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Retrospective Futures?
Law, technology and copyright control in cyberspace

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This article looks at the relationship between science fiction, technological development and law. It also addresses recent writings by John Perry Barlow and Lawrence Lessig, and gives a paranoid reading about the future for technological copyright controls in light of the *Copyright Amendment (Digital Agenda) Act* 2000. The central thesis is that if lawyers and law makers are interested in making effective laws, they need to be more conscious of the culture from which they draw their inspiration, and of the cultural expectations and values of the communities their laws affect. Science fiction provides one such channel through which inspirations and expectations can be read.

Prologue: On reading what is to come

There is an abundance of writing about law and technology, particularly copyright and the digital agenda. When lawyers write about this future the tendency is to focus on law as abstract rights- what rights will mean in the new age, against a backdrop of technical minutae- how this technology might evade that particular regulation. The writer's choice is to situate the subject firmly on dry ground. What excites the writer is rarely addressed. The tone is generally measured and reassuring, the writing objective and authoritatively expert. The only unknown is with reference to technology- to what is yet to come, but such matters are expressed as something for future writers to pick up. To address it now is considered a pointless, unprofessional activity: to crystal gaze.

My suspicion is that such writing is motivated by a desire to manage the unknown and stabilise the uncertain; to solidify what is fluid. The writer is an agent of the law's supremacy over the technological and social world. Technical competencies (in existing law and technologies) are tools that expose the truth of the current situation, and proffer the appropriate, usually legislative, solution for tomorrow.[2]

This work writes against that trend. It brings to the surface the kinds of issues and problems that law and lawyers generally chose to neglect. It is about anticipating what there is to come. It is about addressing the inspiration for much of the technology we now experience, and addressing the inspirations for our laws. The source for much of my discussion is science fiction: writing and films that have motivated my own reflections on law and law making in the digital age. Outside of the field of law, such a reference base is becoming mainstream. That intuitively such a starting point feels wrong in law, says much about the state of our understanding of the topic at hand.

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[2] This theme is explored further in K. Bowrey, "The Outer Limits Of Copyright Law - Where Law Meets Philosophy And Culture" (2001) 12:1 *Law and Critique* 1-24.

Hals' Legacy- Science Fiction as dream and reality

There is a scene in the movie *Blade Runner*[3] in which the police officer, Rick Deckard, who hunts genetically made criminal replicants, wants some information about an animal scale. He thinks it is a fish scale. He takes it to the marketplace and asks a vendor to examine it. She puts it under the microscope, identifies it as a snake scale, and tells him the maker's mark - a serial number found at the stem of one of the cellular structures. The mark identifies the license of the manufacturer.

In the U.S. Intel Corporation awarded a high school student, Viviana Risca, a college scholarship award of US$100,000 for her computer science project in molecular computing. Her project uses data encryption techniques to insert messages into the DNA of organisms. She encrypted the message "JUNE6-INVASION:NORMANDY" and inserted it into the gene sequence of a DNA-strand, and flanked it with two secret "primer" DNA sequences. This was then combined with many other similar molecules. The message or DNA signature would not be apparent to anyone who studied the DNA or retrievable unless they knew the two secret "primer" DNA sequences.[4] It did not effect the function of the DNA. Viviana thinks the technology will be useful for inserting proprietary information into DNA. It will assist in enforcing intellectual property rights for example, where a corporation thinks a competitor has used the DNA of "their perfect tomato" without permission or license.[5]

Is there any relationship between the fiction and the scientific reality?

Before answering it is worth noting that there are many publications exploring science fiction's impact on technological innovation - from Thomas Disch's *The Dreams Our Stuff Is Made Of,* which "analyzes science fiction's impact on technological innovation, fashion, lifestyle, military strategy, the media and much more"[6] to *HAL's Legacy,* an impressive, scholarly work from MIT press that discusses the relationship between Stanley Kubrick's fantasy *2001*[7] and the progress of super computing and artificial intelligence.[8] Once the relationship between science fiction and science fact was merely a useful tool for classifying works within the science fiction genre. It is now a subject worthy of proper academic study. Some intellectual property rights owners have not necessarily welcomed the development, though generally this has only come to the surface in terms of enforcing registered trade marks. In one such case Judge Kozinski noted - "when George Lucas wants to keep Strategic Defense Initiative fans from calling it "Star Wars"… Something very dangerous is going on here."[9]

The CSIRO in Australia and Xerox Palo Alto Research Centre (Xerox PARC) and NASA's Jet Propulsion Laboratories (JPL) in the USA offer artist in residence programs to forge stronger relationships between commerce, science and the arts.

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[3] (1982) Director: Ridley Scott.
[4] "Intel Science Talent Search" Press Release at http://www.sciserv.org.sts/press/20000313.asp
[5] Dan Fallon, "Scrambling DNA" *e-mag*, Sydney Morning Herald May 2000 42.
[6] Cover, Thomas M. Disch, *The Dreams Our Stuff Is Made Of. How Science Fiction Conquered the World* (2000).
[7] *2001: A Space Odyssey* (1968) Director: Stanley Kubrick.
[8] David G. Stork (ed), *HAL's Legacy: 2001's Computer as Dream and Reality* (1996).
[9] *White v. Samsung Electronics America Inc.*, 989 F.2d 1512, 1512-13 (9th Cir. 1993).

There is a strong interest in exploring more abstract social connections between technological futures and society.

That Viviana Risca might draw on science fiction for inspiration does not necessarily attest to her youthful imagination. It may alternatively be read as a sign of her understanding conventional scientific practice. Science, particularly high technology areas, draws on fiction for inspiration.

I am a lawyer. I read and watch a lot of science fiction, mainly mainstream. If there is a fruitful relationship between science and science fiction, might a similar liaison with science fiction be useful to law?

The dreams our laws are made of : Code is law

In the early nineties law joined with literary theory, philosophy of science and cultural studies in evaluating the utopian promise of cyberspace. However the conventional approach was to assume that cyberspace was a new frontier, virtually beyond regulation. The writing of John Perry Barlow was quite influential in this regard. General awareness of his viewpoints was assisted by accessible writing, publishing in *Wired* when it was *the* widely distributed and fashionable technology magazine ensuring its republication in numerous formats, his high profile speaking engagements and a political association with the Electronic Frontiers Foundation (EFF). His mantra was that "intellectual property law cannot be patched, retrofitted, or expanded to contain the gasses of digitised expression".[10] Barlow has recently restated this view, drawing upon the Napster phenomenon to argue that "Following the death of copyright, I believe our interests (as artists) will be assured by the following practical values: relationship, convenience, interactivity, service, and ethics." [11] I have analysed Barlow's reliance on ethics and his characterisation of cyberspace as a market for services rather than a market for goods elsewhere.[12] Notwithstanding a high degree of recognition of his views in Australia, it never seemed to impact upon our cyberlaw debates.

Law settled upon more pragmatic discussion about the architecture that supports the copyright toll, the possibilities for online privacy and living in a Microsoft™ world. Our law is focussed on trying to catch up and respond to problems caused by new technologies.

The nature and pace of change with digital technologies causes problems for this kind of approach. For example: censoring material available online. By the time policy has been formulated, legislation drafted and discussed, the bureaucracy set to regulate the problem, suspect material has been relocated out of the jurisdiction or hidden within it, the legislative intent avoided, legal responsibility averted. Another example: itemised phone bills make life easier for police and security services, but tracking email, where users can transmit encrypted messages via anonymous accounts with foreign internet service providers, is a lot harder. Failed regulatory attempts include the "Clipper Chip", which sponsored a form of universal encryption that allowed US government agencies

[10] "The Economy of Ideas: Selling Wine without Bottles" (1994) 2.03 *Wired* 84.
[11] "The Next Economy of Ideas: Will Copyright survive the Napster bomb?" (2000) 8.10 *Wired* 240, 242.
[12] See "Ethical Boundaries And Internet Cultures" in L. Bently & S. Maniatis, (eds) *Intellectual Property and Ethics Vol I. Perspectives in Intellectual Property* (1998) 3, 19ff.

a key to access messages, and a UK bill that sought to force ISPs to install a connection to security services to track messages sent and received, and if encrypted demand the key from correspondents or the ISP.[13] Apart from privacy implications, the schemes mistakenly assume that there would not be a variety of forms of encryption available, and that these would not often change. Assuming an ISP were prepared to bear the initial cost of the installation of interception equipment and security links, as Net architecture changes so frequently maintenance costs associated with updating the technology to keep pace with new practices would be prohibitive, and in any case the venture would most probably prove fruitless.

A pragmatic approach to regulating new technologies prepares us for redundant technologies and dated practices. It is retrospective law in the sense that it brings us new laws designed to deal with the technological past. Law is practically speaking, merely an obstacle, or an irrelevance.

The most recent influential writer on the cyberlaw frontier is Lawrence Lessig.[14] Drawing upon the insights into the nature of regulation developed by the "New Chicago School" of law and economics, he directs law-makers to view law, norms, markets and architecture as the four kinds of constraints that interact to influence behaviour. It is primarily the architecture of cyberspace that differentiates it from 'real-space' and challenges regulators. Lessig suggests regulating computer code- the architecture of cyberspace- its hardware and software- in order to achieve regulatory objectives.

His approach is more sophisticated than those outlined above. For example, in regard to the perceived need of government agencies to access data files and the desire of citizens to encrypt their personal information, he is supportive of regulation that targets any kind of code that encrypts data. A producer of encryption devices can be required to create a back door that allows access by government agencies.[15] This approach anticipates the reality of there being a number of technological players, a market and a variety of technological solutions- computer codes - produced to service demand. Regulation doesn't try to prohibit the technology altogether or try to sponsor one standard like a Clipper Chip. It is only technologically specific in that the regulation relates to all technology that serves a particular function. *Code* is thus an argument for subject-specific law, creating standards of compliance for computer code that relates to a particular social activity or issue. In general Lessig justifies this legislative end with reference to an established constitutional value like free speech or privacy.

Whilst this is an advance on previous regulatory approaches because it anticipates numerous technical possibilities, the main weakness remains that of fully appreciating that code is not a passive subject of regulation. Code can and is written anticipating various regulatory challenges. For example, file sharing portals like Napster had the technological weakness of operating via a central location. This made it an easy target of regulation. It successors, like Gnutella and Freenet have no centralised hub. How can the activity of file sharing be efficiently targeted and who is the primary party responsible for infringing activity via this technology? These file-sharing programs were designed against an understanding of how copyright legislation and litigation

[13] Editorial, "Spooks Out" *New Scientist* 17 June 2000, 3.
[14] *Code and Other Laws of Cyberspace* (1999).
[15] Ibid, 47f.

practice operates. That the makers of such programs are not selling the software nor interested in generating income via that route further complicates the issue of enforcement and damages. It is unsurprising that Lessig is not too keen on open-source software. His regulatory model is designed with proprietary code in mind. He appreciates that if code and law can work in competition, with the former disrupting the latter (as with Gnutella, for example), "open-code means open control".[16] Government power to regulate code is weak when it is not proprietary. As he says, it is strongest when there are only a few players with real assets.[17]

The dreams Lessig's laws are made of suggests that the important player in cyberspace is Microsoft.[18] However whilst this corporation may dominate the current marketplace for particular applications, it is not necessarily the source of major innovation and the technological challenges to come. Lessig is ultimately more interested in the welfare of constitutional values in the face of new technologies than in tracking technological developments and their impact on law, culture and society more broadly. He does not really anticipate the technological future beyond the generalisation that developments will be in the form of code and that law must target code.

What science fiction says of law

In science fiction there are alternative visions of law that are not technically issue oriented in the way that the above approaches are. However none of these alternatives are particularly edifying.

One model is militaristic - as in the Starfleet universe, where there is a centralised, hierarchical command structure, generalised protocols and directives, enforced by military officers and judicial tribunals. There is a high degree of civilian compliance with authority, tied to a generally affluent life style, an extensive, medicalised welfare net and liberal rights rhetoric. Technological innovation is under military control. Surveillance techniques are sophisticated. The private ownership of technology is presented as representative of 20th century greed and corruption, causing social disruption, international conflicts and impeding galactic progress.

A slightly different and bleaker model is where regulation is monolithic and bureaucratic, as in the movies *Brazil*[19] and *Gattaca*[20]. Surveillance is all pervasive. Regulations are often irrational or unnecessarily personally intrusive. Society is a Kafkaesque or an Orwellian inspired nightmare.

The technological success of these highly regulated worlds is often contrasted with a third vision of law- the anarchic, scavenger society. Fringe dwellers, outsiders, social rejects, living in a lawless universe, harshness and violence only partially modified by the communal survival ethics of the group. These individuals are generally highly innovative, but skills are directed to adapting existing technologies to best deal with

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[16] Ibid, 107.
[17] L. Lessig, "The Law Of The Horse: What Cyberlaw Might Teach" (1999) 113 *Harvard Law Review* 501, 536.
[18] Lessig was appointed Special Master in the Microsoft Litigation, Judge Jackson 12 Dec, 1997 U.S. District Court, District of Columbia. See "Lawrence Lessig and the Microsoft Litigation" at http://www.wolfenet.com/~dhillis/lessig.htm
[19] (1985) Director: Terry Gilliam.
[20] (1997) Director: Andrew Nichol.

the daily grind of survival - security, shelter, treating illness and disease and combating the oppression of a mega-corporate power. They are physically excluded from the metropolis, but intrude on it largely through virtual communications and commando-style military strikes.

In futuristic worlds significant technological innovation comes from social and economic stability, but the legal authority that provides this is undemocratic and authoritarian, even where the regime is presented as benign. In all three stylised visions of the legal future significant social actors work alone, colleagues substitute for friends and family, and protagonists fantasise about the warm fuzziness of a 1950s style nuclear family and community. In film, a primary motivator is often the call of "home", or where home is a lost world as in *Johnny Mnemonic,*[21] at least recapture the genuine memories, somehow differentiated from implanted ones.

There does not seem to be any clear or immediate relationship between these sci-fi legal worlds and our own. However it may be that contemporary regulatory efforts largely fail because there is a failure to notice the effect these futuristic ideas have in the here and now. Both lawmakers and those whom the laws are designed to affect are influenced by these ideas of law and society.

In press releases and in communications to the general public, law makers explain the need for intrusive regulation and 'law and order' style responses to technological threats with reference to the deviant nature of those within the cyber community. For example, the Prime Minister John Howard branded a Tax Office business client who mistakenly entered the wrong access code to an online information service bringing up banking and other private business details of another client, and who brought the security problem to public attention, "a hacker" and "a criminal".[22] Censoring access to internet sites and the discounting of free speech concerns has been supported in the name of anti-paedophilia initiatives.[23] The government adopts a vociferous, aggressive stance and seeks to override civil rights objections by characterising the cyber world as lawless and predatory. They need to regulate, to take control. The innocent have nothing to fear. We need to be more security conscious. Whereas in science fiction the anarchists live hand to mouth on the community's outskirts, we have more to worry about. They are living amongst us, dressed respectably, in houses and driving cars probably more expensive than ours, corrupting the minds and bodies of our future- our youth.

Law-makers play up to fictional representations of cyberspace as anarchic. In doing so they get some credit for acting decisively to resolve the perceived crisis. However, this is at the expense of losing another perhaps more important constituency.

Authoritarian rhetoric conforms to the sci-fi expectation of Big Brother. It reinforces the notion of government regulation as obtrusive, overbearing, and unsympathetic to

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[21] (1995) Director: Robert Longo, based on short stories by William Gibson. The contrast between the tech-world and "home" is also present in the Sandra Bullock movie *The Net* (1995) Director: Irwin Winkler & *Robocop* (1988) Director: Paul Verhueven.

[22] News Broadcast, *ABC Radio* 29 June 2000.

[23] Angus Kidman, "Censoring the Web" *Australian Personal Computer* January 1996. The Federal legislation that authorises the Australian Broadcasting Authority to classify material on Australian internet sites is the *Broadcasting Services Amendment (Online Services) Act*.

the genuine aspirations of the tech-community. It is anticipated that regulation will fail because of an incompetent understanding of the technology, the industry and its cultures.[24] But this feeds another fear - the other unchecked power in the sci-fi world - the global corporation - impossibly wealthy, all powerful and run by a megalomaniac nerd; Lessig's ghost?

By alluding to appearances, for the sake of appearances, the "hands-on" government breeds resentment and resistance amongst those whose behaviour it actually wants to modify. Lessig is right to be concerned about democratic values. However the selling of the need for regulation may prove to be just as divisive and damaging to the social fabric as the problematic technology or practice itself.

If we want to forge a better future with more successful and democratic forms of regulation, there is a lot to be gained by better exploring what it is that we fear. Addressing one's fears provides some armory against the more overt political manipulation- it slows the rush to judgement. Interrogating the emotional roots of our existing expectations of technology and community, as propagated in science fiction in the past, may prove an effective strategy to prevent our worst nightmares from coming true.

The future as a "trusted system"[25]

My fears for the future are best expressed by a "Nebula" award[26] winning science fiction story by Paul Levinson.[27] In "The Copyright Notice Case"[28] forensic detective Dr D'Amato is called upon to investigate the unexplained death of a computer programmer. The programmer was working on a human genome project, exploring some "odd material" found on 8% of the X-chromosomes studied. The material does not contain any expressive or behavioural trait. It appears to be a protein code that is capable of some kind of binary transformation. A way has been found to translate it to words on the computer screen. It says that some intelligent species leave their marks in stone or other stable media. This species used genetically engineered DNA as a means of leaving messages for future generations. It said, "Anyone who reads these words, who possesses our codes, is free to use them as allowed under our Copyright Notice". Dr D'Amato finds out that another programmer has also died whilst studying the message. Why?

After some experimentation he discovers that merely decrypting and reading a DNA message is not fatal. But making a digital copy of the words, by for example, saving to a hard drive, somehow triggers a massive burst of serotonin in the person sitting in front of the computer. Serotonin is a natural chemical found in the brain. Normally it contributes to a sense of wide awakeness, and raises blood pressure, but a huge overdose of serotonin causes lethally high blood pressure, heart attacks and general

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[24] For a discussion of the failure of the *Online Services Act* see Andrew Colley, "Burning the Censors" *Australian Personal Computer* July 2000, 83.

[25] "Trusted system" was originally a military term, repurposed to describe technological forms of copyright control. See Mark Stefik, *The Internet Edge* (1999) 55ff.

[26] The Nebula Awards™ are voted on by the Science Fiction and Fantasy Writers of America. Its membership includes most of the leading writers of science fiction and fantasy in the U.S.

[27] As well as writing science fiction, Levinson is Professor of Mass Communications at Fordham University.

[28] Paul Levinson, *Bestseller: Wired, Analog and digital writings* (1999) 69.

organ failure. As Dr D'Amato says the deaths were caused by "A primordial copy protection scheme. A copy protection technique from Hell".

Fingerprinting, DNA testing is already familiar to us. We also know other scanning technology, such as optical scanning by its representation in mainstream science fiction programs. A U.S. company called IriScan is now selling a version of the technology for use in ATMs to replace the need for PIN numbers and in prisons to prevent identity swapping.[29]

The software company Net Nanny has announced the development of "BioPassword Biometric Technology" attached to a digital rights management system. The system uses keystroke recognition technology with the aim of ensuring that only the person who paid to download a digital music file could play the file back.[30]

Since the early 1990s several companies including Folio, IBM, InterTrust, Xerox and Wave Systems have introduced "trusted systems" for digital publishing. These systems automatically enforce the specific copyright terms, conditions and variable fees applying to use of a digital work. Rights can be time limited, offered to specified people or groups, nominate kinds of permissible uses eg. rendering a work on screen, making a copy or specified number of copies, printing on a colour printer, extracting a specific portion for inclusion in another work. If there is no licence for the use requested, the "trusted system" refuses to carry out the command.[31]

There are many privacy concerns related to the use of such tracking technologies on the internet:
Alan Westin:[32] *Despite all the technology of the Fifties, Sixties and Seventies, most of the studies of totalitarian regimes - from the Soviet Union to Cuba - pointed out that what really mattered was neighbourhood surveillance, the fact that every building and every office had an informer. It was the organization of ratting on your neighbor that really made people worry the most. George Orwell noted that it was the informer* plus *the telescreen that made the Big Brother society.*
Colin Harrison:[33] *Now people crave the telescreen, in effect inducing their own surveillance.*[34]
We have seen a concerted effort to push the e-book, where a literary work is first made publicly available in digital format, as the future of publishing. In separate well orchestrated marketing events a new Stephen King novella "Riding the Bullet" and a Michael Crichton novel, "Timeline" were released online. The 16,000 word Stephen King file was available for US$2.50.[35] It was encrypted to prevent unauthorised copying and printing, although the codes were apparently soon broken. Over 400,000 requests for the file were received. The Crichton novel was free to download from the barnesandnoble website, as well as 15 Star Trek titles, but the catch is that the files are designed to be read on two handheld computers that run Microsoft's Pocket PC operating system. Commentators suggest that the Microsoft strategy was to assist in the sales of Pocket PC which has failed to significantly challenge the manufacturer of the leading Palm handhelds.[36]

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[29] Sacha Molitorisz, "Human Branding" *emag. The Sydney Morning Herald*, June 2000, 28.
[30] Ed Wehde, "Net nanny is to face the music" *The Australian IT / Cutting Edge* 20 June 2000, 3.
[31] Mark Stefik, *The Internet Edge* (1999) 80.
[32] Professor Emeritus of Public law and Government, Columbia University.
[33] Deputy Editor, *Harper's Magazine*.
[34] "The Searchable Soul. Privacy in the age of information technology", Forum, *Harper's Magazine*, January 2000, 57, 61.
[35] Jason Epstein, "Roll over Gutenberg", *The Australian / Higher Education,* 3 May 2000, 36, 37.
[36] Peter Svensson, "Publishers rush to the net" *The Australian IT / Cutting Edge* 13 June 2000, 4.

My fear is of a future where literary works are only available online, subject to pay per view, per copy, per printing and my personalised records of every online transaction is tracked, compiled and onsold for direct marketing and other purposes. What would this environment do to the culture of reading and to cultural production more generally? [37]Are we on the brink of a return to the 'one copy' world, where access to works is as restrictive as it was when manuscripts were secured in the medieval library, access controlled by the librarian and Abbott?

My fear is that nothing will be done to stop this retrospective turn.

An Agenda behind the Digital Agenda?

Mark Costello[38] : *The basic technological rule of thumb is that law enforcement and government are generally five years behind the times - actually more like ten*.[39]

The inadequacy of a technology specific approach to legislation is recognised by regulatory authorities where intellectual property rights are involved. The Australian Patents Office has adopted a non-discriminatory policy toward all industries when it comes to inventions. Biotechnology inventions, including those for genetically modified organisms have been accepted for some time.[40] Further the High Court recently affirmed that there should not be any human medical treatment exception in our patents law.[41]

The *Copyright Amendment (Digital Agenda) Act* has recently been passed by Parliament. It is designed "to encourage online activity and the growth of the information economy…The centrepiece . . . is a new technologically-neutral right of communication to the public".[42] The logic of the Act is to make the same rights available to copyright owners in the online environment as is currently available with hard copies. The Act provides civil and criminal sanctions for using circumvention devices to get around fee or password gateways, or removing or altering electronic rights management information, such as digital signatures. It also allows courts to set additional penalties where an infringement of the "first right of digitisation" has occurred- where a copyright owner has chosen not distribute a work electronically, and finds there has been unauthorised circulation online. It is also anticipated that legislative success in protecting the interests of copyright owners will be reviewed three years after the law comes into effect.

Despite these legislative initiatives in the interest of copyright owners, the Act has been criticised as shifting the balance too far in favour of the interest of copyright users.[43] It allows for the current "fair dealing" provisions to be extended to the online environment, which will allow copying of "reasonable" portions of electronic works[44]

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[37] For a discussion of the effect of electronic publishing on reading generally see Alberto Manguel, "St Augustine's Computer" in *Into the Looking Glass Wood* (1999).
[38] Former Prosecutor, Manhattan District Attorney & U.S. Department of Justice.
[39] Forum, above n34, 67.
[40] For a good discussion of this see Karinne Ludlow, "Genetically Modified Organisms and their products…" (1999) 6 EIPR 298.
[41] *Bristol-Myers Squib Co v F.H. Faulding & Co Ltd* FCA [2000] 316 (22 March 2000)
[42] *Copyright Amendment (Digital Agenda) Bill* 1999 - Explanatory Memorandum.
[43] eg. Comments by Mr Baird, House of Representatives Hansard 27 June 2000, 16923ff.
[44] Generally 10% of the words contained in the online document.

to be used for free for specified purposes, such as private research and study or criticism and review. To prevent "abuse" of the provisions it is an infringement to download a number of different portions of the one file within a set time period. Public libraries will also be permitted to make and supply electronic copies of works in certain circumstances, proving an exception to the owner's "first right of digitisation". The fear is that this will make libraries defacto electronic publishers, however a study by the Ergas Committee suggests such a view is unfounded.[45]

There is nothing in the legislation that would prevent a shift to the "problem-future" outlined above. The law endorses a distribution model that anticipates market demand will ensure that the first right of digitisation will be exercised by the copyright owner and that works will be made available online.[46] But my problem is with the reverse situation - further down the track where the work is only available in electronic format. It should cost a lot less for a copyright owner to distribute a work electronically than to make it publicly available in hard copy and each use could attract a fee, which is not necessarily the case with a work distributed in hard copy format.

It is up to the copyright owner to define the ambit of the "literary work". In the past owners have determined the limit or word length of their works in order to generate new income streams. The received wisdom is that Charles Dickens pioneered serialisation in order to generate much needed income support.[47] He could then later compile the chapters and publish the entire work thus creating a number of separate markets for what was, culturally speaking, one body of work. Were this strategy to be applied to electronic markets, owners could very easily use the limits contained in the legislation to frustrate the intent of the fair dealing provisions of making works accessible to the public.

There is no agreed position on what word length is necessary to constitute a literary work. Case law suggests a single word might not be substantial enough to suffice.[48] This brings little comfort. A work could be dissected into paragraphs, made available online as a single "page" or file. With a clever graphic interface and larger typefaces to ameliorate the problem of reading dense text on computer screens, the file format need not be terribly obtrusive to the computer user.[49] Each paragraph, page or file could have a separate copyright to the related "pages", for example, each loaded as "frames" using existing Browser software.[50] Each file or frame could be electronically tagged and fees charged. Being able to download 10% of the words of each of the paragraphs in certain circumstances, for free, would do little to advance research and study or be conducive to criticism and review of what we understand in the hard copy world as a whole "work". Even where fees were happily paid per page, it would radically change the reading experience.[51]

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[45] *Review of Intellectual Property Legislation under Competition Principles Agreement* (2000), 89-99.
[46] Mr Baird, above n 43,16925.
[47] Robert Patten, *Charles Dickens and his Publishers,* (1978) 45-74.
[48] *Exxon Corporation v Exxon Insurance Consultants International Ltd* [1981] 2 All ER 495 and *Kalamazoo (Aust) Pty Ltd v. Compact Business Systems Pty Ltd* (1985) 5 I.P.R. 213.
[49] Consider the difference between the "Screen Real Estate" available on a Palm Pilot or a mobile phone screen and a standard desktop computer screen.
[50] Banner advertising is already sold by the Frame.
[51] For a well known and amusing tale of reading by instalment see Italo Calvino, *If on a Winter's Night a Traveller* (1981).

There is nothing in the legislation to prevent the problem scenario from eventuating, and a lot that helps establish the legal and technological infrastructure necessary for it.
- We have copyright for "works" online, including those that are dynamically constructed as you read, with virtually no limits on how small the "work" can be.
- We have copyright controls in the forms of subscription services that set terms and conditions for viewing, downloading and printing works.
- We have many forms of encryption technology and digital watermarking, and laws which make tampering with such devices an offence.
- We have "cookies" and other file tags that log our activities online - what we access, copy and send via email or through web sites.
- We have online credit facilities for online commercial transactions.

In the contemporary political environment the main barrier to the rise and rise of copyright law is seen as competition law: law that restricts unfair monopolies.[52] Competition law could feasibly be tried to force the making available of unencrypted copies of files, so that fair dealing rights could be exercised. The *Digital Agenda Act* itself recognises that there may be legitimate reasons for using devices to circumvent encryption, although it limits this exception to the particular needs of those working in cultural institutions such as public libraries. The exception is not intended to apply to the legitimate fair dealing interests of the general public, out of fear that this would create a backdoor mechanism to avert technological means of protection altogether. Arguably competition law might step in where a work is practically unavailable, except as an encrypted electronic file. If the encryption key were only made available for fee, it would restrict access to work - effectively preventing exercising the right of fair dealing. Competition law might break that unfair monopoly. However it is questionable whether competition law could be called upon to define the primary commodity in cyberspace- to effectively define what is an electronic literary work - to set a limit to how small a computer file need be, to attract a copyright fee. Conventionally that kind of definition has been the domain of copyright law, and to date, the level of definition has been disappointing.

Science fiction visions of the future have encouraged the technological innovations and suggest new technological dependencies, and the flipside of this, the manufacture of obsolescence. It is increasingly difficult to stand aside from the multi national technologically based consumer "solutions", planned for long before yesterday and needing an upgrade today and tomorrow.

The arrival of the e-book does not necessarily herald the decline of the book. But there is a question about what kind of works will continue to be published in the old formats, as well as the new ones. You will probably always be able to sell Stephen King online, as well as in hardback, paperback and serialised formats. But what about the publications of less profitable authors?

Just as TV affected the status of radio, the significance, function and cultural importance of old publishing technologies will change with the arrival of new ones. Whilst current reading generations are comfortable with the old formats, will the same hold for the next generations? For now we can expect the new technologies to

[52] See the workings of the Intellectual Property and Competition Review Committee at http://www.ipcr.gov.au

supplement and enhance the market for the older media formats. The celebrity authors who are the acceptable face of the new media age are only there because of their success with the older media formats. For how long will this association be maintained?

Indirectly laws have forestalled some technological developments. For example, it is widely rumoured that the reason "VR" games have not emerged as a form of mass entertainment relates to the coincidence of health risk and tort law. Significant numbers in the population would most likely experience a level of motion sickness, some more extreme and permanent physiological reactions and disability from VR environments. The VR provider would be liable if they could have reasonably foreseen causation of the injury. In this context there is little incentive to widely distribute the technology.

It is predicted that the government's recent policy concerning the allocation of the digital TV bandwidth could forestall the development of online delivery services in Australia.[53] Because of local restrictions on the kind of data transmissions available and who is licensed to send them, we may not have exposure to the same level of interactive TV and associated online services that exist elsewhere. This may fortuitously delay the "telescreen" surveillance already feared by overseas commentators, even though it was not the intent behind Australian government policy. But little has been done to address the manufacture of desire for this brave new world.

The Truth is Out There

My graying generation grew up on the nineteenth-century notion of history as a linear construct; the postmodern concept of history is "now" and "not now". "Now" is where it's all happening; "not now" is a muzzy collection of dislocated events.[54]

It is increasingly difficult to identify what is the "Now" and what is the "Not now" of electronic publishing and copyright control. My problem scenario is certainly a possible technological reality in that the technology is being manufactured and sold in the here and now. Yet this world is not yet a cultural reality. It is merely a possible technological future, the "not now", a science fiction. Technology requires a culture to support it.

Science fiction supports this possibility by providing inspiration for new products, services and fashions. However the sci-fi world also inevitably suggests a dark side- laughably expressed in Star Trek Voyager's Captain Janeway's retreating to a holographic representation of Leonardo's studio to write her Captain's log with holographic quill and ink to escape overexposure to a technological world,[55] as well as in the more disturbing, alienated glimpses of the future.

It could be that my fears for the future stem from taking science fiction too seriously- a paranoid reaction to paranoia inducing entertainment. But it is a form of entertainment many engage in. I am not certain how much public resistance there will be to fiction

[53] "Potential Datacasters not impressed with Government Model" "AM" ABC Radio 22 December 1999.
[54] Jack Dann (ed) *Nebula Awards 32* (1998) vii.
[55] *Star Trek Voyager - Scorpion Part II* (1997) Director: Winrich Kolbe.

becoming cultural reality, and how any opposition to it can be popularly expressed, except in the form of science-fiction.

The gleeful fact is that the future isn't The Future anymore:
It's here, it's weird, get used to it.
I remember watching Blade Runner the day it opened in 1982, being delighted and overwhelmed that somebody had finally been able to capture the look of dystopia on film: neon din, multicultural/corporate advertising, transgressive clothing and bodywork, retro in utero. This morning I drove through town and it's all there, except for the zeppelins urging people to move offworld.[56]

With respect to cyberspace, and so far as the relationships already exist, we need to more closely explore the inter-relationship between science fiction, science fact, technology, culture and law, broadly understood. This truth is out there, regardless of whether or not it is something we want to believe. To regulate in ignorance of this reality, is to push forward and manage the territory without seeing or understanding the complexity of what is cyberspace.

[56] Elizabeth Hand, "Keeping Up" in Dann, above n54, 4.