership of it.[33] The requirement for this was that the object had to be collected or removed from the general whole and subjected to human control by bottling or collecting it in a bucket or in some other form of containment. Once this was done, the water or air could be quantified, was specifiable and subjectable to human control. The same argument can be extended to the reclassification of or at

30 Melville *Principles of Roman Law* 208; Huebner *History of Germanic Private Law* 171.
31 Melville *Principles of Roman Law* 208; Huebner *History of Germanic Private Law* 171.
32 Melville *Principles of Roman Law* 208; Huebner *History of Germanic Private Law* 171.
33 See Van der Merwe *Sakereg* 30.

least exception of certain heavenly bodies. If one is able to exert control over an object found in space, one should in theory be able to have some sort of recognisable property right or interest in it. Therefore it stands to reason that at least in certain instances heavenly bodies or objects found in space will be appropriable by man and one could vest ownership in them.

How then should one determine if an object found in space is capable of falling inside of commerce? To answer this question one would once again have to turn to the characteristics of impersonality; tangibility, independence, susceptibility to control, and usefulness and value for mankind. In each and every case one would have to apply the characteristics to the object in question and see if it could become the object of a right of ownership or any other property right.

Large celestial bodies such as the Moon or Mars can be used as an illustration of this. The Moon is indeed impersonal (not a part of man), tangible (one can touch it if one gets there), and independent (it is not a part of man or another substantive object). Susceptibility to control by man is a problematical issue and will be discussed in more detail below. The moon is clearly of use and value to man. From this quick analysis it would seem that only the characteristics of tangibility and control could lead to any more questions. The first semi-problematical issue relates to the aspect of tangibility. The question of tangibility is not always an issue in property law, and certainly in the common law tradition tangibility does not really create any issues when dealing with issues of property.[34] However, tangibility is still an issue in many civil law jurisdictions and I will quickly address the main issues here. For the purposes of this paper I will assume that man is capable of reaching celestial bodies such as the Moon or Mars and also capable of staying there for a reasonable and non-negligible period of time. Because of this, it stands to reason that if man finds himself on the surface of the Moon or Mars, he or she can touch it and discover it to be tangible. As the technology to travel to and stay on these heavenly bodies is currently being refined and will surely reach a point where the problem of "getting there" is not an issue any more, I do not consider this to be an issue. However, it should be noted that this will always be a factual question. If a person cannot reach a specific object in space, then it will

[34] See Erlank *Property in Virtual Worlds* 231-235.

not be considered to be tangible for the purposes of this theory. (It is arguable, however, that if Man can reach an object and interact with or touch it by means of a proxy – using a robot or remote controlled rover – then it will still be considered to be tangible).

This aspect of tangibility is extremely closely connected with the characteristic of susceptibility to control by man. If one is able to exert control over a heavenly body or object in space, the next question is to what extent does one control it? The extent of control will determine if one can acquire ownership of a whole object, or just a part of it. Returning to the example of the Moon, it is quite clear that man cannot exert control over the Moon as a whole celestial object. One cannot (currently) shift it out of its orbit around the Earth or change its shape from round to oval.[35] Any control that one is able to exert over it will therefore be limited to certain areas on the Moon. This means that no single person or institution will be able to acquire ownership of the whole of the Moon and any property rights that can be vested in or regarding the Moon will be limited in extent to that area of the Moon that any one person or institution is able to exert control over.

So what does this mean in real terms? It follows from the argument made above that in order for someone (here "someone" denotes anyone and includes both personal and juridical persons) to be able to acquire property rights on or to a celestial body, he/she/it will have to be able to get there and exert direct and physical control over it. This finally puts to rest all the ludicrous and opportunistic claims to heavenly bodies and objects in space made by people[36] on earth who have never been to the specific object and have not and cannot exert any control over the object.[37]

35 This is in general terms. From a scientific perspective, the moon is not a perfectly round object.

36 In this case, one cannot help but ponder the meaning of the word "lunatic".

37 For example, for claims made to this effect by companies such as the Lunar Registry and the Lunar Embassy, see Luna Society International 2012 http://www.lunarregistry.com/info/embassy.shtml; Lunar Republic 2015 http://www.lunarembassy.com/land. See in general Marks 2012 *NewScientist* 28-29; Reynolds 2008 http://www.popularmechanics.com/science/space/moon-mars/4264325; Reynolds and Merges *Outer Space*; Listner 2003 *Regent J Int'l L* 88-94. Listner analyses the claims of Lunar Registry and the possible legal ramifications thereof in some detail. However, if one follows the principle of *res nullius* and relies on the other characteristics described in this article, the whole question is moot. Perhaps this is the reason why no country has to date bothered to contest the claims of Lunar Registry. Sanity prevails, and since *homo sapiens non urinat in ventum* (from the Leidse Plein in Amsterdam), the other appropriate maxim here is *de minimus non curat lex* (the law does not concern itself with trifles).

Therefore, according to both the absence of control as well as the requirements of the *nemo plus iuris*[38] rule, corporations that are selling plots on the Moon can never transfer ownership or title to a prospective buyer, since they never had any property rights themselves. For real world purposes, if anyone was to take these sales and claims more seriously than the novelty items that they are, it would be a matter of fraud akin to someone trying to sell you the Brooklyn Bridge. For this same reason the fact that someone is the first to spot a comet or asteroid and name it will also have no legal consequences as far as the property rights to the object are concerned. If one is unable to reach the object and exert control over it, then there will be no property rights to it. This would also solve the problem of one nation or entity claiming ownership of a whole celestial body. Even though someone is able to reach a celestial object, is the first to land there and to plant a flag, this does not mean that the person / country / company will acquire any ownership or property rights to the object. The only rights that stem from such an action will be "bragging" rights.

The next question then concerns the extent of the area or the size of a claim for property rights, if one is indeed able to satisfy all the requirements mentioned above. In the days when exploration of the Earth was still a proud occupation and there was still a thing such as *terra incognita* and *terra nullius*,[39] it was sometimes accepted that one could have ownership of a piece of property that was as large as the distance that one could travel by horse in one day. This is a very apt principle to use when trying to determine the extent of an area that is capable of ownership on the Moon. The property can extend in any one direction only for as far as one is able to travel and return to the basecamp without having to replenish air, fuel and food. Any further and one would not be able to exert control over the piece of property, and claims of ownership would be superfluous.

As an illustration of a smaller object in space, the example of an asteroid can be used. Once again, an asteroid is indeed impersonal (not a part of man), tangible (one could touch it if one could get there), and independent (it is not a part of man or

[38] The *nemo plus iuris* rule (*nemo plus iuris transferre potest quam ipse habet*) refers to the principle that a person cannot transfer more rights to another person than he or she already has. See Thomas, Van der Merwe and Stoop *Historical Foundations* 158; Badenhorst, Pienaar and Mostert *Silberberg and Schoeman's Law of Property* 73.

[39] Most often with an accompanying inscription on a map of *hic sunt dracones* or here be dragons.

another substantive object). Susceptibility to control by man is once again a problematical issue and will be discussed in more detail below. Depending on the composition of the asteroid it could be of use and value to man.[40] As an example of susceptibility to control by man, the company Planetary Resources has indicated that it intends to mine asteroids for precious minerals.[41] After identifying asteroids that are suitable candidates for mining, it plans to send robotic probes to see if a candidate asteroid is viable for exploitation. If it is, it will send robots to mine the asteroid. It even envisages that if an asteroid is small enough, it would be able to be brought closer to earth to make the process easier.[42] In such a case it is clear that if one were able to reach and exploit an asteroid or even bring it closer to Earth, then it would ultimately be susceptible to control by man, even if it were controlled via robotic means.

From the examples given above it should be clear that in terms of property law, large celestial bodies such as the Moon, as well as smaller bodies such as asteroids, can be classified as objects of property law falling within commerce – if the required characteristics are present. Now that this hurdle has been cleared the next question is when a person / government / company could acquire ownership or possession of an object in space.

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40 For example, metals in asteroids are easier to extract than on earth because they are distributed throughout the asteroid and not closer to the core as on Earth. Other potentially valuable resources include water (which would be valuable as a component of the rocket fuel required for the return journey) and rare metals such as platinum, amongst others. See Planetary Resources 2012 http://www.planetaryresources.com/asteroids/composition. It should be noted that not only is the ability to mine and acquire these resources of value for consumption and use on Earth, but if one could mine and refine these resources in space, this would greatly aid in the building of spaceships, space stations and the like, since it would not be necessary to transport the material from the surface of the Earth, thereby cutting out the biggest logistical problem with such a programme. Also see Listner 2003 *Regent J Int'l* L 75-76.

41 See in general Marks 2012 *New Scientist*; Reynolds 2008 http://www.popularmechanics.com/science/space/moon-mars/4264325.

42 The technology to move an asteroid out of its orbit and bring it to earth, for example, is currently being refined, and actual space missions to this effect are underway, with the participation of NASA. If this concept is realised in practice, this technology would have the effect that a heavenly body such as an asteroid could be defined as a movable rather than an immoveable. Also see Planetary Resources' discussion of their plans to mine. Planetary Resources 2012 http://www.planetaryresources.com/asteroids. Also see Marks 2012 *New Scientist*.

2.3 Res nullius*,* terra nullius*,* luna nullius *– property rights in space*

Now that it has been established that celestial objects are indeed appropriable by man, one needs to define what type of property interests or rights one can vest over these objects. As was discussed above, one of the limiting factors when determining the extent of these rights or interests will be determined the level of control that one is able to exert over an object or part of it. For the purposes of keeping the discussion simple I will make use of the concept of the fullest form of property rights and refer to ownership throughout the rest of this section.

Since outer space is for all practical purposes boundless, it is much easier to reconcile oneself with the normative Lockean property theory of recognising property rights over property that belongs to no-one and one can easily argue that objects in outer space are *res nullius* or *terra nullius*. However, since *terra* properly refers to Earth, one can refer to such objects of property as being *luna nullius, astra nullius* or maybe even *caelestia nullius*.

Why, apart from such normative theories as the Lockean labour theory,[43] economic or utilitarian theory, would one recognise property rights to objects in space if it would seem as if the current international instruments tend to negate the vesting and recognition of these rights? The answer is based on a more pragmatic principle, rather than a legal principle. It once again everything comes down to that most essential of the entitlements of ownership – control and exclusion. As William Blackstone said, the right to property (ownership) is "that sole and despotic dominion which one man claims and exercises over the external things of the world, in total exclusion of the right of any other individual in the universe".[44]

In other words, the argument goes that if one made the investment of money or effort to get to an object in space, can exert control over it and can exclude other people from access to that object or area, then one would have ownership of the

[43] Locke *Two Treatises of Government.* For a general discussion of how Locke's labour theory applies in instances of *res nullius*, see Erlank *Property in Virtual Worlds* 141, 144-151.

[44] Book 2 Chapter 1 of Blackstone *Commentaries*.

object or area of the object.[45] From a sovereignty perspective, this means that one would follow the property theory that the ownership of objects in space would be a pre-societal[46] or pre-political construct that would exist without the cooperation of government or other players in society due to the fact that one is able to exclude others from the property. This is an argument that should be taken very seriously due to the uninhabited and unexplored present nature of space. If one were to follow this line of reasoning (and I seriously think that one should) it would mean that someone would have *de facto* ownership of an object in space if that person was able to exert control over the object and exclude others from it. This new type of "space ownership" would be totally independent of any legal treaties with regard to objects in space made here on Earth.

While I am not condoning the extra-judicial method of appropriating an object and defending one's property rights to it by military means,[47] it is necessary to recognise that any pre-political property rights will usually be enforced and secured by means of the forceful exclusion of others from the property.[48] It is not inconceivable that any person, nation or company that has made the technological, social and financial investment to move to or to be able to exploit an object in space[49] would be willing to protect this investment with force. This would be especially true of supra national companies, individuals and nations that do not wish to be bound by current treaties and are traditionally not party to the conventional groupings inside such institutions as the United Nations. A case in point would be the main space faring nations that did not accede to or ratify the *Moon Agreement*. This would also be true of a corporation or individual able to successfully launch, reach and exploit or colonise an object in space from international waters, or a space-tourism oriented company that has spent the time, effort and money to successfully create a space tourist

45 This is of course the main goal of any commercial enterprise - to make a profit - and the same goes for those interested in outer space. See Listner 2003 *Regent J Int'l L* 75.

46 See in general Kmiec 1991 *Val U L Rev* 370; Van der Walt 2004 *SAPR/PL* 699-700.

47 This, in a nutshell, is what the initial treaties aimed to prevent. As a product of the Cold War, the aims of the initial treaties were international peace and security on the one hand, and to ease tensions on the other hand. See Blount 2011 *Denv J Int'l L & Pol'y* 517, 520.

48 Once again bear in mind that the space treaties and the *status quo* are based on the assumption that only states would be actors in the (outer) space arena, with very little focus on private actors. The negotiators "sought to control state actions as opposed to those of private actors". See Blount 2011 *Denv J Int'l L & Pol'y* 518**.**

49 See Blount 2011 *Denv J Int'l L & Pol'y* 521-522; Listner 2003 *Regent J Int'l L* 76.

destination such as an orbiting hotel or even a hotel on a different heavenly body.[50] If one were to defy the *status quo*, appropriate and lay claim to a piece of celestial real estate, and be able to either defy or ignore international pressure on Earth, there is little that anyone on Earth would be able to do to prevent this. One would also have to take into account that anyone who was capable of successfully going to, exerting control over, exploiting or colonising an object in space would most likely be able to defend their claim to it by forceful means – if necessary. Lastly, it should be noted that as soon as it becomes possible for one to exist and operate in space without having to rely on Earth for supplies - in other words, as soon as one is self-sustainable - then any sanction from Earth or from the current international bodies would be devoid of power, both legal and factual. It should also be noted that the possibility of a space mission's being self-sufficient and self-sustainable is probably not far from becoming a reality. Any mission or project that will for example aim to colonise[51] Mars or at least aim to build a resupply station[52] for further colonisation and exploration will have to be self-sustainable and for all intents and purposes will have to survive without the need for constant supplies being sent up from the Earth.

With this in mind, I propose that it is necessary to accept that in certain instances property rights to object in space should be recognised (within the limits discussed above) and that we should develop a legal framework around this, rather than denying the existence of such rights and thereby stifling innovation, the development of space-related technology, and investment in space exploitation and travel.

3 Conclusion

The argument made in this paper was that celestial objects should in certain instances be classified as being inside of commerce *(res in commercium)* and as such capable of being owned by an individual, nation, company or (if agreed to on an *ad*

50 See Ferreira-Snyman 2014 *PER* for an in-depth discussion of the topic of space tourism.

51 See Mars One 2015 http://www.mars-one.com; Howard 2012 http://www.huffingtonpost.com /2012/06/02/mars-one-colonize-red-planet-video_n_1564745.html.

52 Much like the re-supply station created by the Dutch East India Company at the Cape of Good Hope before their intention morphed into colonisation. Since we are not aware of any other civilisations (or sentient life) in space at the moment, at least we will be engaged in dominating and conquering others.

hoc basis) mankind in general. There are various normative theories for recognising such property rights to objects in space, even though current international legal instruments tend to negate them. In order to determine if an object in space can be classified as being inside of commerce, it would have to have the following characteristics. The object must be impersonal (not a part of man), tangible (one can touch it if one gets there), independent (it is not a part of man or another substantive object), susceptible to control by man, and of use and value to man. If this is indeed the case, then one will be able to acquire property rights only to that part of the object that one can exert control over, and from which one is able to exclude others.

The current legal regime with regard to the recognition or non-recognition of property rights in space will have to be reconsidered and adapted to deal with the reality of the factual situation and to maximise the beneficial use of objects in space for man in general. While this might seem as if this flies in the face of current space-law and the underlying principles thereof, the fact is that by recognising, properly describing and limiting ownership in and on celestial real estate, the peaceful and productive use of outer space will be supported rather than hindered.

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LIST OF ABBREVIATIONS

Denv J Int'l L & Pol'y	Denver Journal of International Law and Policy
ILSA J Int'l Comp L	ILSA Journal of International and Comparative Law
J Air L & Com	Journal of Air Law and Commerce
Regent J Int'l L	Regent Journal of International Law
SAPR/PL	Suid-Afrikaanse Publiekreg / South African Public Law
Val U L Rev	Valparaiso University Law Review

RETHINKING *TERRA NULLIUS* AND PROPERTY LAW IN SPACE

W Erlank*

SUMMARY

With a new era dawning with regard to access to space and an increase in the number of nations capable of reaching and exploiting space, the field of space law as a whole needs to be re-evaluated. One such area where current legal thinking needs to be examined is with regard to the property rights to objects in space. While it was sufficient in the past for governments to frown upon the institutions of ownership in outer space and leave many space-related issues unresolved, one would need to re-examine the current body of space-law and related international instruments in the light of the ability of private enterprises' and other new players' ability to partake in and commercially exploit space travel. This paper investigates whether property rights should be available to space-faring nations and individuals, as well as how these rights could be acquired. Also very important is how these rights could be limited or structured in such a way as not to unnecessarily interfere with the aims of current space law. Characteristics such as the impersonality, tangibility, independence, susceptibility to control, and the usefulness and value for mankind of an object in space will once again be of crucial importance when it is necessary to determine if it can be classified as an object with regard to which one can have property rights. This is discussed against the background of objects that are deemed to be *res nullius* (things belonging to nobody) as well as the theory of *terra nullius* (land belonging to nobody).

KEYWORDS: space law; property law; *terra nullius*; *res nullius*; ownership; exclusion; non-appropriation; appropriation; sovereignty; moon treaty; lunar registry; outer space treaty; property in space; ownership in space; *luna nullius*; *astra nullius*; *caelestia nullius.*

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