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RESEARCH ARTICLE

Does Space Law Prevent Patterns of Antarctic Imperialism in Outer Space?

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Abstract

This article will consider the ways states have exercised imperialism over Antarctica, focusing on two methods: the use of administrative acts and control over scientific research and resources. The article will then compare the Outer Space Treaty and the Antarctic Treaty System around these two methods, as well as the use of military capabilities as an important aspect of imperial control, to question whether space law prohibits imperialism. The Outer Space Treaty seeks to prevent the militarisation of space, the unequal use of resources and claims of sovereignty. However, given the methods of imperialism on Antarctica and the underdevelopment of space law, this kind of imperialism may also be exercised in outer space. It will argue that while formal sovereignty claims are prevented, *de facto* exclusive claims are not. The establishment of permanent bases under the jurisdiction of the sender state, and the commercial opportunities presented by scientific research and the exploitation of resources create incentives for the use of the military which is also not satisfactorily regulated by international space law.

1 | INTRODUCTION

In October 2015, NASA launched its 'Journey to Mars,' a plan describing three phases of space exploration of Mars, detailing how it would 'extend human presence' to its surface (NASA, 2015, p. 3). While the exploration of space promises scientific discovery and commercial opportunities, it also risks repeating the pattern of imperialism that has dogged Antarctica both before and after the creation of the Antarctic Treaty. Methodologically, this paper compares the two cases of outer space and Antarctica, and their respective legal instruments, to explore the strength of international legislative protection against the patterns of Antarctic imperialism being repeated in outer space. It will start by examining the patterns of Antarctic imperialism, and will then compare the Antarctic Treaty System (ATS) with space law around these patterns.

There are two main reasons for why an analysis of imperialism on Antarctica speaks directly to imperialism in outer space. Firstly, outer space and Antarctica both have no indigenous population and yet there is a growing body of literature focusing on the patterns of imperialism at work in the management of the frozen continent (Collis, 2017; Dodds, 2006; Dodds & Collis, 2017; Howkins, 2010; Scott, 2011, 2017). References to imperialism in Antarctica have tended to focus on territorial expansion and exploitation by some states to the detriment of others. Imperialism has been an overtly and explicit imperial exercise as well

as a more informal one. Indeed, the chief architect of Britain's Antarctic policy was the Under-Secretary of State at the Colonial Office at the time (Scott, 2017). In 1926, a judge involved with the drafting of an expedition to Antarctica referenced it, along with the Arctic, as 'the most important uninhabited areas that remain open to acquisition as *territoria nullius*' (Scott, 2017, p. 41). In other words, it was precisely because they were uninhabited that meant they were fit for colonisation (Howkins, 2010). This fact, common to both cases discussed, therefore illuminates possible imperialism in outer space.

Secondly, the Outer Space Treaty (OST) is heavily based on the Antarctic Treaty. The Antarctic Treaty is the central document in the ATS, a range of treaties designed to regulate operations in the area 60° South. Similarly, space law, centred around the OST, is supplemented by other treaties, such as 'Agreement on the Rescue of Astronauts' (1968) the 'Liability Convention' (1972) and the 'Registration Convention' (1976), but these are the central documents in their respective legal areas. This was deliberate. While the General Assembly unanimously endorsed the full application of the UN Charter to outer space, the Legal Sub-Committee of the Committee on the Peaceful Uses of Outer Space (COPUOS), the UN committee tasked with governing space for the benefit of humanity, observed that the document was written for sovereign states and had not anticipated the space age. They therefore turned to the Antarctic and the Antarctic Treaty as an 'excellent precedent' (Legal Subcommittee, 1962). This similarity extends to imperial attitudes too; during the drafting process of the Outer Space Treaty, the USSR noted that its legal advisor to its Department of State considered that the US's attitude towards claims to sovereignty in outer space was similar to its attitude to such claims in Antarctica (Legal Subcommittee, 1962). It makes sense, therefore, to suggest that if the governance of Antarctica has been criticised as imperialist (and given that it continued after the creation of the Antarctic Treaty), in order to demonstrate that space law prevents imperialism, it would have to differ from the ATS, and do so in such a way as to prevent the imperialism on Antarctica from manifesting in outer space.

Definitions of imperialism are various, but they are closely tied to national appropriation and generally share a focus on exploitation and influence by one power over another; it is the practice of defining and controlling an 'other.' Edward Said defined imperialism as the 'practice, the theory, and the attitudes of a dominating metropolitan centre ruling a distant territory' (Said, 2012, p. 42). Michael Doyle, himself referenced by Said, noted it could be a formal or informal relationship 'in which one state controls the effective political sovereignty of another political society' (Doyle, 2018, p. 45). Catherine Lutz defines it as:

Policy Implications

- States have commercial incentives to make *de facto* exclusive claims over territory on Mars and conduct imperialist activities in much the same way as they did on Antarctica, such as by installing permanent stations on its surface, and can do so without violating the Outer Space Treaty. The Outer Space Treaty also does not prohibit the stationing of military capabilities in space to defend national interests.
- While space law needs further development to achieve its stated aims, the gap is being filled by the laws of war and national legislation, neither of which prevent imperialist exercises.
- What is needed to prevent imperialism is legislation that is truly international – decided by a number of states in a way that prevents particular states or regions from exploiting the others – and far more specific in regulating the administrative acts, exploitation of resources and militarisation.

> A constellation of state and state-structured private projects successfully aiming to exert wide-ranging control … over the practices and resources of areas beyond the state's borders … through direct military and political intervention, the threat of intervention, the mediation of proxy states, or multilateral institutions in which the imperial power is the dominant member.
>
> (Lutz, 2006, p. 594)

And the sociologist Michael Mann (2004) argues that imperial states typically wield a combination of ideological, economic, military and political powers. The definition of imperialism used here will combine the above definitions, retaining Lutz' and Said's focus on territory 'beyond the state's borders,' as well as Said's emphasis of attitude, as well as the possibility of the informality of the relationship noted by Doyle, while recognising that the methods of the exertion of control are various, and therefore remaining agnostic to them. After all, European states asserted legitimate dominion in the New World, for example, variously: 'Englishmen … by physical objects, Frenchmen by gestures, Spaniards by speech, Portuguese by numbers, Dutch by description' (Seed, 1995, p. 179). Imperialism will be taken here to mean the practice, theory and attitudes of one political society such that it is able to exert control over a territory not their own. Formal sovereignty claims and the performance of acts associated with

sovereignty are relevant here because they indicate a presumption of ownership over territory. It is imperialist where it is done without a legitimate claim which discriminates against the claims of other states.

Though an orthodox definition of imperialism might encounter issues in being applied to activities in areas without an indigenous population, the same themes of the definition apply to describe actions in these areas. Shirley Scott (2007) also wrestled with the question of an 'object' of imperialism specifically in the Antarctic case. She recalls Chaturvedi arguing that the ATS is imperialist because, by establishing science as the focal point for Antarctic politics, non-Western states with less capacity for science are discriminated against. States did not restrict themselves to only one type of expansion in the colonial era, and they sought to substantiate their claims by settlement and administration, together with '*at least the intention of excluding others*' (Chaturvedi, 1996, p. 40, emphasis added).

Concerns about imperialism in outer space were known to the drafters of the Outer Space Treaty, who recognised that 'serious problems' might arise if states could claim exclusive rights over territories in outer space (Legal Subcommittee, 1959). The OST holds that outer space and celestial bodies are not subject to claims of sovereignty, that they shall be explored and used for the benefit of all countries, and that they shall be used exclusively for peaceful purposes. These areas are all possible methods of exerting control, and are therefore the areas of focus for this article.

2 | IMPERIALISM IN ANTARCTICA

This section is concerned with describing what the imperialism on Antarctica looked like. Imperialism on the Southern Continent has received comparatively less attention than imperialism in other regions, with some notable exceptions including the works of Adrian Howkins, Klaus Dodds, Christy Collins and Shirley Scott (Collis, 2017; Dodds, 2006; Dodds & Collis, 2017; Howkins, 2008, 2010; Scott, 2011, 2017). Mancilla (2018) notes that claims over Antarctic territory were justified on the basis of discovery, science, natural resources and state activity *in addition to formal claims*.

Jessup and Taubenfeld (1959, p. 140, emphasis added) whose work on Antarctica and outer space was referenced in debates of the Legal Sub-Committee of COPUOS (LSC or Legal Sub-Committee), observed that 'national claims [over Antarctica]…have thus far been based on discovery, on occupation, on *performance of administrative acts* including issuing decrees or orders, printing postage stamps, and setting up post offices, on prior claims even without discovery,' (Legal Subcommittee, 1962). Accounts of imperialism in Antarctica convincingly describe the formal claims that characterise pre-ATS Antarctica, but it is also immediately clear that the formal claims were in pursuance of the exploitation of resources and drew strength from the performance of these administrative acts (Howkins, 2010; Mancilla, 2019).

2.1 | Before the Antarctic treaty

Although some commentators consider that the 'first wave' of imperialism in Antarctica relates to the Spanish and Portuguese projects to take advantage of South American resources and territory, expressing rights laid out in Papal Bulls of 1493 (Scott, 2017), it was not until the early 20th century that imperialism in Antarctica began in earnest. Between 1900 and 1950, Britain, New Zealand, France, Australia, Norway, Chile and Argentina made or delimited *formal* claims to Antarctica and started establishing permanent stations there (Howkins, 2010; Mancilla, 2018).

The establishment and maintenance of the stations was always an important part of sovereignty claims, as evidenced by the UK's 1943 *Operation Taberin*: after the UK perceived Argentina and Chile making claims close to its recently abandoned Antarctic stations it decided to re-establish some of them, strengthening its own claims (Jessup & Taubenfeld, 1959). The UK was also keen to establish exclusive control by removing the markers placed by other states as part of the operation. It also made sure to swear in a magistrate at each station and establish post offices and telegraph stations '*as a sign of sovereignty*' (Jessup & Taubenfeld, 1959, p. 145, emphasis added). This attitude evoked the practice of the English in the New World, characterised by the use of physical objects to asset legitimate dominion (Seed, 1995).

Staff in the Falkland Islands Dependencies (what Argentina calls the *Islas Malvinas*) were instructed in mapping and survey techniques. This information was then distributed to London and British universities and helped to cement human presence in Antarctica (Dodds, 2006). Thus, the UK's claims to Antarctica, first based on discovery and exploration were later 'strengthened by resource management, year-round settlement, and scientific mapping and research' (Dodds & Collis, 2017, p. 55). Boundaries were also a feature of English possession claims in the New World: 'mundane activity, rather than permission, ceremonies, or written declarations created ownership. The ordinary object – house, fence, or other boundary marker – signified ownership' (Seed, 1995, p. 19). The UK grounded the 'rightness' of their sovereignty claim in assertions of scientific authority and superiority; it argued that the marine wealth on Antarctica would not be put to its best use without UK rule, a classic harkening back to the Lockean justifications of imperialism that the land belongs to whomever may use it 'better' (Howkins, 2010).

This self-proclaimed superiority is also evidenced in the UK attitudes to other states operating in Antarctica. The UK's expeditions to Antarctica, for example, were explicitly part of its imperial project, which had racist undertones, demonstrated by the dismissive attitude it had towards the Japanese expedition of 1910 in contrast to the acceptance of the Norwegian expedition as worthy competitors (Howkins, 2010).

2.2 | After the Antarctic treaty

In 1959, with the potential for Antarctica to be a focal point in Cold War hostilities, the United States invited interested countries to find common ground and the 12 parties active in the International Geophysical Year 1957–58 became the signatories to the Antarctic Treaty, an international agreement that aimed to, in its own words, provide the foundation to continue and develop the cooperation of the International Geophysical Year (Mancilla, 2018). It avowedly aspired to produce a framework that would be for the benefit of all humanity. To this end, notable provisions in the ATS stipulated that Antarctica would only be used for peaceful purposes (Article I) and that it would be protected from claims to territorial sovereignty (Article IV).

But the ATS faced criticism from developing states during the decolonisation period and the imperial practices continued. Indeed, India's interest in the 'Question of Antarctica' in 1956 was out of concern for how decolonised states should engage with such issues and prevent it from becoming another site for established powers to extract resources (Chaturvedi, 1986; Dodds & Collis, 2017; Howkins, 2008). However, India was pressured into dropping its call to decolonise Antarctica in being invited to join the Antarctic Treaty Consultative Parties – the states making decisions on Antarctica – in 1983 (Beck, 2014; Dodds, 2006).

Malaysian Prime Minister Dr Mahatir bin Mohamad referred to the ATS as colonialist in 1982 (Scott, 2017). More recently, though, the Malaysian position of the ATS has also slowly mellowed from denunciations of privilege, exclusivity and of colonialism directed at the Consultative Parties, to one of concern about the environmental protection of Antarctica, together with its signing of the Antarctic Treaty in 2011 and the conducting of its own research (Beck, 2006; Molenaar, 2021; Tepper & Haward, 2005).

Article IV of the Antarctic Treaty has been a central target of criticism, which has been directed specifically towards the fact that it enshrined or, to use the common pun, 'froze' claims to segments of the Antarctic rather than removed them, and hence actually rewarded colonialism (Dodds, 2006; Scott, 2011). And other issues remain. For example, it is not certain whether Article IV prevents the expansion of already-existing claims or not (Conforti, 1986). The performance of administrative acts is still used to appropriate areas of Antarctica. The governments of Argentina and Chile legally require that all maps of their respective countries also include the sections of Antarctica they claim (Howkins, 2010).

Comparable to the UK's interest in Antarctica, Asian engagement has also been framed in resource-strategic terms (Dodds & Collis, 2017). While China has proposed an Antarctic Specially Managed Area around its station, critics have argued that the measure indicates Chinese attempts to exert more control over part of the territory in contravention of the Antarctic Treaty System, although for supporters it is an attempt to reify much-needed environmental protection (Dodds, 2019).

Since the ATS, several countries have also incorporated quasi-jurisdictional practices in Antarctica, such as by insisting that travellers to 'their' part of Antarctica have their passports stamped. In 2012, the UK also renamed part of the Antarctic Peninsula as 'Queen Elizabeth Land' (Dodds & Collis, 2017). It also recognises marriages on the territory it claims, stating that the law of England and Wales applies in the British Antarctic Territory just as it would in the UK. And in 1978, Argentina flew a pregnant woman to Antarctica to give birth to the first 'Antarctican' (Howkins, 2010).

Furthermore, some states which had previously not exercised formal claims now used the same methods to exercise sovereignty as those used by the claimant states to enforce their claims over competed territory. While the US has claimed to advance an anti-imperialist approach, '[t]he era of US imperialism has … been characterized by a distinction between formal and effective sovereignty' (Scott, 2011, p. 57). Soviet writers and jurists also considered the US leadership behind the ATS as imperialist in the 1950s (Toma, 1956).

Science has also been integral to the US Government's exercises in Antarctica. It established a base at the geographic South Pole as a 'marker of American national and ideological strength' during the International Geophysical Year 1957–58 (Roberts, 2011, p. 158; Scott, 2017). Indeed, US officials during the drafting of the Antarctic Treaty believed that the value of Antarctica in its potential to facilitate science would at some point lead to its enhanced *military* importance (Scott, 2017).

Science and resources were also connected to UK and Argentinian imperial designs on Antarctica, making use of the Falkland/Malvinas Islands as 'stepping stones for territorial expansion and knowledge production' (Blair, 2019, p. 232). The Argentinian Pampa Azul research project on Antarctica declares its mission in the *Islas Malvinas* as 'science in the service of national sovereignty' (Blair, 2019, p. 232), demonstrating the important economic dimension of imperialism on Antarctica, and the connection with resources and science.

Fishing constitutes one of the most valuable resources in the area and it has more recently become

easier for the companies of developed states to exploit such resources (Lefeber, 1990). Before the ATS, the management of living resources such as whales was highly significant 'not only in consolidating control over the Southern Ocean … but also in helping to legitimate and justify the Anglo-Norwegian presence as a managerial necessity' (Dodds & Collis, 2017, p. 55). While the International Convention for the Regulation of Whaling set up a moratorium on whaling in 1986, Japan has observed that whaling may continue if it is conducted on the grounds of scientific research. It has continued, much to the chagrin of Australia and New Zealand, the former of which have declared Japanese actions to be illegal in the Australian Antarctic Territory (Dodds, 2010). Further regulation has developed with varying degrees of success. The 'Madrid Protocol' has been hailed as a success in environmental regulation, and requires states to conduct environmental impact assessments for activities in Antarctica, but is more concerned with maintaining the balance of the ecosystem and the populations of various species, rather than preventing an imbalance in exploitation by states.

Scientific research and fishing in the surrounding area of the Antarctic is not likely to fulfil the requirement of effective occupation for the exercise of territorial sovereignty and effective jurisdiction (Lefeber, 1990). However, that does not mean it is not imperialist. In essence, even after the creation of the Antarctic Treaty System, imperialism in the region has tended to take the form of unequal exploitation of resources by nations capitalising on power imbalances and acts which seek to demonstrate statehood, influence and control over different aspects of the region *even beyond the formal claims of sovereignty*.

3 | THE LEGACY OF ANTARCTICA: IMPERIALISM IN OUTER SPACE

These acts allow the interested states to engage in the exercise of sovereignty that has characterised imperialism in Antarctica independently of making or extending formal claims. The remainder of this paper will proffer a comparison between the ATS and the OST and seek to demonstrate that the latter does not differ enough, or differ in the right way, from the former to be able to prevent the type of imperialism that has taken place in Antarctica from taking place in space as well.

3.1 | Sovereignty by administrative acts

The Outer Space Treaty, in its Article II, provides 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.

The Antarctic Treaty's Article IV is comparable:

> No acts or activities taking place while the present Treaty is in force shall constitute a basis for asserting, supporting or denying a claim to territorial sovereignty in Antarctica or create any rights of sovereignty in Antarctica. No new claim, or enlargement of an existing claim, to territorial sovereignty in Antarctica shall be asserted while the present Treaty is in force.

Whereas several states have claimed territory in Antarctica – and the US and Russia have retained the right to do so in the future – there have been no such claims to outer space. Both space law and the Antarctic Treaty have provisions that seek to prevent claims over segments of their respective areas. One notable difference is that claims to Antarctica were made *before* the Antarctic Treaty took effect. The question is whether the OST removes these issues. While it does notably differ from Article IV of the Antarctic Treaty in that it makes no mention of existing sovereignty claims (there having been none made), it does not take into account the way sovereignty claims and imperial exercises were actually practiced historically, both in Antarctica and elsewhere. The same acts that *were* expressions of sovereignty in Antarctica are not prohibited in space, despite sovereignty claims being prohibited in outer space.

The establishment of installations and stations on celestial bodies is permitted. They will almost certainly be constructed and nothing in the Outer Space Treaty prohibits them from being permanent, nor does it prohibit states from conducting the administrative acts that have previously been part of making sovereignty claims. Practice on Antarctica – before the ATS – was to claim the land by first stepping foot on it, then describing and mapping it. Such rituals assist in explaining the actions of some states establishing permanent stations on Antarctica (Dodds & Collis, 2017). Beyond Antarctica, the constructing of habitation and agriculture were the omnipresent feature of the 'ceremonies of possession' of the English in the New World (Seed, 1995). These stations may still be established on Mars and the describing and mapping of the planet are not prohibited. It is worth noting that the United States stressed that no possession followed from the planting of a flag on the Moon by the Apollo mission (Leib, 2015). The USSR, who had planted their own flag on the Moon in 1959 stated that they had then proposed that outer space should be open to all humankind (Legal Subcommittee, 1966c). But these actions are still comparable to the practice on Antarctica; they are equivalent to the UK naming part of Antarctica 'Queen Elizabeth Land'

in that they are describing and defining the land itself and associating their respective states with that land. Indeed, the USSR named part of the far side of the Moon the 'Sea of Moscow,' not in keeping with the traditional nomenclature. Furthermore, these actions are demonstrations of perceived technological and cultural superiority, attitudes that run in parallel with imperialism.

While states may not be able to claim property rights, private citizens and companies may be able to do so. 'Deeds' to sections of celestial bodies are readily available. While these have no legal basis, this has not stopped Gregory Nemitz pursuing the matter in the US courts (*Nemitz* v *United States*, 2004), alleging that the landing of NASA's *Shoemaker* spacecraft on 'his' asteroid, Eros, infringed his property rights, though the case was ultimately rejected (Leib, 2015). Indeed, a controversial provision in the Moon Agreement, and one that potentially played a role in its legal status being unclear, was the extension of the non-appropriation principle to other non-state organisations (Leib, 2015). Non-state organisations are already playing a substantial role in space exploration and development. The services of private companies such as SpaceX are already being engaged by NASA and such companies have plans to colonise Mars; NASA's supply contracts for the International Space Station equalled $1.6 billion as of 2015 and $1.9 billion for Orbital Sciences Corporation (Leib, 2015). There is no sign that this will reduce in the future. On the contrary, SpaceX is unashamed in its usage of the word 'colonise' in relation to Mars.[1]

Again, the fact that Mars has no indigenous human population does not mean that the colonisation of Mars cannot be imperialistic. Companies may still, under the current space law, play a role in appropriating outer space and celestial bodies by the same acts that have featured in imperialism on Antarctica, and would do so to the detriment other states. States retain jurisdiction over their nationals in space and this would include SpaceX personnel. The regulation of operations in space is increasingly reliant on vague 'principles' and on the development of national rather than international law, but herein lies further issues. For example, the United States' Commercial Space Launch Act only covers the launching or de-orbiting of objects and not the operations in space that are not related to launching or de-orbiting (Lyall, 2009). This is despite the US Government Accountability Office in 2006 recommending further regulation of the emerging space tourism industry. China's own space law is relatively underdeveloped and is chiefly concerned with fulfilling its obligations to register space vessels.

Sometime in the future, therefore, it would be the launching states that would supervise installations and it would be the purview of the launching state to oversee aspects of access. It is notable that claims of imperialism have been directed at Russia because its bases in Antarctica are not, they allege, sited at locations best suited for scientific research but rather around the edge of Antarctica and therefore are better placed to exert influence on admittance. It is further notable that this differs from the approach in more traditional international law in which states do not generally have responsibility for the actions of their nationals except in cases of due diligence (Mendes de Leon & van Traa, 2017). Although under the terms of the Outer Space Treaty, states should grant the right to access their stations provided due notice is given, there is still latitude to perform the above administrative tasks that are central to consolidating claims over Antarctica. The inevitable establishment of permanent stations would provide the pretext to make *informal* claims by controlling access, mapping and describing territory and operating as the authority in the area, especially given that it remains an open question whether companies and states could claim ownership of non-renewable resources in space.

While the Moon Agreement generally aims to go further in prohibiting sovereignty claims, specifying that '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,' under Article 10, the legal status of the Moon Agreement is in doubt. Currently, it has only been signed by one spacefaring state – India – and has not been ratified by any.

3.2 | Science and the exploitation of resources

'The role of science and the production of scientific knowledge … have to be considered essential elements in the colonisation of Antarctica' (Dodds, 2006, p. 62). Imperialism by scientific research is not novel; it was used for prestige as well as material benefits and to demonstrate the cultural superiority of the Europeans: 'since the fifteenth century European exploration and imperialism … expressed the drive for wealth, control, and knowledge of the natural world' (Louis et al., 1999, p. 294). Peter Beck's (2014) seminal work has, just as many others have done, argued that science holds particular politico-legal value on Antarctica and is closely linked to sovereignty, noting that scientists have also performed administrative roles.

While some have argued that concern about environmental impact has overcome the drive for scientific supremacy – notably the ethnographic work of O'Reilly (2017) finds that scientists working in Antarctica are acutely aware of, and sensitive to, the environmental concerns, and Roberts (2020) argues that the quality of being an environmental 'conduit' has replaced the

'science criterion' – scientific rivalry has had a strong association the management of Antarctica, and imperialism there and elsewhere. For example, prospective Antarctic Treaty Consultative Parties are still required to demonstrate their scientific capability in Antarctica before joining the decision-making body, resulting in the same inequity and exclusivity that epitomised the historical complaints of the likes of India and Malaysia – two states particularly involved in efforts to put the 'Question of Antarctica' on the agenda of the UN – and the source of the charge of imperialism from Chaturvedi (2013).

The drive for scientific and technological advancement is one of the priorities in the exploration of outer space. The seven key principles discussed in NASA's plan include the statement that 'exploration enables science and science enables exploration' (NASA, 2015, p. 5) as well as opportunities for US commercial business and international and commercial partnerships. In other words, resources and science facilitate commercialisation.

In an attempt to stop this drive for scientific advancement from being exploitative and compounding the already-existing inequalities between states, Article I of the Outer Space Treaty provides 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.

On the face of it, this article seems to demonstrate awareness that the inequality between states is a problem in need of a remedy. The Legal Sub-Committee of COPUOS observed in 2019 that the exploitation of geostationary orbit, as a limited natural resource, was an issue that spoke directly to national appropriation and claims of sovereignty. It was thus in need of a legal regime beyond the International Telecommunication Union regime in order to ensure that equitable access was guaranteed and developing states were not left behind (Legal Subcommittee, 2019, §100–109).

However, a closer analysis reveals that it still does not prohibit the kind of exclusive exploitation of resources that the Legal Sub-Committee said would cause 'serious problems.' There is much overlap between the history of capitalism and the history of imperialism. Capitalism has been part of the narrative that justifies imperialism through appeals to the superiority and claims to civilisation of some nations (Tzouvala, 2020). Likewise, those less able to exploit resources in a given area are unlikely to be reassured by being told that such exploitation does not amount to a valid legal claim over the territory. Indeed, imperial designs have in the modern era shifted away from claims supported by conquest towards commerce as a means of influence (Ho, 2004; Lutz, 2006).

It is notable that Article I of the Outer Space Treaty already declares that celestial bodies are the 'province of humankind.' The exact meaning of the phrase is unclear and yet much of whether the benefits of the resources in space should be shared equally turns on this concept. The term is derived from the Roman law theory of *res communis* but differs from the Roman conception in that it allows usage of the resources involved (Reijnen, 1992). *Res communis* and *res communis humanitatis* (common heritage of humankind) differ because of the legal nature of the natural resources; in the latter they are not *res nullius* or, in other words, they are not 'owned by no one' and can be exploited only with authorisation (Lefeber, 1990, p. 113). The LSC of COPUOS had noted that the idea of a *res communis omnium* had not been defined by international law and the only two instances of it – Antarctica and the High Seas – were regulated by specific statutes (Legal Subcommittee, 1962). Under the United Nations Convention of the Law of the Sea (UNCLOS,1982), the deep seabed was the common heritage of humankind and revenue made from mining must be shared with developing states (Dodds & Collis, 2017). The US is not a party to the Convention and the negotiations on a new treaty on biological diversity of areas beyond national jurisdiction under UNCLOS, reveal a split along familiar lines over the application of the common heritage of humankind principle, with EU states, the USA, Australia, and Russia being notable opponents. The Consultative Parties in Antarctica have consistently resisted the application of the common heritage principle to the continent and have attempted to side-step the issue by using vague references to equality.

In outer space too, the United States has expressed its understanding that the 'common heritage of humankind' concept in the Moon Agreement differs from that found in the Convention on the Law of the Sea. Crucially, it has been argued that the free enterprise system, a feature of *res communis* and not of *res communis humanitatis*, should be the regime managing the exploitation of resources on celestial bodies (Lefeber, 1990).

The resources in outer space have not been convincingly declared to be the common heritage of humankind. The Moon Agreement anticipated the establishment of governance of the resources of the Moon and, by extension, other celestial bodies (Lefeber, 1990). However, it was Article 11.1, the designation of the Moon and other celestial bodies as the 'common heritage of humanity' that was the Agreement's most controversial provision and arguably the source of its doubtful legal status (Leib, 2015). Article 11.7(d), held that benefits derived

from resources should be shared equitably by all states parties (Leib, 2015).

The issue is that 'benefit' can be defined subjectively by states, and there may also be room to consider the 'interest of all countries' to reference interests that are held by the international community, rather than interests held by all individual countries (Bourbonnière & Lee, 2007). The USSR, whose draft formed the basis of Article I, defined what it understood to be 'in the interests of all mankind': 'if State A permitted State B to build … on its territory, State C … should be given the opportunity to build a similar station on A's territory,' but it also noted that this remained within A's purview: it 'would not affect the sovereign right of State A to refuse to grant such privileges' (Legal Subcommittee, 1966e). Before the US Senate approved the OST, the Senate Foreign Relations Committee noted that nothing in the first paragraph of Article I prevented the US from determining how it shared the benefits of its activities in space with other states, a sentiment also shared by the Soviet Union (Bourbonnière & Lee, 2007). In other words, the states themselves are free to decide whether their actions are in accordance with the 'space benefits' law. It is worth noting further that some delegations, such as the Indian delegation, of the Legal Sub-committee questioned whether the first article of the Soviet draft – which later became Article I of the Outer Space Treaty – ought to be in the treaty at all, given it appeared to describe no actual legal obligation (Legal Subcommittee, 1966e, 1966f).

Efforts to clarify and extend the law here have been limited. In 1989, over 170 Member States of the UN and 53 Member States of COPUOS were asked to submit their views on the exploration and use of outer space being for the benefit of all countries and only 30 replied (Benkö & Schrogl, 1993). Later efforts were marred by the industrialised countries making clear that they would not support the introduction of institutionalising a responsibility for international cooperation and automatic transfer of resources (Benkö & Schrogl, 1993).

Furthermore, in light of the lack of space law governing commercial activities, the regulation of such activities has largely been left to national space legislation; 'the age of formal space law treaties may have closed' (Lyall, 2009, p. 468). International law itself is a species of imperialism (Anghie, 2005) and key to US hegemony (Scott, 2017). Given this, it is perhaps not surprising that the same types of accusations of imperialism of the United States are in danger of characterising outer space too, at least under the current legal regime.

The latest meeting of the Legal-Sub Committee of COPUOS noted that the OST did not preclude the utilisation of space-based resources, that there was not an international regime to regulate their use and that there was no practical basis for creating one (Legal Subcommittee, 2019, §245–246). However, it was noted that 'space resources were accessible only to a very limited number of States and to a few private actors … and that it was therefore relevant to assess the impact on the world economy of applying a doctrine of 'first come, first serve' as it would create a *de facto* monopoly and would thus be in absolute contradiction with the letter and spirit of the Outer Space Treaty' (Legal Subcommittee, 2019, §254).

As with the previous section, although the articles of the Outer Space Treaty that are designed to protect against the exploitation of resources by powerful states instruct states to share their gains equally, deeper analysis demonstrates that it does not provide a satisfactory safeguard. The potential imperial states may wield the political and economic power that Mann believes characterises imperial powers in spite of the provisions of space law.

3.3 | Use of military force

In conjunction with the two forms of imperialism on Antarctica – sovereignty by administrative acts, and research and the exploitation of resources – described above, the lack of restraint on the militarisation of space results in a space that reflects the inequalities on earth; developed states 'claiming' parts of space, using the resources without distributing the benefits equality and engaging military force to protect those interests.

Thanks to Antarctica being the only demilitarised continent, the Antarctic Treaty's provisions provided an excellent model for the Outer Space Treaty's approach on this matter as well. Both the ATS and the OST specifically determine their respective regions as ones of peace. Based on the preparatory negotiations of the Antarctic Treaty System, determining that the continent should be used for peaceful purposes only was the primary objective of the ATS (Beck, 2014). Article I of the Antarctic Treaty states that:

1. Antarctica shall be used for peaceful purposes only. There shall be prohibited, inter alia, any measures of a military nature, such as the establishment of military bases and fortifications, the carrying out of military manoeuvres, as well as the testing of any type of weapons.
2. The present Treaty shall not prevent the use of military personnel or equipment for scientific research or for any other peaceful purposes.'

Article IV of the Outer Space Treaty states that:

> States Parties to the Treaty undertake not to place in orbit around the Earth any objects carrying nuclear weapons or any other kinds of weapons of mass destruction, install such weapons on celestial bodies, or station weapons in outer space in any other

> manner. The Moon and other celestial bodies shall be used by all States Parties to the Treaty exclusively for peaceful purposes.

Some have argued that disarmament in the Antarctic was envisioned by the US as an isolated case of non-militarisation to prevent the USSR turning it into another arena for the Cold War from which the latter could exert its influence on the Southern Hemisphere, and that the US never intended the arms control to be replicated (Musto, 2019).

'Peaceful purposes' has not been exactly defined and in practice has left room for potential military uses of outer space, including surveillance, communication and military personnel employed as astronauts, as well as any forms that overlap with scientific research. Europeans and the US have viewed 'peaceful' to be synonymous with 'non-aggressive' – in line with the UN Charter's Articles I and II – and have therefore accepted security-related activities as legitimately peaceful (Leib, 2015; Lyall, 2009). Others, such as the former Soviet Union have interpreted it to mean the prohibition of all military activities unless otherwise stated in the Outer Space Treaty (Bourbonnière & Lee, 2007). The Outer Space Treaty itself does not define the term and an examination of the *travaux préparatoires* does not render conclusive clarification.

Antarctica can be used for military training and testing despite the Antarctic Treaty's Article I. For example, it can be used for training on landing on runways covered in ice. Previously, the majority of personnel stationed at facilities in the Antarctic had been military (Beck, 2014). Argentinian, UK, and Chilean declarations before 1959 had specified that warships should not be sent beyond 60°S, what was later the definition of the area covered by the ATS (Beck, 2014).

While the use of military personnel and equipment in the Antarctic has been generally non-military in nature, restrictions on military activities in space are actually lesser than those in the Antarctic. The potential use of space for military operations was a consideration that emerged at least as early as the Second World War, and is a key consideration today (Lyall, 2009). There are several ways in which the militarisation of outer space is not prevented.

Firstly, Article IV of the Outer Space Treaty does not prohibit the installation of conventional weapons, only the installation of nuclear weapons or other WMDs in orbit, space or on celestial bodies. The use of conventional weapons would be subject to international laws of armed conflict, but this does not seem to involve any additional protections for Mars. The extension of the prohibition of nuclear weapons testing on celestial bodies to a similar prohibition on conventional weapons was proposed by the United States, whose representative explicitly referenced the equivalent provision contained in Article I of the Antarctic Treaty (Legal Subcommittee, 1966c). However, the wording of Article IV itself, given that these various further suggestions were made, demonstrates that the choice not to strengthen the wording was a deliberate one. Given that many technological advances are motivated, and facilitated, by potential military application, it has been noted that any such carpet ban on military personnel and vehicles in space would stifle advancement (Lyall, 2009).

Discussions of US imperialism have noted the number of military bases it possesses. In 2004, the US had bases in 132 countries, of which 40 were 'full-scale,' and while these are not the imperial garrisons of the British and Roman Empires, they project American power and offensive capability, not least because of the near monopoly on 'smart' weaponry (Mann, 2004). In contrast to its concerns about celestial bodies, the United States has consistently demonstrated a willingness to allow space to be militarised. In 2007 it exercised the single 'vote against' the General Assembly Resolution on the demilitarisation of space (United Nations General Assembly, 2007). The US draft treaty for outer space dealt with exploration and *not* use of outer space, nor did it cover outer space itself, choosing only to focus on celestial bodies (Legal Subcommittee, 1966a); the Soviet draft was the more comprehensive in this respect (Legal Subcommittee, 1966b, 1966c). Furthermore, China has successfully carried out an Anti-Satellite Missile Test against one of its own obsolete satellites. Article IV of the Outer Space Treaty also did not apply in this case because the weapons were not nuclear weapons or weapons of mass destruction (Mendes de Leon & van Traa, 2017). Indeed, neither the Soviet nor the US draft had included the prohibition on military installations and manoeuvres in space (not on celestial bodies) though the Indian delegation had 'appealed' to the two powers 'to reconsider' these positions (Legal Subcommittee, 1966d).

Secondly, ballistic and anti-ballistic missiles are part of the potential militarisation of space. Under current law they may enter space on the way to their target. Furthermore, because they are not classed as vehicles, missiles carrying nuclear or WMD warheads are not prohibited under Article IV of the Outer Space Treaty (Lyall, 2009). The demarcation between outer space and the air is also an issue, and was a problem in need of a solution as far back as 1959, when the Legal Sub-Committee for COPUOS (Legal Committee, 1959) in which the UK representative observed that some considered that states owned all land underneath and above its territory according to its boundaries on the crust of the Earth and others considered that sovereignty over such areas should be determined by the capacity of the state to exert such sovereignty. Indeed, the decision by the United States to conduct nuclear tests at high altitudes overshadowed the LSC's work in 1962. While Article IV of the Outer Space Treaty does

prohibit states from placing space objects in orbit, this is defined by whether said object completes one orbit around Earth; missiles would not fall into this category.

There are some restrictions. The deployment of space-based weapons would still have to observe and respect the interests of other states, 'whether based on Article IX of the Outer Space Treaty or as a norm of customary international law' as well as its duties to non-combatants and civilians in accordance with the law of armed conflict (Bourbonnière & Lee, 2007, p. 899). Deployment of them would also have to be consistent with the Registry Convention which expects the registration of space objects and the international sharing of such information contained within the registry. However, such a registry can be harmonised, as Bourbonnière and Lee (2007) note, with the laws of armed conflict and without falling foul of its provisions on perfidy if they were recorded on their own separate registry and were not disclosed.

Thirdly, states are making progress in developing forces specialising in conflict in space. The United States has established the United States Space Force (USSF). Former US President Ronald Reagan announced a research programme, in the form of the Strategic Defence Initiative, to develop the capability to intercept ballistic missiles and the Bush Administration's own National Space Policy in 2006 confirmed US interests in space and asserted it would act to preserve their rights there (Bourbonnière & Lee, 2007). Critically, it anticipated that its dependence on its space capability, already high, would grow.

Other states will likely follow the USSF with their own space forces and there is yet to be a specialised space to regulate military conduct in space. General Assembly Resolution 1721 (United Nations General Assembly, 1961), which was unanimously adopted, declared that international law and the UN Charter extended to outer space and celestial bodies. This point that would surely not allay fears of space emerging as another place to conduct imperialist activities. Such fears would be even less allayed with knowledge that the then Former Vice President Mike Pence claimed that the adversaries of the US had 'transformed space into a warfighting domain already' (Irish, 2018) – given that Article 51 of the UN Charter retains for states the right to use force in self-defence – as well as Former US President's Donald Trump's pursuit of 'American dominance in space' rather than its mere presence (Dunn, 2018). The budget for the USSF moved from $15.4 billion in the financial year (FY) 2021 to $17.5 billion requested for FY 2022, a fraction of the $195.3 billion requested for the Air Force in FY 2022, but a much larger proportionate increase for the budget of the USSF than the Air Force, suitable to its status as a new but evolving department (Department of Defense, 2021).

Some, such as Adam Irish (2018), consider that the USSF has only a small legal window and may not extend to control and influence over outer space. However, there is still a window. There will be significant interest in extending control over resources on Mars, and the current framework is not enough to prevent a military dimension. Threats to permanent stations could provide a pretext for use of the military in space, military which could already be in space to respond. Indeed, the US National Space Strategy emphasises the 'cooperative interplay between the national security, commercial, and civil space sectors' (The White House, 2018).

4 | CONCLUSION AND POLICY RECOMMENDATIONS

Freezing space law as it is would allow for *de facto* exclusive claims to be made on Mars without violating the Outer Space Treaty (Leib, 2015). The patterns of imperialism in Antarctica have generally taken the form of practicing administrative acts, such as establishing stations, controlling access and mapping the land, and of unevenly exploiting the resources and conducting scientific research. The patterns of imperialism enabled states to act as sovereign, regardless of whether they had the legal right to do so. While the Outer Space Treaty expresses concern about sovereignty claims, unequal exploitation of resources and the militarisation of space, these individual acts that were part of the patterns of imperialism on Antarctica are not satisfactorily regulated by the OST, meaning that states may practice *de facto* sovereignty while being compliant with the letter of the treaty.

While these acts, such as the establishment of permanent stations, reproduce the patterns of imperialism from Antarctica, they also represent interests for the states involved. In the absence of proper controls on the management of resources in outer space, these could be sources of international tension. Mitigation of the militarisation of space is reliant on the laws of armed conflict and states and private companies may yet exploit loopholes in the current regime to make use of resources and knowledge-gathering to the detriment of developing nations. All of this leaves open the possibility that imperialist activities may still be conducted in space.

An important obstacle is that too much is left up to national policy and the influence of particular nation states. What is therefore required is greater international management. Several attempts at international governance have failed. Indeed, the seven countries with territorial claims to the Antarctic opposed the Indian proposal to the United Nations on the 'Antarctic Question' due to concerns that it would set precedent for the UN managing territories (Howkins, 2008). The drafters of the Moon Agreement intended it to start the process which would result in an international regime to preside over questions of economic development of

the Moon, Mars and other celestial bodies (Leib, 2015). However, it has not been ratified by any spacefaring states.

It is also important to note that the topic of imperialism in outer space would benefit from research in other areas and other comparisons. A historically contextualised comparison between the companies seeking prestige and capital in space and companies such as the East India Company and Royal African Company would be most fruitful, particularly in discussing the exercising of economic power over the area.

While the development of international regulation would have an uphill struggle ahead of it, this article has sought to demonstrate its necessity. The provisions contained in the Outer Space Treaty and related instruments pay lip service to the anxieties or the current international regime without going into enough detail to effectively regulate them. Specifically, a tailored law of space that deals with the use of military force is required and it must be an international body rather than states that should decide the conventions for naming and mapping parts of outer space, granting access to permanent stations, controlling the behaviour of private companies and sharing the benefits of scientific research and resource exploitation.

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DATA AVAILABILITY STATEMENT

Data sharing not applicable to this article as no datasets were generated or analysed during the current study.

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ENDNOTE

[1] See, for example, Musk (2017). The installation of a permanent settlement on Mars is much more generally referred to as a colonisation.

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