THE SPECULATIVE JURISDICTION
The Science Fictionality of Law and Technology

Kieran Tranter

This article argues that scholarship on law and technology is a thoroughly speculative activity. The textual signifiers of this speculative orientation are the multiple incursions of science fiction that locate and justify lawyers writing about technology. Through a detailed examination of three law and technology literatures – on early space technology, IVF and virtual worlds – it will be shown that science fiction is the storehouse of images and imaginings that substantiate the legal projection of technological futures. When law confronts technology, science fiction is its speculative jurisdiction. The suggestion is that through a more through-going engagement with science fiction as the speculative jurisdiction, law could engage more adequately with the complexities and contingencies of technological change.

This article argues that legal writing on technology is science fictional. As such, it is suggested that much more engaging and critical legal scholarship on technology is possible through a taking seriously of its inherent science fictionality. The nexus between legal scholarship on technology and science fiction is in the inherent speculation by lawyers of technological futures that orientate and legitimate the project of law and technology.

This argument is presented in three stages. The first considers science fiction as the West’s mythform – that it is the dreaming place for the West’s technological futures. The second stage examines in detail how science fiction functions as the speculative grounding to legal scholarship on technology. Three literatures on technology are analysed: first-generation space law scholarship (1956–65), IVF and law scholarship (1978–85) and virtual worlds and law (2004–08). In each scholarship, science fiction provides the location for a conception of technological futures that need law. In this, science fiction forms the speculative jurisdiction. The third section of the article reflects on the limited nature of the legal engagement with science fiction. The science fictions that inform the speculative jurisdiction are socially conservative. The technological futures charted by lawyers’ writing about technology are visions that invoke anxiety, horror and concern at the loss of the ‘natural’ from the possibility of technological change. Science fiction as Western mythform is not so limited. This final section draws briefly on Octavia E Butler’s Xenogenesis trilogy to form a different speculative jurisdiction from which rather different technological futures can

* Senior Lecturer, Griffith Law School, Gold Coast and Editor of the Griffith Law Review.
be drawn that provide more engaging and critical narrations of law and technology.

**Science Fiction as the West’s Mythform**

This stage argues that science fiction is the West’s mythform. It is the dreaming site for the West’s technological futures, a place for working through both the anxieties and promises of technological change. The term ‘mythform’ itself has science fiction origins. Coined by William Gibson in *Mona Lisa Overdrive* (1988), it is described as follows:

> The mythform is usually encountered in one of two modes. One mode assumes that the cyberspace matrix is inhabited, or perhaps visited, by entities whose characteristics correspond with the primary mythform of a ‘hidden people’. The other involves assumption of omniscience, omnipotence and incomprehensibility on the part of the matrix itself.¹

Gibson’s casual deployment of the mythform is suggestive. It is the place where myths, stories, accounts and dreams are located. Western culture dreams, feels and thinks technological change through science fiction as the repository of images and ideas concerning technological futures. This cultural function of science fiction can be glimpsed as a constant within the contested debates of what exactly science fiction is.

A common starting point in the quest for the definition of science fiction is Isaac Asimov’s definition of it as belonging to a culture responding to industrial technology and concerned about its technological future:

> [Science fiction] should glory in the fact that it is the literary response to humanity’s crowning triumph – modern science and technology. It should trumpet the fact that it deals with the great truth of contemporary times – rapid change. Science fiction is young because it is today’s literature; and, more than that, tomorrow’s.²

This conceptualising of science fiction amounts to what can be seen as the ‘external’ definition of science fiction. Both editors credited with developing the genre in North America presented analogous definitions. Hugo Gernsback in the first issue of *Amazing Stories* in April 1926 set out the magazine’s publication policy of ‘scientification’: ‘By “scientification” I mean the Jules Verne, HG Wells, and Edgar Allan Poe type of story – a charming romance intermingled with scientific fact and prophetic vision.’³ In a similar vein, John W Campbell’s definition was that: ‘Science fiction tries to … write up, in story form, what the results look like when [technological

---

¹ Gibson (1988), p 129.
² Asimov (1981), p 12, italics in original.
change] is applied not only to machines, but to human society as well.\footnote{John W Campbell, quoted in Nicholls et al (1979), p 159.} However, these definitions of science fiction concerned with the external shape of technological futures proved unsatisfactory to the emerging discipline of science fiction criticism in the 1970s. The critics’ deployment of more formal literary criticism protocols and their need to theorise ‘new wave’ writers\footnote{Landon (2002), pp 149–58.} tended to focus less on the technological meta-text and more on science fiction’s unique modus. It was from this context that Darko Suvin’s 1972 definition of science fiction as the ‘literature of cognitive estrangement’\footnote{Suvin (1979), p 4.} became popular.\footnote{Suvin (1979), p 14.} Suvin saw in science fiction not just technological dreaming on an external scale, but a deeper project of thinking the internal of human existence and potential through the ‘strangeness’ of science fiction.\footnote{Suvin (1979), p 14.} Following Suvin, definitions of science fiction multiplied – the offspring of the promiscuous tension between external and internal registers. In his 1986 study, Gary K Wolfe documents 33 different definitions from authors, editors and critics.\footnote{Wolfe (1986), pp 109–11.}

The flowering of definitions of science fiction had provoked cynical reactions. As early as 1952, Damon Knight claimed that science fiction ‘means what we point to when we say it’,\footnote{Knight (1967), p 1.} and more recently Paul Q Kincaid suggested that the best that could be found when it came to a definition of science fiction was a collection of texts bearing a ‘family resemblance’.\footnote{Kincaid (2003), p 417.} Notwithstanding this pragmatic approach, the Australian critic and author Damien Broderick offered a more expansive definition:

[Science fiction] is that species of storytelling native to a culture undergoing, the epistemic changes implicated in the rise and supersession of technical-industrial modes of production, distribution, consumption and disposal. It is marked by (i) metaphoric strategies and metonymic tactics, (ii) the foregrounding of icons and interpretative schemata from a collectively constituted generic ‘mega text’ and the concomitant de-emphasis of ‘fine writing’ and characterisation, and (iii) certain priorities more often found in scientific and postmodern texts than in literary models: specifically attention to the object in preference to the subject.\footnote{Broderick (1995), p 155.}

Broderick’s definition has been cited increasingly,\footnote{Roberts (2000), p 12.} possibly because it seems to bridge the external register of Asimov’s technology and future, and
Suvin’s literary and internal emphasis, while avoiding content through labels such as ‘metaphoric strategies and metonymic tactics’ and ‘mega text’. However, what Broderick captured was the common thread that can be discerned through the contested history of science fiction definitions. Science fiction is where the contemporary Western culture story tells about technological futures – about how ‘objects’ will change life – not just the external forms and institutional arrangements, but the expression and possibility of human life itself.

In his recent *Seven Beauties of Science Fiction*, Istan Csicsery-Ronay Jr provides a neat summary of science fiction as Western mythform:

> It is from sf’s thesaurus of images that we draw many of our metaphors and models for understanding our technologized world, and it is as sf that many of our impressions of technologically-aided desire and technology-riven anxiety are processed back into works of imagination. It is impossible to map the extent to which the perception of contemporary reality requires and encourages science-fictional orientations.\(^\text{14}\)

While Csicsery-Ronay might be claiming the impossibility of mapping the totality of science fiction as the West’s mythform, the next stage of this article draws a small corner of such a cartography.

**Science Fiction as Speculative Jurisdiction in Law and Technology**

Notwithstanding the classic vision of the Western lawyer detached from the world that – to use the traditions preferred pronoun – he serves, lawyers, and indeed legal scholars, are not monads.\(^\text{15}\) It is trite and banal to point out the even legal scholars participate in, and are connected and engage with, popular culture. Since the 1970s, the law and literature movement, and the more recent law and popular culture movement, have repeatedly made the point of the permeability and reflectivity between law and Western culture.\(^\text{16}\) The wider, grubbier popular cultural context manifests repeatedly within what once was seen as separate realm of law.

This is especially so when legal scholars direct their thoughts to technology. Technology is considered a problem that warrants legal exegesis because it is anticipated that a technology, or the popular discussion of a potentially emergent technology, will affect the future.\(^\text{17}\) Therefore, legal scholarship on technology is kind of an applied futurology – its starting point is images of technological futures that call for law. This is a speculative activity, a creative process of looking at what *is* and projecting, imaging and dreaming what *could be*.

---

\(^{14}\) Csicsery-Ronay (2008), pp 2–3.

\(^{15}\) Tranter and Corbin (2008), p 67.

\(^{16}\) MacNeil (2007); Friedman (1989), pp 1598–1603.

\(^{17}\) Travis (2011), 247–48 makes a similar point for science fiction text and images in judicial reasoning.
It is precisely at this location of technological futures that science fiction as the West’s mythform manifests in legal discourse. This is the junction where the law and literature/law and popular culture claim of the permeability of law and popular culture is manifest within law and technology scholarship. To ground the analysis that is to come, lawyer-scholars need to sketch the technological future. They need to state the worries, promises, risks, benefits and anxieties that are suggested by the chosen technology, and in so doing make the case for law. They need a speculative jurisdiction. And, as will be seen in the analysis of first-generation space law, IVF and law, and virtual worlds and law, the source of this speculative jurisdiction is science fiction.

In what follows, each literature is analysed discretely. What will be shown is the function of science fiction as law and technology’s speculative jurisdiction. The lawyer-scholars dip into the West’s mythform at three points. The first is the actual texts are named and circulate invoking popular meanings and receptions. The second is the incorporation into legal discourse of images, narratives and tropes popularly associated with science fiction. The third is the invocation of ‘science fiction’ itself as a carrier of meaning about technological futures.

First-Generation Space Law
The successful launch of Sputnik in 1957 triggered a large body of legal discourse concerned with legalising outer space. In this first-generation space law scholarship, Sputnik is represented as anticipating space technology and space law. This movement had several facets. The first was excitement about the progress to come: ‘It daily grows more certain that the space rocket, like the horse, the automobile, and the airplane before it, has come to stay.’ Myres S McDougal and Leon Lipson believed that in 1958 it was:

not too early to contemplate the use of unmanned orbital satellites for radio and television relays, for photographic observation of the weather, and for photographic reconnaissance of events on the earth’s surface; rocket landings on the moon; the landing of scientific instruments on the moon in working condition; manned flight in an orbital satellite that can return its human passengers alive to the earth; manned flight to the vicinity of the moon and back.

In their 1959 text, Philip C Jessup and Howard J Taubenfeld thought that ‘man may reach the moon by 1963 or 1966 and might even send an eight man rocket to Mars by 1970 or 1980’. Further along this technological future, lawyers were perceiving leaps in rocket technology – ‘thermodynamic nuclear rockets, electrical ion rockets and the ultimate, the

---

18 Wurfel (1959), p 270.
photon rocket\textsuperscript{21} – allowing ‘satellite platforms … exploration teams will land on the Moon or on a planet’\textsuperscript{22} and the use of satellites to control weather as a weapon.\textsuperscript{23} Even more speculatively was:

> the acquisition of economic resources now know or unknown, such as solar energy, new forms of radiation, and ultimately mineral or other resources that are present, and may conceivably become available, on the moon, or other celestial bodies; and finally, discussed with all casualness of a confident scientific era, the encounter with sentient or intelligent beings on other planets.\textsuperscript{24}

Sputnik signified this technological future; however, this signification was coloured by danger. This was the second representation of Sputnik in first-generation space law scholarship. John C Cooper worried that scientific ‘progress [may] have loosed forces which, uncontrolled, may well destroy the civilisation which has created them’.\textsuperscript{25} Sputnik’s Cold War parentage and its nuclear sibling were never far from the surface.\textsuperscript{26} Sputnik represented the promise of a spacefaring future, but also a possibility for earth-bound destruction: ‘Will it prove a boon to humanity, or are we getting nearer to the day of destruction?’\textsuperscript{27} For lawyers, Sputnik was problematic technology. This reveals the third representation of Sputnik as the need for law. Andrew G Haley, General Counsel of the American Rocket Society and Chairman of the International Affairs Committee of the International Astronautical Federation, believed:

> Never before in the history of mankind has the necessity arisen so quickly to state legal parameters in connection with a vast new area of social change. The legal problems presented by the advent of space flight have been climacteric and technology has far outstripped the formulation of legal rules. The gap has widened to the point that the peace of the world is dependent upon our ability to contain the remarkable and precipitous advance of the science of technology of space flight within an effective system of laws.\textsuperscript{28}

Haley was not alone. Seymour W Wurfel suggested that ‘an effective space jurisprudence may just possibly save the earth from destruction,

\textsuperscript{21} Haley (1958), p 269.
\textsuperscript{22} Pépin (1958), p 233; see also Lyons (1961) p 279.
\textsuperscript{23} Gorove (1958), p 307.
\textsuperscript{24} McDougal and Lipson (1958), pp 408–9, referring specifically to the pre-Sputnik anticipation of Andrew G Haley. See Haley (1956a, 1956b).
\textsuperscript{25} Cooper (1958), p 218.
\textsuperscript{27} Anfuso (1959), p 1.
\textsuperscript{28} Haley (1958), p 262.
conserve the solar system in its present form, and make the universe a bit safer’.  

Stephen Gorove believed that at the ‘dawn of the Cosmic Age … technological progress poses a serious threat if the respective legal problems are not settled beforehand’.  

So it can be seen that first-generation space law scholars processed Sputnik as embodying a detailed and well-imagined technological future of the inevitability of spacefaring humanity and with that the necessity for space law. This technological future belonged to science fiction, and particularly the science fiction genre of space opera.

The most obvious evidence of the relationship was the direct citing of science fiction texts as emblems of technological futures. For example, the editors of the *International and Comparative Law Bulletin* located Sputnik within a literary tradition that had projected human-made satellites, particularly Edward Everett Hale proto-science fiction short story ‘The Brick Moon’ (1870), Jules Verne and Russian rocket scientist and science fiction author Kostantin Tsiolovsky. Others cited HG Wells’ *The First Men in the Moon* (1901) and *War of the Worlds* (1898) and Verne’s *From Earth to Moon* (1865) as ‘prophetic’ of humanity’s spacefaring future, and mentioned Verne as the embodiment of speculating on technological futures. However, the most cited science fiction text in first-generation space law scholarship was not from the pen of Verne or Wells, but the 1930s pulp space opera *Buck Rogers*.  

While direct referencing of science fiction texts was limited in first-generation space law scholarship, it was sown through with images, narratives and tropes of spacefaring futures from space opera. EE (Doc) Smith in *Skylarks of Space* (1928), and the ‘Lensman’ cycle (1934–50) 

---

29 Wurfel (1959), p 287.  
30 Gorove (1958), p 308.  
34 Wells (1954).  
35 Wells (1975).  
39 Dembling (1959); Smirnoff (1962), p 385; Menter (1963), p 3.  
41 The term ‘space opera’ was coined by Bob Tucker, writing in 1941 in his self-published science fiction fanzine *Le Zombie*. Tucker wrote: ‘For the tacky, grinding, stinking, outworn space-ship yarn, or world-saving for that matter, we offer “space opera.”’ Tucker (1941), p 9.  
(published in Hugo Gernsback’s pioneering ‘pulp’ science fiction magazine *Amazing Stories*) has usually been credited as the ‘archetypical space opera’,

while it has been argued that the *Buck Rogers* and *Flash Gordon* comic, print, radio and film franchises from the 1930s diffused space opera sensibilities through popular culture.

Gary Westfahl articulates the core elements of the sub-genre:

First space opera involves a ‘space-ship’: like the nautical fiction from which it borrows terminology and tropes, space opera depicts journeys through uncharted realms in vessels bringing humans into contact with the mysterious stuff separating their safe harbours …

Second, space opera is a ‘yarn’ – an exciting adventure story. Typically posting a universe filled with humans or alien spacefarers – some hostile, some friendly – space opera is a literature of conflicts, usually with violent resolutions.

Space opera, with its spaceships, planets, galactic civilisation, aliens and conflicts, provided the context through which first-generation space lawyers saw within Sputnik humans’ spacefaring future. Haley’s 1956 ‘metalaw’ speech prioritised this vision of the future within the legal consciousness. Haley saw it as inevitable that ‘new propulsive systems will be found which will reduce the cost of construction and operation, commercial enterprises will demand access to space, emigration will commence, meteorite mining will become an industrial object’ and ‘other stars have planets … other planets inhabited by intelligent beings’.

Following EE Smith, whose human space civilisation needed the ‘Galactic Patrol’ to enforce order, Haley anticipated the need for a ‘metalaw’ to regulate conflicts from human/alien interactions; and Haley’s articulation of the basic principles of respect and non-interference seemed very similar to the ‘Prime Directive’ from the *Star Trek* franchise. Also following EE Smith’s lead, Haley saw this future as ennobling humanity:

---


46 Westfahl (2003), pp 197–98.

47 Haley (1956b), p 448.


51 Scharf and Roberts (1994).
we believe space exploration will dignify and enrich mankind, erasing forever devastating economic problems and affording vistas of mysteries of creation immeasurably more challenging and interesting than we now conceive of, and so engender a measure of tolerance and compassion that man will rise above his past.\textsuperscript{52}

In the more immediate time-scale, Haley saw that the first human steps into space would stimulate international law, and set humanity on the path to another space opera staple, unified human government on Earth and in the stars.\textsuperscript{53}

While Haley represented a fully realised space opera grounded legal analysis, space lawyers generally wrote enthusiastically about the inevitable interplanetary destination for humanity, feared future conflicts that needed law and anticipated the promise in space travel of global cooperation and peace. This context of space opera – of spaceships, planets, galactic civilisations, aliens and conflicts – infusing legal scholarship explains the remarkable set of images and tropes within Martin Menter’s 1963 hypothetical:

There has been an accident on a flight to Mars. Survivors parachuted to the planet where they were hospitably received by the Martians who had been watching with interest the developments on Earth since Martians are several eons ahead of Earth in progress … The relatives of those lost in the Martian flight employ counsel to recover damages owing to the death of passengers on the flight because of the faulty construction of the flight vehicle or its faulty operation. A lawyer must go to Mars to investigate the accident to take depositions or for pre-trial examination. How does he get there? What language does he use? Where will the litigation be instituted; where and when tried; what laws will govern, Earth’s or Mars’s, or entirely new interplanetary laws subscribed to by Earth’s nations, the Martians and dwellers on other heavenly bodies with whom communication has been established?\textsuperscript{54}

Menter shows space opera as first-generation space law scholarship’s speculative jurisdiction. Sputnik might have called forth public international law, but it primarily summoned from the pages of the ‘pulps’ the space opera ensemble of spacefaring humanity and transmitted that stylised technological future into legal discourse.

The meta-emblem for the speculative jurisdiction was the term ‘science fiction’. Sputnik was greeted by space lawyers with phrases that went on to become hackneyed: ‘science fiction is now fact’;\textsuperscript{55} ‘the problems raised by

\textsuperscript{52} Haley (1956b), p 449.
\textsuperscript{53} Haley (1956b), p 449. An unified human government forms the backdrop to EE Smith’s ‘Lensman’ saga.
\textsuperscript{54} Menter (1963), p 3.
science fiction may soon become reality';[^56] and ‘[space travel] is no longer in the realm of science fiction’.[^57]

In summary what can be seen is first-generation space law transmitted, and indeed made legal, via space opera visions of spacefaring futures. Sputnik was interpreted in this cultural context as problematic and needing law. First-generation space law can be seen as a legal reflection of space opera, sharing with the ‘pulps’ a boyish sense of adventure, a flirting with danger, and wonderment at the possibilities of life among the stars.

**IVF and Law**

The announcement by Patrick Steptoe and Robert Edwards of the birth of the first in vitro fertilisation (IVF) child, Louise Brown, on 25 July 1978[^58] gave rise to the ‘IVF and law scholarship’. The reception of IVF by legal scholarship was not accompanied by the excited descriptions of new horizons that greeted Sputnik. For lawyers, IVF was located as the next step in a technological future anticipated by the continuum of ‘artificial human reproduction’,[^59] which began with artificial insemination (AI), then recombinant DNA (rDNA), then IVF, embryo transfer (ET) and surrogate motherhood, and would end with cloning and ectogenesis.[^60] Indeed, IVF was already allocated into this future history by lawyers in the early 1970s.[^61] In these early writings, IVF was anticipated as a further, and troublesome, step towards a problematic future of artificial human reproduction.[^62]

As a consequence, in the law scholarship IVF was considered more of a peril than a promise. Paula Diane Turner in 1981 asked: ‘[With the] dangers of toxic pesticides and air pollution, and with so many other technological developments visibly damaging the quality of life, how is society to react to scientific manipulation of man’s inner nature?’[^63] David G Dickman, in 1985, suggested that the ‘clinical application of IVF opens up a Pandora’s Box of problems’.[^64] This registering of IVF as predominately a ‘peril’[^65] occurred even while acknowledging its promise in addressing infertility:

[^56]: Cerny (1958), p 98.
[^57]: Smythe (1960), p 191. See also Dembling (1959), p 16; Johnson (1963), p 75; Jaffe (1960), p 68.
[^64]: Dickman (1985), p 826.
Although IVF offers hope to infertile couples, it presents significant hazards. Because IVF is still experimental, most of the conceptuses fertilized \textit{in vitro} will not survive to term. Those who do reach full term may face abnormally high risk of being born with severe defects.\footnote{Cohen (1979), p 320.}

IVF as peril opened the way for the call for law. The law was ‘outpaced’.\footnote{Lorio (1984), p 1641.} In 1979, Sharon M Steeves predicated that: ‘Our existing legal framework may be inadequate to protect either society or the individual from the consequences of artificial reproductive technology.’\footnote{Steeves (1979), p 1077.} Sarah AL Humphreys argued that the ‘the strides being made in these areas have not been accompanied by similar advances in the law to deal with the unique legal situations these processes [rDNA, cloning, IVF and ET] may produce’.\footnote{Humphreys (1979), p 430.} Bernard M Dickens wrote that the ‘biomedical realities of \textit{in vitro} fertilization and embryo transfer show the extent of legal lag in Canada’.\footnote{Dickens (1980) p 242.} Indeed, most IVF and law scholars were of the opinion that ‘no direct legal regulation has yet been imposed on IVF’.\footnote{Cohen (1979) p 324. See also Lane et al (1983), pp 323, 327; Lorio (1984), pp 984–96; Crabtree (1983), p 902; Bernholz and Herman (1984), pp 9–16; Annas and Elias (1983), p 208; Steeves (1979), pp 1046–47.} So, as with Sputnik, lawyer-scholars conceived Louise Brown as a representing a well-imagined technological future, invoked and sustained by science fiction, that needed law.

It was almost mandatory for publishing on IVF and law to reference directly Huxley’s \textit{Brave New World} (1932)\footnote{Huxley (1977).} and Orwell’s \textit{Nineteen Eighty-Four} (1949).\footnote{Orwell (1949).} In 1968, George P Smith II located artificial insemination and the future prospect of IVF in ‘[t]he shadowy predictions of Huxley and Orwell [that] can no longer be dismissed as blurred and unrealistic’.\footnote{Smith II (1968), p 127. See also Smith II (1982), p 63.} George J Annas and Sherman Elias expressed more expansively that:

\textbf{Modifications in reproductive methods have long been viewed as science fiction and have occasioned both fear and amazement. With 1984 less than a year away, we are reminded of Orwell’s world in which AID (artificial insemination by donor) was mandatory, and sexual pleasure and the family were destroyed to help maintain the tension necessary in a society dedicated to perpetual warfare. In Aldous Huxley’s \textit{Brave New World}, the family was also destroyed; but he portrayed a society controlled not by fear, but by gratification}
and reinforcement. Abolition of the family was followed by complete sexual freedom; but reproduction was handled by the state.\textsuperscript{75}

Within the IVF and law scholarship, Huxley and \textit{Brave New World} functioned as predominate tropes representing both the immediacy and perils of artificial human reproduction.\textsuperscript{76} Michael Kirby quoted from Huxley\textsuperscript{77} and in 1986 used ‘Brave New World’ as a heading for a section within an article on artificial human reproduction.\textsuperscript{78} Orwell and \textit{Nineteen Eighty-Four} also circulated. IVF, it was suggested, had an ‘Orwellian connotation’,\textsuperscript{79} and even the distinguished Australian legal theorist Julius Stone located IVF within an Orwellian authoritarian future.\textsuperscript{80}

The repeated referencing of \textit{Brave New World} and \textit{Nineteen Eighty-Four} was the tip of a dystopian pyramid of images, narratives and tropes throughout the scholarship, particularly images of the intervention in human birth and bodies for malevolent purposes. The dystopian tropes of manufactured humans of varying capacities in the ‘Central London Hatchery and Conditioning Centre’ from Huxley’s opening chapters\textsuperscript{81} appeared throughout the IVF and law scholarship. Sir Zelman Cowen in 1985 saw that: ‘At the end of this [IVF] road [humans] graded, produced to political, social, and economic specifications in laboratories and factories, with the process of gestation taking place outside the human body.’\textsuperscript{82} Sharon Steeves saw IVF as raising the \textit{Brave New World} spectre of state control over human reproduction.\textsuperscript{83} The mentioning in the IVF and law scholarship of artificial wombs suggested Huxley’s ‘Bottling Room’, where with Fordist precision, conveyer belts of bottled sows’ peritoneum received a human embryo, later to be ‘decanted’.\textsuperscript{84} Further along the dystopian continuum was the concern with the ‘[g]rowth of embryos for spare parts [as] … one of the futuristic possibilities introduced by IVF’.\textsuperscript{85} By imagining a future of artificial human reproduction, IVF and law literature saw in that future human cloning, conjuring Huxley’s dystopian vision of mindless, mechanised uniformity:

\textsuperscript{75} Annas and Elias (1983), pp 200–1.
\textsuperscript{77} Kirby (1981), p 1.
\textsuperscript{78} Kirby (1986), p 211.
\textsuperscript{79} Oakley (1974), p 386.
\textsuperscript{80} Stone (1973), p 244; See also Steeves (1979), p 1051; Favre and McKinnon (1981), p 691; Skene (1985), p 379.
\textsuperscript{81} Huxley (1977), pp 15–38.
\textsuperscript{82} Cowen (1985), p 569. See also Robertson (1986), p 1023.
\textsuperscript{83} Steeves (1979), p 1051. See also Smith II (1982), p 68; Robertson (1983), p 426.
\textsuperscript{85} McCartan (1986), p 711.
‘Ninety-six identical twins working ninety-six identical machines!’
The voice was almost tremulous with enthusiasm. ‘You really know
where you are. For the first time in history.’\(^{86}\)

Julius Stone, peering into what he saw as an inevitable future of
artificial human reproduction, set out the central Huxley tropes – of power
elites, diminished individuality and the end of history.\(^{87}\)

Careful planning could use the principles involved to produce
multiple identical copies of Adolf Hitler, Mussolini, or Al Capone …
The threats from such quasi-vegetative reproduction, even when not
manipulated by power elites, also include the danger of bringing
society to an evolutionary dead end. Under manipulation it could
enslave individuality to the needs of breeding reliable workers,
soldiers, astronauts (or even scientists), creating children who know
they are preordained, freaks who can already see their future mirrored
in another person.\(^{88}\)

What this meant was that Huxley’s dystopia provided the basic material
through which lawyers speculated on the problematic future of artificial
human reproduction which framed the pragmatic task of law’s response to
IVF.

As with first-generation space law, IVF and law scholarship deployed
the meta-emblem ‘science fiction’ to signpost the future of artificial human
reproduction: ‘[y]esterday’s science fiction, however, is today’s reality’,\(^{89}\)
and:

The term \textit{in vitro fertilization} probably does not mean much to most
people, but the common name, test-tube baby, does. To the naïve, the
latter term conjures up visions of babies cultured in laboratories. To
the more sophisticated, either term, represents a major advance in
biological science and presents opportunities to shape men’s lives in
ways that until now were only possible in science fiction novels.\(^{90}\)

In summary, what can be seen is that the IVF and law scholarship is
orientated by a technological future that has its origins in the classics of
dystopian science fiction. Louise Brown’s birth was located within this
speculative dystopian jurisdiction.

\(^{86}\) Huxley (1977), p 18.
\(^{87}\) On the elements of clone hysteria, see Tranter and Statham (2007).
\(^{88}\) Stone (1973), p 248.
\(^{89}\) Dickman (1985), p 817. In a similar vein, see also Favole (1979), p 799; Annas and Elias
creature of science fiction – the totally fabricated person.’
\(^{90}\) Eccles (1985), p 1033.
Virtual Worlds and Law

Online virtual gaming environments, or ‘virtual worlds’, became a subject of popular concern in 2006, with reports of virtual millionaires and real-estate tycoons. As with Sputnik and Louise Brown, the media attention quickly translated into copy in law journals, and lawyers – in what will be called the ‘virtual worlds and law’ scholarship – compounded these financial reports with less positive reports concerning virtual theft and fraud, virtual sexual abuse, virtual financial collapses and reports of real-world concerns of addiction, money laundering and murders arising from virtual world disputes to suggest a crisis event that needed law. Virtual worlds and law scholarship manifested the same basic structure as first-generation space law scholarship, and the IVF and law scholarship. Lawyers established that virtual worlds heralded a problematic technological future that was regulated inadequately by existing law. As in the earlier literatures, law was perceived as needing to catch up.

For lawyers, virtual worlds were problematic because the boundaries between the ‘game’ and the real world were permeable. This permeability was mapped in several directions. First, the ‘cross-border problem’ – the connection between the real economy and the virtual economy – was noted. The primary representation of this was the formal exchange mechanism available for converting real-world currency into L$ (Linden dollars, the currency in Second Life) and L$ into real-world currency. The secondary representation was the existence of virtual property and player accounts for sale on eBay, and the citing of Edward Castronová’s

---

91 A more technical description from computer gaming for these environments is MMORPG (Massively Multiplayer Online Role-Playing Games), reflecting their genealogy in paper and dice role-playing games, like Dungeons and Dragons (D&D) and the first-generation, text-based online translations of D&D, MUDs (Multi-User Dungeon): see Dovey and Kennedy (2006), p 95.

92 The term for the non-virtual world is contested; however, the consensus in the legal and sociological literatures appears to be ‘real world’. See Boellstorff (2008), pp 20–21.


100 Jankowich (2005), pp 184–86.


foundational 2001 study on the virtual and real economics of Sony’s *EverQuest*. The second permeability related to the real property–virtual property relationship. Linden Lab’s declaration that players possessed ‘rights’ in objects that the player created within *Second Life* was documented, and questions were asked about protecting that property from real or virtual appropriation, as well as the question of appropriation of real-world intellectual property within virtual worlds. The third issue related to the crossover between virtual behaviour and real-world crimes, particularly theft and child pornography. However, balancing these concerns were more optimistic assessments. Jerry Kang, in 2000, saw with the emergence of avatars the possibility for ‘cyber-passing’, the potential for players to experience living as a different gender or race and the hope that such experiences could facilitate greater empathy and understanding. Notwithstanding Kang’s early optimism, however, the balance of the virtual worlds and law scholarship framed virtual worlds as problematic.

Having established these concerns, the direction of analysis was to see that current real law was inadequate. This task of examining the law was framed and rendered urgent by a belief that virtual worlds were the future. Bettina M Chin elaborated on this vision:

> With the world paying close attention to the technological advancements in Internet usage and the opportunities that virtual worlds can offer, the law must do the same in order to protect the livelihood of *Second Life* residents. As more users participate and find innovative ways to make full use of the virtual platforms, *Second Life* will eventually evolve from a digital medium of social interaction to an actual, organic culture.

As a harbinger of a virtual future, the virtual worlds and law scholarship saw law as an inevitable aspect of this future: ‘As governments and other real-world agencies and regulators become cognizant of the personal risks involved, notably fraud and money laundering, they are certain to step in.”

---

106 Dougherty and Lastowka (2008); Kane and Duranske (2008), p 1.
107 For example, see Saunders (2007), pp 234–40; Arias (2008), p 1304. These accounts drew upon the 2005 study by Chen et al documenting Taiwanese police investigations of virtual world theft. See Chen et al (2005), pp 249–58.
112 Rosette (2008), p 299.
F Gregory Lastowka and Dan Hunter wrote: ‘In the far future, as the world’s communities increasingly begin to operate through avatar agents in persistent virtual communities, courts will surely need to recognize cyborg rights in some form or another.’\(^{113}\) For other lawyer-scholars, because the ‘traditional problems of human nature and conflict persist’,\(^{114}\) there would be the need for law to resolve disputes: ‘Criminal sanctions imposed offline for … in-world conduct are not outside of the realm of possibilities.’\(^{115}\) Jack M Balkin was particularly insistent on the inevitability of real law in virtual worlds: ‘As people spend more and more time in virtual worlds, and as there senses of self become increasing bound up with them, these sorts of arguments [assault, theft, defamation] may become more plausible.’\(^{116}\) However, this speculation was not limited to real law; lawyers also were dreaming of the need for in-game virtual law. Virtual worlds were like a ‘new state’:\(^{117}\)

Websites and other prior technologies of cyberspace served as remarkable tools for communication, but they did not build truly independent and self-governing communities. By contrast, avatar existence and avatar community only occurs within virtual worlds, making the emergence of virtual law within those worlds much more likely.\(^{118}\)

These anxieties and promises had speculative foundations. *Nineteen Eighty-Four* was deployed briefly in virtual worlds and law scholarship concerning the issue of information privacy within virtual worlds.\(^{119}\) However, unlike the IVF and law scholarship that circulated Orwell and Huxley, the virtual worlds and law scholarship found its speculative jurisdiction within cyberpunk, and particularly the cyberpunk staples of Neal Stephenson’s *Snow Crash* (1992)\(^{120}\) and William Gibson’s *Neuromancer* (1984),\(^{121}\) *Snow Crash*, with its virtual world – the ‘Metaverse’ – peopled by ‘avatars’, was regularly referenced.\(^{122}\) Gibson’s *Neuromancer* celebrated in cyberlaw scholarship as coining the name ‘cyberspace’,\(^{123}\) reoccurred in the

---

\(^{113}\) Lastowka and Hunter (2004), p 72.


\(^{117}\) Davis (2007), p 199.

\(^{118}\) Lastowka and Hunter (2004), p 69. See also Mayer-Schönberger and Crowley (2006), p 1791.


\(^{120}\) Stephenson (1992).

\(^{121}\) Gibson (1984).


\(^{123}\) See, for example, Katsh (1993), p 414; Byassee (1995), p 198; Kirby (1998), p 324. Contrary to the cyberlaw assumption that ‘cyberspace’ first appears in the *Neuromancer*,
virtual world and law scholarship. Scott Holdaway went so far as to suggest that virtual worlds were ‘a future that William Gibson, back in the early eighties, anticipated, and one that may soon be with us’. This appreciation of the aesthetics of cyberpunk continued with the referencing of the Wachowski brothers’ *The Matrix* (1999): ‘Second Life … is perhaps the first attempt by Internet users and programmers to make the digital realm of *The Matrix* come to life.’ However, this citing of science fiction texts heralded a more expansive engagement with science fiction. Not only were science fiction texts cited, but lawyers delved more deeply into the texts, extracting images, narratives and tropes to sketch the promises and perils of technological futures.

Beyond the obvious recognition that various virtual worlds, such as CCP’s *EVE Online* and Sony’s *Starwars Galaxies*, drew their content from science fiction, it was an established feature of the virtual worlds and law scholarship to weave cyberpunk images, narratives and tropes within analysis. The term ‘cyberpunk’ was first deployed by Bruce Bethke as the title of a 1983 short story, published in *Amazing Stories* about a young hacker, but it quickly became deployed to cover near-future fiction from the 1980s concerned with developments in:

cybernetic and genetic engineering, in organ transplants, and artificial intelligence research; the equally significant developments having to do with information storage—and in particular, the ways that computerized data, microstorage and developments of data banks are controlled and owned by multi-nationals (in short, the increasing monopolization by private business of information, and the ways this monopolization is used for the purpose of wielding power and control over nation-states and individuals); the social, psychic, political, and behavioral impact resulting from the shift that has taken … away from the older industrial technologies to the newer informational and cybernetic ones.

---


128 See, for example, Jankowich (2006), p 2. More precisely, these worlds draw from space opera.


For critics, many of whom reduced cyberpunk to Gibson’s ‘Sprawl’ trilogy—Neuromancer (1984), Count Zero (1986) and Mona Lisa Overdrive (1988)—the sub-genre involved a masculine fascination with intimate technologies of the body that enhance, replace or render superfluous the ‘wetware’ of human existence. In the virtual worlds and law scholarship, Gibson’s low-life characters from the digital wastelands of hyper-capitalism, opportunistically hacking corporate databases, became the virtual world ‘griefers’ who destroy and appropriate virtual property. It was the existence of lawless contemporary ‘console cowboys’ that drove the need for law to protect property and play spaces. Beyond Gibson’s narrative of data and hackers, his tropes reappear at other points in the virtual worlds and law scholarship. His now famous description: ‘Cyberspace. A consensual hallucination experienced daily by billions of legitimate operators … A graphic representation of data abstracted from the banks of every computer in the human system’, cited repeatedly by cyberlawyers, became in virtual worlds and law scholarship ‘perhaps one day, not far in the future, every computer connected to the Internet will be a little piece of 3D virtual real estate’. Gibson’s cyberspace was bodiless. It was Stephenson’s satirical Snow Crash that presented a now familiar ‘Metaverse’ with its ‘Street’ populated by anthropomorphic avatars—of cyberspace just like reality only better—that was often invoked by the virtual worlds and law literature. Stephenson’s description of avatars—‘If you are ugly, you can make your avatar beautiful. You can look like a gorilla or a dragon, or a giant talking penis in the Metaverse. Spend five minutes walking down the Street and you will see all of these’—provided the template for virtual worlds and law scholars’ descriptions of virtual worlds: ‘She lives in a modest house on a popular island with her husband. They enjoy shopping, fishing, and going dancing. Like everyone else in her town, Ava flies, teleports to work, and talks to animals.’ Further Stephenson’s aside that his primary character, the obviously named Hiro Protagonist, ‘has

---

140 Stephenson (1992), p 36.
141 Meek-Prieto (2008), p 88.
a nice big house in the Metaverse but has to share a 20-by-30 in Reality.
Real estate acumen does not always extend across the universes\textsuperscript{142} became the quote when considering virtual property.\textsuperscript{143}

Another cyberpunk image in virtual worlds and law scholarship was the cyborg. While the intimate fusion of body and technology has a pedigree in science fiction stretching back to Well’s Martians from \textit{War of the Worlds},\textsuperscript{144} Gibson’s stories involve a cavalcade of cyborgs; the hacker Case only feels whole when he is plugged into a ‘deck’ to Molly the cybernetic enhanced razor-girl with optical implants and retractable blades behind burgundy fingernails. Indeed, it can be argued that cyberpunk’s popularising of the cyborg as commonplace and ordinary, yet still other and transgressive, explains some of the attraction of the term to technofeminism, and particularly the reception of Donna Haraway’s iconic 1985 ‘A Manifesto for Cyborgs’.\textsuperscript{145} This connects with the virtual worlds and law scholarship in Lastowka’s and Hunter’s introduction into the literature of the cyborg as a conceptual tool to conceive of the player/avatar construct\textsuperscript{146} and their development of ‘cyborg rights’\textsuperscript{147} to frame consideration of the legal concerns surrounding virtual worlds.\textsuperscript{148}

Virtual worlds and law scholars were more circumspect in their deployment of ‘science fiction’ as a meta-emblem, although it was noted that: ‘Technology makes things possible today that were unimaginable or at the very least science fiction in the 1960s.’\textsuperscript{149}

In summary, a clear continuity of approach can be seen across first-generation space law, IVF and law, and virtual worlds and law scholarship. They are science fictional discourses, where science fiction as the Western mythform is channelled into consideration of law and technology. Virtual worlds and law, like earlier IVF and law and first-generation legal scholarship, used a specific science fiction genre, cyberpunk, to see the future in the emerging online virtual world environments. Like Sputnik in 1957 and Louise Brown in 1978, \textit{Second Life} circa 2006 was a cultural event full of science fictional meaning. Sputnik anticipated a future of \textit{Buck Rogers} spacefaring humanity. Louise Brown anticipated a \textit{Brave New World}

\textsuperscript{142} Stephenson (1992), p 26.
\textsuperscript{143} Sheldon (2007), p 786.
\textsuperscript{144} Rieder (2008), p 111.
\textsuperscript{146} Lastowka and Hunter (2004), pp 63–65.
\textsuperscript{147} Lastowka and Hunter (2004), pp 67–72.
\textsuperscript{148} When introducing the cyborg, Lastowka and Hunter parade a several of science fiction’s more popular cyborgs, the ‘Six Million Dollar Man’ from the 1970s television series of the same name, and the ‘Borg’ from the \textit{Star Trek} franchise. They also acknowledge Haraway as the portal for the cyborg to move from popular culture to scholarly discourse. See Lastowka and Hunter (2004), p 64, n 339.
\textsuperscript{149} LeBlanc (2008), p 277.
of artificial human reproduction, while Second Life anticipated the cyberpunk universe of living, and sinning, inside the mainframe. These literatures reify the speculative potential culturally encoded within these specific technological events into a solidness that needs law. In this, law and technology scholarship plays an important function in the reckoning with technology in the West. It is through the writing of law and technology scholars that the politico-legal networks of the West become primed for law-change in response to cultural anticipation of technologically driven change.

**Taking the Speculative Jurisdiction Seriously**

Having established the science fictionality of law and technology scholarship, a fundamental question emerges: What was at play that allowed these cultural formations to be the nexus point between technology and law? What made it seem an obvious choice to space lawyers in the late 1950s to draw upon space opera, biomedical lawyers in the late 1970s to channel dystopian science fiction and virtual world lawyers to reference cyberpunk? The answer seems obvious. Space opera is home to the rocket, dystopian science fiction to artificial human reproduction and cyberpunk to computer simulated reality. However, science fiction is not so compartmentalised. The rocket, artificial human reproduction and computer-simulated reality appear both cross-genre and also intra-text. The narrative of Gibson’s Neuromancer rocks along with rockets and artificial human reproduction, as well as its definitional cyberspace. Science fiction as the Western mythform is significantly more complex than the selective referencing by future-focused technology lawyers.

There is a commonality to space opera, dystopian science fiction and cyberpunk that renders them attractive to legal scholars. This commonality rests in their conservative modus. As genres, and specifically the canonical texts cited by law and technology scholars, they are essentially socially conservative, and this arises from conceiving, at a fundamental level, conflict between ‘nature’ and ‘technology’.

Nothing ever changes in space opera. There are adventures and battles and mile-long spaceships, but Buck Rogers’ and Doc Smith’s universes were static. Men were men, women were women, villains were villains, sidekicks were sidekicks and BEMs were bug-eyed-monsters. The comic-book and serial format meant that there were no transformations. Man (and it was always a man) could travel effortlessly through the stars, but the laws of this universe were the familiar binaries of white masculine hetero-normativity – of man/women, white/black, good/bad, human/alien, nature/culture, liberty/oppression, market/state control, heterosexual/homosexual. Even in slightly more sophisticated space operas, like George Lucas’s *Star Wars* (1977), this conservative orientation remained. Lucas’s channelling of the

---

monomyth encoded this conservatism into plot.\textsuperscript{152} The monomyth is a story of ever-change but no-change.\textsuperscript{153} The hero quests to preserve the status quo. The world-as-is is renewed, the hero’s inheritance is restored, and progress and change are managed. The endpoint of Lucas’s saga is precisely one of ‘return’; galactic civilisation does not overthrow the ‘wizards’ and their ‘force’, but engineers a righting of the universe with the demise of the Empire and its technological over-determination.\textsuperscript{154} \textit{Star Wars} brings to the forefront the primary tension that circulates within the space opera meta-text; the uneasy marriage of a technological-mediated narrative within a set of over-arching anti-technological tropes. Space opera confirms nature – specifically a human nature of freedom, sexually determined social roles and conflict – while celebrating wondrous technologies. The solution evident in \textit{Star Wars} is to have the hero represented as using technology while the villain, ‘more machine now than man’,\textsuperscript{155} is seen as consumed by technology.\textsuperscript{156} In space opera, technology is problematic. The iconic space opera techno-objects of rocket, robot and ray-gun are too often associated with the villain’s plans for galactic overlordship. For first-generation space law scholarship, space opera’s legacy could be seen in the framing the rocket as ‘problematic’, as promising adventures in the heavens \textit{and also} the perils of space war and authoritarianism. As such, this fundamental postulating of nature vs technology – of threatening technology needing to be combated and humanised – generates the brief for law. In this, the calls within first-generation space law are for international laws to regulate human affairs in space: ‘lawyers are of the opinion that a worldwide agreement – a truly worldwide one – is necessary’.\textsuperscript{157} This responded to a vision of spacefaring humanity that was socially conservative and, ironically, substantially anti-technological.

A similar set of configurations can be seen in dystopian science fiction. Dystopian science fiction plays on narratives of corruption and loss. While they are more sophisticated texts than the space opera canon, what is affirmed in Huxley and Orwell is the threat to the naturally free and autonomous human from the malevolent application of technology.\textsuperscript{158} Firmly located by these texts within a horror-inducing dystopian future of artificial human reproduction, IVF – even more so than the rocket – needed law. IVF and law scholarship, through its transmuting of dystopian science fiction, conceived of an essentialist human nature – a natural core of being – that was directly under threat from the emergence of IVF technologies. Like

\textsuperscript{152} Lawrence (2006); Mackay (1999), p 68.
\textsuperscript{153} Campbell (2008), p 206; Palumbo (1997).
\textsuperscript{154} McVeigh (2006).
\textsuperscript{155} Marquand, \textit{The Return of the Jedi: Star Wars} (Twentieth Century Fox, 1983) (Obi Wan Kenobi).
\textsuperscript{156} Sobchack (2004).
\textsuperscript{158} Moylan (2000), p 121; Pierce (1987), pp 167–68.
first-generation space law, this negative framing created the call for law. Law was needed to organise, regulate and prohibit the possibilities that dystopian science fiction suggested would become open with artificial human reproduction. Even more than space opera, dystopian science fiction can be seen as profoundly anti-technological.

And again, a similar set of configurations underpins cyberpunk. Cyberpunk’s gritty narratives of the cyborg detritus of hyper-capitalism retained a conservativism and a sense of loss of the natural that was also evident in space opera and dystopian science fiction. Feminist critics have emphasised the social conservativeness of Gibson’s worlds, from the character of Molly to the male fantasy of a disembodied roving eye inside the network. In addition to affirming a conservative male/female dualism, there is mourning throughout the Sprawl trilogy for nature, for a return to a less mediated, less consumptive, less competitive existence. Gibson, and cyberpunk more generally, as revealed in the mythform image that has been appropriated in this article, tended towards the mythical, a desiring of a lost sense of communion and community denied by the violence and fragmentation of hyper-capitalism. For virtual worlds and law scholarship, this framed the need for law in and around virtual worlds. Laws were needed to ensure the stability of identities, of property and of sexual conduct inside the game. While virtual world lawyers disagreed on the form of law – from state regulation or in-world code – there was agreement about the necessity for law to provide a semblance of a familiar ‘natural’ order of persons, property and sex.

What is being suggested is that law and technology’s engagement with the Western mythform has been limited, and to a certain degree strategic. The touchstone texts for first-generation space law scholarship, IVF and law scholarship and virtual worlds and law scholarship affirm nature over technology. Each presents a human essence, of ‘freedom’ and of sexually determined social roles, that is threatened by technology. This meant that the rocket, IVF and virtual worlds were problematic. They needed law. And they needed the lawyer-scholar to write for legislating within these speculative futures. However, science fiction as the Western mythform is not limited to these conservative narratives of nature and technological threat. To return to the distinctions within science fiction criticisms from the first section, these

literatures remain within the first, external definition of science fiction: they ‘write up, in story form, what the results look like when [technological change] is applied ... to human society’. What has not been explored is a drawing upon science fictions that register more strongly within Suvin’s ‘strangeness’ definition. In doing so, the natural certainties, technological hostility and conservative tendencies seen in the speculative jurisdictions of the three examined law and technology literatures can be challenged.

Octavia E Butler’s celebrated *Xenogenesis* trilogy (also known as *Lilith’s Brood*), comprising the novels *Dawn* (1987),\(^{165}\) *Adulthood Rites* (1988)\(^{166}\) and *Imago* (1989),\(^{167}\) charts a very different response to nature and technology than law and technology’s established speculative jurisdiction. Taking the alien invasion narrative from space opera, the dystopian tropes of the manipulation of life and reproduction, and cyberpunk’s grit, Butler overlays a set of different narratives and perspectives drawn from the African diaspora. *Xenogenesis* charts the choices that a woman of colour makes within a total, yet sort of benign colonial context.\(^{168}\) Butler’s focus through the novels is not one of nature threatened by technology, but on how what is ‘natural’, what is human and what is alien are technologically mediated.\(^{169}\) Set in the aftermath of a nuclear war, Butler’s Earth is discovered by the Oankali, a spacefaring, tri-sexed (female, male and ooloi) race of aliens who trade genes. The Oankali reproduce as a species through merging and mingling with a found biosphere, taking desirable features and traits from that life-source into their subsequence generations.\(^{170}\) In doing so, the biosphere that was is destroyed in the birthing of the next generation of Oankali and their massive living spaceships.\(^{171}\)

Butler’s narratives within this space are personal. There are not the grand public space wars of space opera, acts of resistance as in dystopian science fiction, or forms of hack-activism as in cyberpunk. *Dawn* charts Lilith’s compromises and the costs in her negotiation of the Oankali colonial project. *Adulthood Rites* documents the growing up of her hybrid-human-Oankali son Akin and his mission to secure a future for the humans who had resisted mating with the Oankali. *Imago* tells the story of Lilith’s first ooloi child, Jodahs, and its journey to sexual maturity. Jodahs marks the full emergence of the next generation of Oankali, the new hybrid species of spliced Oankali and human genetic heritage, whose growing spaceships will eventually consume the Earth.\(^{172}\)

---

165 Butler (1987).
166 Butler (1988).
167 Butler (1989).
Butler fundamentally challenges the cultural constellation of nature vs culture and the attendant social conservatism of law and technology’s established speculative jurisdiction. For Donna Haraway, Butler’s *Xenogenesis* is a powerfully new cyborg tale.\(^{173}\) It tells the story of power and living inside a world of natureculture.\(^{174}\) The Oankali, the ‘saved’ human and the rehabilitated post-nuclear holocaust Earth are all obviously products of technical manipulation. The Oankali are clearly coded as beings of ‘biopower’ – a power over life and life-materials\(^{175}\) – rendered explicit in the texts by the ooloi with their additional ‘sensory arms’ that allow their ‘sensory hand’ and their ‘yashi’ to store and manipulate genetic sequences, construct pheromones and directly stimulate the neuro-system of other living beings. Life is not ‘natural’ – it has been mixed and fixed by the Oankali. Nature is not threatened by technology; rather, to talk of ‘nature’ and ‘technology’ as separate seems meaningless.\(^{176}\) Butler reinforces this with the resister human males, who cling to narratives of what is right and natural. Their rights talk goes hand in fist with violence, killing and sexual assaults.\(^{177}\) In *Xenogenesis*, Buck Rogers ends up playing cave man.

What Butler presents is a radical reading of living in the modern West. *Xenogenesis* suggests that human life is profoundly technologically mediated; who we are, what our bodies are, what we can do in the world, what our law is all come through technology. In this, Butler affirms the reading of the triumph of technology in the West that Martin Heidegger identified in the 1950s, but without Heidegger’s romance and loss.\(^{178}\) Butler’s protagonists inhabit a natureculture world of biopower; however, unlike the resister human males, there is no violent struggle to restore what is ‘natural’. Instead, there is a working of the networks of change to enhance affect and relations, and ultimately to nurture future life.

This is not a speculative jurisdiction that transmutes cultural anxieties about technological change into calls for law. It focuses on a different reality than the socially conservative universe of nature vs technology of space opera, dystopian science fiction and cyberpunk. Seen through *Xenogenesis*, the rocket, IVF and virtual worlds become coded differently. For the rocket and space law, Butler refocuses the legal gaze away from accessing space resource and prohibiting space war to a more terra-focused set of concerns around techno-colonialism; of difference and the responsibilities of the technologically powerful. In drawing the Oankali as truly *alien*, as complex others whose thinking and emotions are never quite clear to humans and who in turn never quite comprehend human thinking and doing, Butler foregrounds the colonialist legacy. Whereas first-generation space lawyers


\(^{174}\) Haraway (1997), p 149.

\(^{175}\) Foucault (1978), p 143.


\(^{177}\) Butler (1987), p 117.

were concerned with peaceful exploitation of the cosmos, through Butler’s lens of aliens who have claimed the Earth what is prioritised is the justice of distribution and the ownership of change. The focus becomes one of the contested politics of have and have-nots that eventually caught up with space law and space law scholarship with the Moon Agreement in the late 1970s and early 1980s.  

For IVF and law, *Xenogenesis*, in its fabulous image of the ooloi – essentially the IVF technician whose centrality to reproduction has meant it has become a third sex – eclipses the need to protect human reproduction from dystopian possibilities that was evident in the IVF and law literature. Instead of general concerns of regulations and control, IVF through *Xenogenesis* becomes an issue of more micro-power and choice. It prioritises not the technical possibility of editing and manipulating human life and reproduction, but the responsibilities involved when that technical capacity is established. It is not so much a concern that scientists can ‘make test tube babies’, but rather who decides, what process, whose bodies are involved, who gets to use this technology. In this, Butler’s text can be seen as foregrounding some of the feminist questioning of the practical realities of IVF that were substantially absent from the IVF and law scholarship.

Finally, for the virtual worlds and law scholarship, Butler’s *Xenogenesis* emphasises potentiality and diversity. The Oankali, with their quest for life in its diversity and for change, resonate with the possibilities of virtual worlds as social spaces that do not just manifest some of the core, problematic values of the modern West – the market, individualism and competition. In *Xenogenesis*, the Oankali consider the pure human species as hardwired for self-destruction through the contradictory affirmation of two traits deep in the genome of hierarchy and intelligence. Virtual world and law scholars, locked into a cyberpunk assessment of the potential of virtual worlds, advocate for law to stabilise and regulate persons and property, to stop the griefers and to police the virtual world–real world interface. In many respects, they see a fundamental human nature of hierarchy linked with intelligence that needs to be regulated. In the alternative, Edward Castronova, economist and a leading scholar of virtual worlds, wants to keep virtual worlds open as imaginative spaces for play, and in doing so to see the possibilities for transformations of the social to be expressed, experimented and lived. Castronova’s argument for law to protect virtual worlds from the constraints of contract, rights and property can be seen as emerging from a speculative jurisdiction that is not cyberpunk but more Butler-like and ‘utopian’.

---

184 Stillman (2003); Miller (1998); Belk (2008).
It is suggested that this brief exemplar of Xenogenesis as a rival speculative jurisdiction is a taking seriously of the science fictionality of law and technology. In presenting a world of natureculture, Butler grounds her imagining away from the social conservatism of nature vs technology that was identified in space opera, dystopian science fiction and cyberpunk. She provides an alternative framing for rockets, IVF and virtual worlds that emphasises the micro and everyday of politics and power in how technologies are to be implemented. Instead of seeing potentialities that need to be prohibited, Xenogenesis reveals possibilities and complexities that need to be expressed and thought about. By drawing more deeply into the Western mythform, law and technology has the potential to develop more engaging and critical narrations of law and technology.

Conclusion

This article has argued for the science fictionality of law and technology. Through an analysis of the deployment of science fiction texts, images and tropes within three law and technology literatures (first-generational space law, IVF and law, and virtual worlds and law), it was shown that three technological events (Sputnik, Louise Brown and Second Life) were seen as heralding specific technological futures. In drawing these futures from space opera, dystopian science fiction and cyberpunk, each of the legal literatures can be seen as channelling a social conservativism arising from seeing nature and technology in conflict. In the alternative, it was argued that law and technology should draw more deeply from science fiction as the West’s mythform, to challenge these preconceptions and to enact more critical and engaged narrations of law and technology. A preliminary sketch of this was provided by utilising Butler’s Xenogenesis trilogy as a speculative jurisdiction through which to reassess the legalities of the rocket, IVF and virtual worlds.

References


Agreement Governing the Activities of States on the Moon and Other Celestial Bodies open for signature 18 December 1979 1363 UNTS 3 entered into force 11 July 1984.


John Cobb Cooper (1958) ‘Flight-Space and the Satellites’ 7 International and Comparative Law Quarterly 82.
Jon Dovey and Helen W Kennedy (2006) Game Cultures: Computer Games as New Media, Open University Press.


Sarah AL Humphreys (1979) ‘Lawmaking and Science: A Practical Look at In Vitro Fertilization and Embryo Transfer’ 3 Detroit College of Law Review 429.


Alan et al Kalish (1988) ““For our Balls were Sheathed in Inertron”: Textual Variations in the “Seminal Novel of Buck Rogers”’ 29 Extrapolation 303.


Damon Knight (1967) In Search of Wonder: Essays on Modern Science Fiction, Advent.


George Lucas (1977) Star Wars: A New Hope, Twentieth Century Fox.


Donald E Palumbo (1997) “‘Plots Within Plots … Patterns Within Patterns”: Chaos-Theory Concepts and Structures in Frank Herbert’s *Dune* Novels’ 8 *Journal of the Fantastic in the Arts* 55.


Darko Suvin (1979) *Metamorphoses of Science Fiction; On the Poetics and History of a Literary Genre*, Yale University Press.


Sherryl Vint (2007) *Bodies of Tomorrow: Technology, Subjectivity, Science Fiction*, University of Toronto Press.


