International Law and the Production of new resources: Lessons from the colonisation of Mars

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Introduction

In this chapter I present an analysis of how modern occidental law produces space, particularly in situations of resource extraction. Instead of a more familiar historical analysis of the deployment of occidental law in colonisation, I look at Kim Stanley Robinson's science fiction novel *Red Mars*. This literary account of the first 40 years of the human colonisation of Mars, a future history of Mars, breaks the legal analysis free of its historical and geographic specificity. Instead we see the law unleashed, and the colonial violence of occidental law repeated on a new set of facts. The writer and the characters in the novel consider the way law was used, adapted, or failed to adapt to govern a new technological and geographical situation. Through a law in literature analysis we can see law's role in the production of space, material relationships, and the problems of law and new technology. In this chapter I will first detail the history of the colonisation of Mars, and then consider the law relevant to this colonisation of Mars as detailed in Robinson's account. In the third part I will step back to consider the lessons for us as lawyers concerned with international law's governance of new resources. The final part will argue for the value of science fiction for helping us think about the relationship between law and changing technology.

The History of Mars

Mars is the fourth planet from the Sun in our solar system. Visible from Earth with the naked eye, it features throughout human history, its distinctive red colour marking it out in the night sky. Ancient Sumerians believed Mars to be the god of war and plague; a similar position was held in the pantheons of ancient Greece and Rome. Ancient Egyptian astronomers documented Mars' apparent retrograde motion, as did Ptolemy in the *Almagest*. Mars was known to ancient Chinese astronomers as the fire star. Ancient Indian astronomers produced accurate estimates of the size of Mars.

The modern European relationship with Mars begins with the development of the telescope. Galileo is supposedly the first person to have observed Mars via telescope. That Mars had polar ice caps was observed by Cassini, who also theorised that Mars had seasons. Surface detail of Mars became visible in the late 19th century. Schiaparelli drew a map of Mars which included long straight grooves or channels, *canali* in Italian, mistranslated as canals in English. The canals were made famous by Percival Lowell, whose book *Mars and its Canals* argued that the canals were built by intelligent life for the purpose of transporting water from the frozen poles to the arid desert regions at the equator for agriculture.[1] Around the same time, H G Wells wrote *The War of the Worlds*, in which a Martian invasion of Earth takes place.

In the second half of the 20th century, satellite observation ended any speculation about canals on Mars. Detailed mapping of the planet started with the *Mariner* missions and the *Viking.* Eventually, the *Mars Global Surveyor* mission produced a complete and highly detailed topography of Mars. Detailed maps of Mars can be viewed at Google Mars, or NASA's Mars Trek and Experience Curiosity.[2] There have been dozens of spacecrafts sent to Mars, and as of 2019 Mars is host to eight functioning spacecraft, six in orbit and two on the surface.

In 2020 the future history of Mars began. John Boon, captain of a group of four astronauts, was the first man to set foot on Mars, with the words 'well, here we are'.[3] In 2026 the *Ares*, a joint project between the American and Russian space agencies, left Earth for Mars. In 2027 the first hundred colonists of Mars landed, and, in Robinson's words, Mars 'became a place'.[4] Those first colonists, half Russian and half American, were mostly not cosmonauts or astronauts, but were scientists, a mix of geologists, physicists, engineers, biologists and chemists. They were chosen to establish a colony, building habitats for a long-term colonisation of the planet. Separate settlements were built by Japanese colonists, the second large group to arrive on Mars in 2032. Over the next two decades the population of Mars steadily grew, as constant Earth-to-Mars shuttles brought in new colonists. Groups from the Middle East, South Africa, Ethiopia, and India were notable, as was the presence of groups representing transnational corporations. The completion of the space elevator in 2057 increased emigration enormously, particularly in the context of another world war on Earth.

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[1] Percival Lowell, *Mars and its Canals* (New York: London: MacMillan 1906).
[2] Google Mars www.google.com/mars; Mars Trek https://trek.nasa.gov/mars/; Experience Curiosity https://trek.nasa.gov/mars/.
[3] Kim Stanley Robinson, *Red Mars* (New York: Bantam Books, 1993).
[4] Robinson, *Red Mars*, 14.

These colonisers were both wealthy emigrants, a minority, and indentured workers. During colonisation to this stage, after basic survival systems were in place, the priority for the colonists was terraforming the planet with the long term aim of making it habitable. For the transnational corporations, the priority was resource extraction, particularly of what turned out to be an abundance of metals rare on Earth.

These different uses and understandings of Mars, habitability vs profit, were not initially in conflict. Mining projects contributed to a process of heating the atmosphere, directly and indirectly. However, a third position was held by some of the colonists; that of the need to preserve the natural Martian environment. In the view of Anne Claybourne, and those who followed her, the planet itself was the indigenous entity, which the terraforming and mining projects were destroying. Claybourne made it her role not just to study the aboriginal Martian environment, but also to advocate on its behalf. Although always a minority, and clearly not a successful position, this view retained a strong voice throughout the colonisation of Mars. In conflict with those who wanted to make Mars fit for human habitation, Claybourne believed 'you value consciousness too high, and rock too little'.[5]

This position was known as Red, or the politics of a Red Mars. This was established in opposition to the Green, those who believed in making Mars human habitable. Both politics had within them revolutionary ideas about social and economic organisation. As Arkady Bogdanov put it, colonists on Mars at this stage 'have not been living in a money economy, that's the way scientific stations are'.[6] This dedication to a bigger project, and the physical and temporal separation from Earth, made possible new thinking and ways of conceiving social order. This included ideas such as areophany (that Mars reforms the people on it, just as they themselves try to reform Mars), and eco-economics (an economic system based around the exchange of energy). But as more people arrived on Mars with short term interests, and as more companies imposed financial interests, the scientific station utopia broke, as it must. A utopia cannot only be for some separate few, it has to be for everyone.

The first volume of Robinson's trilogy on the future history of Mars ends in 2062. By this point there are tens of thousands living on Mars, mostly in large transparent tents covering small cities. There is a functioning space elevator making the transport of people to Mars, and valuable resources off Mars, far quicker and more efficient. Earth is in a bad state, with

[5] *Ibid*., 213.
[6] *Ibid.*, 401.

environmental disaster on a planetary scale, massive transnational corporations taking over all but the largest States, and a global refugee crisis. Mars offers the promise of so many alternatives, from the possibility of expansion, the moving of people to Mars, and the extraction of resources, to the possibilities to reshape political organisation born on a new planet.

The Law of Mars

The first human on Mars mission was an American operation, run through NASA with an American crew. Following that success, the project of colonisation was international, led by the USA and Russia, but under United Nations organisation. The United Nations Office for Martian Affairs (UNOMA), based in New York, was supposed to run the colonisation and exploitation of Mars. This legal organisation has a lot in common with the law of the sea. UNOMA is similar to the International Seabed Authority (ISA) and the International Maritime Organisation (IMO). Where they have responsibility for shipping and sea bed mining, UNOMA has responsibility for organising travel, settlement, and mining of Mars. The first Mars Treaty did not come into effect until after the settlers set off for Mars. The planning of first settlement was simply governed under existing international law, with the Outer Space Treaty foremost.

The other major, and more conscious, international legal precedent adopted for Mars was Antarctica. This certainly occupied the minds of the first hundred settlers, perhaps because their training had all taken place in Antarctica. As the ship reached Mars and they prepared to land, the first hundred debated the organisation of property on Mars. The Russian mechanical engineer and anarchist Bogdanov argued that the Antarctic Treaty offered a model for a utopia. Land free from sovereignty and property is, in Bogdanov's words 'land free from … any history at all'.[7] However, those on board were not completely ignorant of the political reality outside of the peaceful purposes and cooperation proclaimed in the treaty. The Antarctic treaty explicitly does not renounce sovereignty claims made by contracting parties. Argentina, New Zealand, Australia, the United Kingdom, Norway, France and Chile all have territorial claims over Antarctica. The United States and Russia both reserve the right to make a territorial claim. There are a further 20 countries which have a 'significant interest' in Antarctica, usually demonstrated by investing in significant scientific research stations. As

[7] *Ibid.,* 110.

Bogdanov also acknowledges, this makes the scientific stations highly political, rather than neutral, as investing in scientific research is a strong basis for a future claim, or at least involvement in any change to how Antarctica is governed.

The first Mars treaty was modelled on the Antarctic Treaty. It had similar weaknesses. Bases on Mars belonged to the specific states on Earth which built them. The first settlers in theory were building American and Russian bases, and as such 'the nightmare of Terran law and Terran history' continued to weigh on the settlers, and even the planet.[8] As the settlement of Mars progressed, this weakness meant that a great number of different countries built bases on Mars, usually as flags of convenience for transnational corporations. Whichever transnational corporation could get the most States to allow it to build bases on their behalf would have the biggest claim to ownership of mining on Mars. The first Mars Treaty included provisions for UN licensed mining operations, with profits to be shared among every nation on Earth. How this was to be done was unspecified, but it was assumed that something similar to the mining of the international seabed would be put in place, with a tax on mining profits being collected and redistributed by the UN. It also legislated for 'measures to prevent the disruption of planetary environments'.[9] This should in principle have prohibited the mass terraforming projects which started immediately, but the provision was ignored. The Treaty was upheld where it could be exploited, and failed to prevent abuse where it was not useful to those with an interest in Mars.

The Outer Space Treaty was the other significant piece of international law which formed the background for the initial settlement of Mars. This Treaty, opened for signature in 1967, also forbids the claiming of sovereignty in outer space. It also restricts military uses of outer space, prohibiting the placement of weapons of mass destruction in space or on celestial bodies. Conventional weaponry is not prohibited, nor are military space forces of other kinds. One minor provision that was to prove significant when included in the Mars Treaty was Article XV, which allowed that any state party could propose amendments to the treaty. As the Mars Treaty came up for renewal in 2057, the major transnational corporations manoeuvred to have as many representatives from flag of convenience states as possible. The weaknesses of both the Antarctic Treaty and the Outer Space Treaty became very apparent when they were applied by analogy to Mars.

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[8] *Ibid.,* 111.
[9] *Ibid.*

It should be emphasised here how speculative the mission to Mars was. Its huge mineral wealth was only known after the settlers arrived. Even then, interplanetary mining only became economically viable after the building of the space elevator, and in a period of capitalist development where the old multinationals had joined together into fewer and much more powerful transnationals. The whole mission to settle Mars was a gamble by two 'decrepit outmoded industrial dinosaurs', as Frank Chalmers, leader of the US mission puts it:

> We had all this space experience going to waste, and a couple of huge and unnecessary aerospace industries, and so we pooled them and came here on the chance that we'd find something worthwhile, and it paid off![10]

Once it became viable, there was a kind of gold rush, of countries and corporations staking claims, and emigrants seeking a new life.

Governance of Mars in this period was supposed to be under the oversight of UNOMA. However, it is revealed in Robinson's history that even at this stage UNOMA was not working to uphold the Mars Treaty. Helmut Bronski, senior official of UNOMA on Mars, and former EU Commissioner for Financial Affairs, awarded the first mining concession in 2047, ten years before the Mars Treaty was due to be amended, and in direct breach of the first Mars Treaty. In a conversation with Boone, he justified the decision on the basis that the treaty was superannuated, and that 'we have to try to anticipate certain aspects of the revision'.[11] The concession was granted to Armscor, originally a weapons manufacturer based in South Africa, but by this stage a transnational corporation, representing over twenty countries, and with enough capital to make it one of the worlds top twenty economies, while still being one of the smaller transnationals.

Once mining concessions and terraforming were underway on Mars, the precedent of ignoring the Treaty fed back into the treaties which had informed the Mars Treaty. In the same year as the first mining concession was granted on Mars, oil and gas drilling began on Antarctica. With the space elevator and the mining concessions came a huge spike in emigration to Mars, particularly of miners seeking to make their fortune and return to Earth. The emigration, far more than the mining or the terraforming, was the central issue in the renegotiation of the Mars Treaty in 2057.

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[10] *Ibid.,* 415.
[11] *Ibid.,* 321.

By 2057, 53 states were parties to the Mars Treaty and had established bases on the planet. Working still as the United States Secretary of State for Martian Affairs, Frank Chalmers played a leading role in renegotiating the Mars Treaty, and in representing the interests of the colonists. Chalmers' first proposal was to align the interests of Mars with the interests of the Third World. Mars was a new colony, just like the former colonies, and once again the Global North were profiting by exploiting natural resources. The Global South nations present could vote together to push for profits from Mars being distributed to states rather than corporations. He persuaded these delegates that their interests should be in the money rather than mass emigration, which would be impractical and costly given the scale of the problem. To the Global North states, Chalmers sold this as sovereignty asserting itself against transnational capital, and that emigration was in the interests of these states far more than simply opening up the new planet to industrial exploitation. The interests of the Global North in emigration, and the Global South in profit sharing from resources, and of all states in asserting sovereignty against capital, brokered a sort of balanced deal, with emigration and exploitation apparently in opposition to each other.

However, it did not last long. The transnationals soon moved to different flag of convenience states to expand their mining operations. Emigration to Mars increased, in the form of workers, crammed in to rapidly built and inadequate accommodation. This increase became unmanageable after the completion of the space elevator in 2060. Workers started striking, and the transnationals sent private police and military to force them to work. In 2061 the first Martian revolution started. It was ended with extreme violence from UN backed transnational private forces, destroying whole cities. The remaining first settlers on Mars went into hiding, and the Mars Treaty was completely abandoned, with *de facto* control of Mars handed over entirely to the transnational corporations, through UNOMA.

Old law for new wine?

There is much that we can take with us from Robinson's thinking about human settlers on Mars. The references to international law in the novel might be a little vague and imprecise for international lawyers, but the recognition of the power of legal analogy, and the interplay of law and politics, is well understood and realistic. Mars might not quite be ready for exploitation, but we are right now faced with the prospect of similar forms of commercial

exploitation. The deep seabed is one worth considering, as are topics such as asteroid mining and private space exploration.

Robinsons' characters have a treaty to work with, and even a UN agency guiding them. But they are also aware of two key historical precedents in the Outer Space Treaty and the Antarctic Treaty. Today, the Outer Space Treaty is still a key pillar of any existing or potential space law. The Antarctic Treaty is more interesting, and for Robinson is regularly invoked as a kind of utopia. Overlooked in the book is the UN Convention on the Law of the Sea (UNCLOS), in which the provisions for the deep seabed could have posed a productive parallel. Instead, we can look at it the other way around, with the renegotiation of the Mars Treaty perhaps having interesting lessons for the deep seabed after the UNCLOS Implementation Agreement and with the negotiation of the Mining Code currently underway in 2019 and 2020.

First the Outer Space Treaty. The Treaty, built upon the General Assembly Declaration of Legal Principles Governing Outer Space, was adopted in 1966 and entered into force in 1967. It is very clearly a product of the Cold War space race and is a reactive piece of international legislation. By 1967 satellites had been launched, several people had been into space, and the first space walk had taken place. US ambitions to land on the Moon were well known, as were USSR plans for a space station. The Treaty is written in very broad terms, but it does start with some useful fundamental principles – Article 1 reserving outer space and celestial bodies as 'the province of all mankind', and Article 2 prohibiting claims of sovereignty over outer space or celestial bodies.

As the relative power of states to private companies diminishes, these provisions become much weaker. Arguably, the treaty was written during a period of peak sovereignty, with the new global hegemons refusing to cooperate, and the decolonising world using its new found sovereignty in imaginative ways. The historical precedent is clear: much of colonialism was driven by private companies, such as the Dutch and British East India companies. The use of occidental law to deny indigenous law and render settler colonies in North America, Australia and New Zealand empty are also clear comparisons. In the 21st century, as Robinson also sees, private companies can assert their rights in space without being limited by sovereignty. Occidental law itself makes space empty and free for exploitation. Several states have passed or are drafting legislation to permit companies operating from their states to explore space.

The best known are the US Space Act 2015, which includes provisions relating to asteroid mining, and Luxembourg's Space Law 2017.[12]

The same developments are seen in the regulation of the deep seabed. In UNCLOS this area was reserved for the benefit of all humankind, but as the mining becomes possible the rights are being bought up by a few private companies operating through flags of convenience. This is seen most clearly in the case of mining company Deep Green working through Nauru.[13] Surabhi Ranganathan shows that the reserving of the deep seabed for all humankind continued a logic of exploitation.[14] Claims of territory or sovereignty are not necessary for exploiting a resource; it is, rather, the definition of something as a resource that marks it for exploitation. Naming the seabed, or outer space, as being a resource to benefit all humankind continues to view nature through a lens of exploitation. This was clearly a struggle the colonists on Mars went through, and it is one that we are seeing right now in the drafting of the ISA mining code.

A different theory is needed. The idea of common heritage of humankind was a radical resistance to state-led imperialism. But in an age of catastrophic climate change, what is needed is an anti-extractive theory, a theory of using nature that is not exploitative. This fundamentally requires a change in science, law and economics, all of which need decolonising. To do so requires a change of theory, or of imagination, and this is the usefulness of the Martian trilogy.

Law and Sci-fi: future histories, historical simulation, and imagining the world differently

Science fiction offers a form of political theorising that is imaginative, creative and inherently oppositional to the established order. The 'cognitive estrangement' found in *Red Mars* is one I have attempted to reproduce in this chapter, by taking the fiction seriously, even literally.[15]

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[12] For an excellent analysis of these developments see Isabel Feichtner, "Mining for Humanity in the Deep Sea and Outer Space", *Leiden Journal of International Law* 32 (2019) 255-274.
[13] Nauru holds the exploration concession which DeepGreen makes use of. DeepGreen CEO Gerard Barron spoke from Nauru's seat at the ISA mining code negotiations, https://ran-s3.s3.amazonaws.com/isa.org.jm/s3fs-public/files/documents/nauru-gb.pdf. See also the analysis in Feichtner *ibid*.
[14] Surabhi Ranganathan, "Ocean Floor Grab: International Law and the Making of an Extractive Imaginary", *European Journal of International Law* 30 (2019) 573-600.
[15] Darko Suvin, *Positions and Presuppositions in Science Fiction* (New York: Springer, 1998) 71–2.

A similar creative liberation has been found in much of the turn to history work in international law. Perhaps it is time for a turn to the future.[16]

What then to make of the colonising of Mars? It poses as much of a legal challenge as a scientific, economic, environmental, and political challenge. The later books in the Martian trilogy each include a constitutional convention – the first ideal, the second actual – echoing the treaty renegotiation in the first volume, but these are about the public law of a new and independent Mars. The first volume offers the most for an international lawyer. The characters are reasonably aware of the legal context of their mission, even if the author muddles some of the detail. But what I want to explore in this penultimate section is the usefulness of looking at international law through the novel.

It has often been said that it is easier today to imagine the end of the world than the end of capitalism.[17] That is the challenge of Robinson's science fiction: to try to think beyond what Mark Fisher called 'capitalist realism' – Fisher's term for an understanding of contemporary capitalist ideology operating as 'a pervasive atmosphere, conditioning not only the production of culture but also the regulation of work and education, and acting as a … barrier constraining thought and action'.[18] Robinson's novel is written as a future history, and it regularly questions what history is and how it is used. He defines science fiction as 'historical simulations' to produce a vision of the future.[19] His vision is consciously set against the 'consensus vision' of humanity in an artificial world, something like the spaceship supercomputer utopia of Iain M Banks' *Culture* novels. Robinson instead writes 'ecotopias', a science fiction world filled with life and nature, combining 'the post-modern and the paleolithic' in a 'future primitive'.[20] As such, Robinson's trilogy is, in Robert Markley's words, 'a sustained, theoretically sophisticated attempt to conjure into being a future that resists the romantic dystopianism of cyberpunk, the antitechnological bias of much "green" literature, and blanket denunciations of capitalist technoscience'.[21]

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[16] There is of course some engagement by lawyers with science fiction and popular culture more generally, in international law see Ruth Houghton & Aoife O'Donoghue, "'Ourworld': A Feminist approach to global constitutionalism", *Global Constitutionalism* (2019). Houghton & O'Donoghue's article is a serious rethinking of global constitutionalism by using feminist science fiction. There is also a mini-symposium in *Law, Culture and the Humanities* 14 (2018) which covers near future international law and technology issues.
[17] Jameson cites this line as 'someone once said…' in Frederic Jameson, "Future City", *New Left Review* 21 (2003) 76.
[18] Mark Fisher, *Capitalist Realism* (Winchester: Zero Books, 2009), 16.
[19] Kim Stanley Robinson, *FuturePrimitive: The New Ecotopias* (New York: Tor, 1994), 9
[20] *Ibid*., 11.
[21] Robert Markley, *Dying Planet: Mars in Science and the Imagination* (Durham: Duke University Press, 2005), 355-6.

This is science fiction written as a way to overcome history. The novels are 'historical simulations', that is, simulations of what historical experience might become. These novels are focused on overcoming two specific divides central to capitalist modernity – between past and present, and between science and nature. The characters of the novels are well aware that they need 'to yoke together impossible opposites'.[22] Fundamentally, as recognised by Markley and Elizabeth Leane, this is an effort of decolonisation.

Mars, like space in general, is often portrayed as a frontier. This inevitably recalls the frontier of colonialism, particularly of the westward spread of the United States. Some, like aerospace engineer and Mars exploration advocate Robert Zubrin, are explicit in their description of Mars as a new frontier, of capitalism's need for constant expansion, and of the success and plenty built upon that exploration of those earlier frontiers. Of course, this libertarian idealist viewpoint is 'founded on dubious or simplified readings of American history that repress both the human and the ecological consequences of conquest and colonisation'.[23] This view pits science against nature, with nature always and only there for human exploitation. Again, we see space repeating the ideas of the deep sea bed, as containing potentially infinite resources for continuous capitalist and human expansion and exploitation. Robinson's Mars is written in this historical moment, as well as in the legacy of all previous sci-fi depictions of Mars. He attempts a decolonised history of settling new territory.

First Robinson's Mars has no natives, unlike much work in the genre. There are no people to subjugate. This is put to the forefront by some characters in justifying an all-out terraforming of the planet, an as fast as possible adaption of nature for human survival. It is only Claybourne, who becomes leader of the Red faction, who stands against this, and argues for the natural state of the planet as providing its own indigeneity. Here the tension between nature and science is rooted. It plays out as a political conflict, is a key element of the alternative economics developed, and also turns into armed conflict in both revolutions through the novels. As this struggle is played out and reconciled across the three novels, the reader can see and think the frontier differently, as cooperative and ecologically driven, not as individualistic and opportunistic.

[22] Kim Stanley Robinson, *Green Mars* (New York: Bantam Books, 2005), 229.
[23] Markley, *Dying Planet*, 365

The second major reconciliation which we can learn from in Robinson's novels is between past and present.[24] In navigating the difficulties of Mars, many characters turn to history. This theme is foreshadowed on the journey to Mars, during a brief argument about history and religion.[25] While thinking about what a new Martian society might look like, John Boone describes history as 'what happened when you weren't looking – an unknowable infinity of events … a nightmare, a compendium of examples to be avoided'.[26] The characters repeatedly struggle to apply historical analogy to the new planet. The radically different geographical setting demands a new political, economic and social organisation. Every attempt to reinstate an Earth-based system fails, whether it is Frank Chalmers' old school diplomacy or the language of the US Constitution. Instead, by the third book, the historical period on Earth that the settlers left is bracketed as feudal-capitalism, the whole period defined by private property. Mars overcomes this history by instituting a democratic economy, without private property. This is a combination of a futuristic socialism with a very traditional environmentalism. Nature combines with science, and the past with the present.

Leane centres the relationship between science and colonialism: 'like colonialism, and like patriarchy, science operates through a process of othering … the physical world is posited as other to the observer'.[27] She sees in Robinson's empty Mars a literal performance of what colonialist discourse does – the rendering of the colonized as natural, as objects of scientific observation in the same way the natural world is. As such, Robinson 'makes the isomorphism of the colonial and the scientific impulses explicit'.[28] The character's try to do things differently, try to 'take history by the arm and break it – *make* it. Make it new'.[29] They do this, according to Leane, by seeking what feminist scientists have called a 'successor science'.[30] This science accepts the natural world as autonomous, has 'a deep reverence for nature, a capacity for union with that which is to be known' and a 'willingness to hear what the material has to say'.[31] Law obviously also repeats this distinction between observer and

[24] I do not mean here to go over well trod ground on the history of international law, although what I say is relevant. Here instead I am aiming at something much bigger, the idea of human progress, from past to present, and its undoing.
[25] Robinson, *Red Mars,* 69-71.
[26] *Ibid*., 335-6.
[27] Elizabeth Leane, "Chromodynamics: Science and Colonialiism in Kim Stanley Robinson's Mars Trilogy", *Ariel* 33 (2002) 85.
[28] *Ibid*., 90.
[29] Kim Stanley Robinson, *Blue Mars* (London: Harper Collins, 1996), 34.
[30] Leane, "Chromodynamics", 100.
[31] Evelyn Fox Keller as quoted in *ibid.,* 100.

object, as legislator and regulated. What would a successor international law look like, with a reverence for nature and a willingness to hear the object?

International lawyers tend to treat technological developments in two ways, either a conservative insistence on the viability of old law, or a liberal-technical desire to write new laws. The *Mars* novels suggest that both are wrong in their exclusion of the other. You cannot insist on repeating the past, but you also cannot just leave it behind. It must be overcome. International lawyers concerned for the environment can also take on the lesson that science and nature must be reconciled. An insistence on undoing science is flawed and in its worst form reveals fascist impulses. The hope of innovating out of every problem has similar totalitarian endpoints. Sax Russel, the lead terraformer of Mars, learns this over the arc of the three novels. He starts out willing to do anything to heat the planet and thicken the atmosphere, including nuclear explosions and giant space mirrors. He ends up limiting the height of the atmosphere, finding that in preserving human life he must also preserve Mars itself. Cooperation between people, and then between people and place.

Conclusion

Robinson's utopia is not a blueprint, it is a dynamic utopia. In Frederick Jameson's terms, the traditional utopia ends history; on Mars, 'it is the attempt repeatedly to begin history over again which is the very subject of the work'.[32] The utopian desire is revealed through how things are done. The characters learn to do things differently. This includes law. The course of the novels takes about three hundred years, and a few revolutions. The achievements of the colonists must constantly be renewed and improved. There is a lesson here, in the theorising about how to do things differently, about changing our processes to try and reconcile nature and science, past and present. This can be taken into our more practical, less idealistic, thinking about how to do international law in interesting times.

The way Sax Russel learns to do science in the second half of the second novel might be a way we could learn to do international law:

> to explore everything. No matter the difficulties! To stay open, to accept ambiguity. To attempt to fuse with the object of knowledge. To admit that there are values shot through the whole enterprise. To love it. To work toward discovering the values by

[32] Frederic Jameson, "'If I can find one good city then I will spare the man': Realism and Utopia in Kim Stanley Robinson's *Mars* Trilogy" in *Archaeologies of the Future* (London: New York: Verso, 2005), 412.

which we should live. To work to enact those values in the world. To explore—and more than that—to create![33]

[33] Robinson, *Green Mars*, 373.