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Wikipedia, Collective Authorship, and the Politics of Knowledge

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Chapter

Wikipedia, collective authorship, and the politics of knowledge

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‘Because the world is radically new, the ideal encyclopedia should be radical, too...

It should stop being safe – in politics, in philosophy, in science.’

Charles Van Doren (1962)

I. Introduction

A ‘wiki’ is a piece of software, which allows users to easily create, edit, and hyperlink web pages together, and create collaborative and community websites. Ward Cunningham (2002) was the developer of the first wiki in 1994 - the WikiWikiWeb, which he described as ‘the simplest online database that could possibly work.’ He used the Hawaiian phrase, ‘Wiki’, a shorthand for fast, to describe the software. Cunningham (2002) explained, ‘I chose wiki-wiki as an alliterative substitute for ‘quick’ and thereby avoided naming this stuff quick-web.’ He elaborated:

Wiki is a piece of server software that allows users to freely create and edit Web page content using any Web browser. Wiki supports hyperlinks and has a simple text syntax for creating new pages and crosslinks between internal pages on the fly. Wiki is unusual among group communication mechanisms in that it allows the organization of contributions to be edited in addition to the content itself. Like many simple concepts, ‘open editing’ has some profound and subtle effects on Wiki usage. Allowing everyday users to create and edit any page in a Web site is exciting in that it encourages democratic use of the Web and promotes content composition by nontechnical users (Cunningham, 2002).

Since the early 2000s, wikis have been adopted both on private intranet and the

internet. There have been a number of famous sites, which have relied upon wiki software. Most notably, Wikipedia has encouraged amateurs and experts alike to develop a large, multilingual online encyclopedia. The website, Wikileaks, has been developed to allow the disclosure of confidential documents, whilst at the same time protecting the identity of whistleblowers. The project, the Encyclopedia of Life, seeks to develop an online, global database cataloguing the world's biodiversity in all its rich complexity.

Global economy and culture are also giving rise to powerful new models of production based on community, collaboration, and self-organization. Tapscott and Williams contend that 'this new economic model extends beyond software, music, publishing, pharmaceuticals, and other bellwethers to virtually every part of the global economy' (Tapscott and Williams 2006 p. 2). The authors argue that capitalists must 'embrace a new art and science of collaboration we call wkinomics' (p. 3).

The co-founder of Wikipedia, Larry Sanger, observes that the online encyclopedia has generated a great deal of public debate, noting: 'Wikipedia inspires unreasonable passions' (Sanger 2006). He observes: 'The vigor with which it is attacked, often unreasonably and based on false assumptions, and defended, even against perfectly reasonable criticisms, gives a clue that something *interesting* is going on' (Sanger 2006). He notes that Wikipedia has been defended by a range of Internet partisans including 'high school and college students tired of being talked down to by their teachers, open source devotees, cranks resentful of professionals, privacy and free speech advocates, old-fashioned anarchists, and (indeed) epistemic collectivists who give often undue weight to the so-called wisdom of crowds' (Sanger 2006). Sanger notes that 'on the other side, Wikipedia's most vocal detractors include professional editors, journalists, college professors, librarians, some (not most) bloggers, and victims of Wikipedia's sometimes defamatory biographies' (Sanger 2006). Sanger suggests that the underlying debate is about the politics of knowledge: 'The *politics of knowledge*, as I will speak of it, concerns this procedural question writ large: *how should we, as a society*, decide what should pass for knowledge?' (Sanger 2006).

In his book, *The Future of the Internet – And How to Stop It*, Jonathan Zittrain is a champion of the online encyclopedia, Wikipedia. He notes: 'A constitutional lawyer

might review these tales of Wikipedia and see a mess of process that leads to a mess of substance: anonymous and ever-shifting users; a God-king who may or may not be able to act unilaterally; a set of rules now large enough to be confusing and ambiguous but small enough to fail to reach most challenges' (Zittrain 2008, p. 141). Zittrain, though, believes that there are virtues in the open evolution of Wikipedia:

Wikipedia's success, such as it is, is attributable to a messy combination of constantly updated technical tools and social conventions that elicit and reflect personal commitments from a critical mass of editors to engage in argument and debate about topics they care about. Together these tools and conventions facilitate a notion of 'netizenship': belonging to an Internet project that includes other people, rather than relating to the Internet as a deterministic information location and transmission tool or as a cash-and-carry service offered by a separate vendor responsible for its content (Zittrain 2008, p. 142).

The academic believes that Wikipedia is an exemplar of open, generative technology: 'Wikipedia shows us that the naïveté of the Internet's engineers in building generative network technology can be justified not just at the technical layer of the Internet, but at the content layer as well' (Zittrain 2008, p. 144).

In his polemic, *The Cult of the Amateur*, Andrew Keen inveighs against Wikipedia, disparaging it as 'an online encyclopedia where anyone with opposable thumbs and a fifth-grade education can publish anything on any topic from AC/DC to Zoroastrianism' (Keen 2007, p. 4). He submits: 'By empowering the amateur, we are undermining the authority of the experts who contribute to a traditional resource like the Encyclopaedia Britannica' (p. 44). Keen contends: 'In undermining the expert, the ubiquity of free, user generated content threatens the very core of our professional institutions' (p. 44). He concludes: 'Wikipedia ... is almost single-handedly killing the traditional information business' (p. 131). Expressing similar concerns, Oliver Kamm complains of Wikipedia: 'It combines the free-market dogmatism of the libertarian Right with the anti-intellectualism of the populist Left' (Kamm 2007). In his piece, 'Digital Maoism', Jaron Lanier writes acerbically about Wikipedia and other services, which valorise collectivism (Lanier 2006). He argued that Wikipedia is part of a broader movement on the internet that aims to promote the collective view above

individual judgment (Lanier 2006). The author of *The Cathedral and The Bazaar*, Eric Raymond, argues that ““disaster” is not too strong a word for Wikipedia’ (Schiff 2006). In his view, the site is ‘infested with moonbats’ – a term of abuse referring to dogmatists of any ideological persuasion. Raymond concludes: ‘The more you look at what some of the Wikipedia contributors have done, the better Britannica looks’ (Schiff 2006).

This chapter considers the legal ramifications of Wikipedia, and other online media, such as Wikileaks and the Encyclopedia of Life. Nathaniel Tkacz (2007) has observed: ‘Wikipedia is an ideal entry-point from which to approach the shifting character of knowledge in contemporary society.’ He observes: ‘Scholarship on Wikipedia from computer science, history, philosophy, pedagogy and media studies has moved beyond speculation regarding its considerable potential, to the task of interpreting – and potentially intervening in – the significance of Wikipedia’s impact’ (Tkacz 2007). After an introduction, Part II considers the evolution and development of Wikipedia, and the legal troubles that have attended it. It also considers the establishment of rival online encyclopedia – such as Citizendium set up by Larry Sanger, the co-founder of Wikipedia; and Knol, the mysterious new project of Google. Part III examines the debate over Wikileaks – a web-site designed to enable the disclosure of confidential information, and the facilitation of anonymous communication. It focuses upon the legal action taken by Bank Julius Baer & Co. to prevent Wikileaks from publishing confidential and forged bank documents. Part IV explores the use of mass, collaborative authorship in the field of science. In particular, it looks at the development of the Encyclopedia of Life, which seeks to document the world’s biodiversity.

This chapter expresses concern that Wiki-based software had to develop in a largely hostile and inimical legal environment. It contends that copyright law and related fields of intellectual property need to be reformed in order better to accommodate users of copyright material (Rimmer 2007). This chapter makes a number of recommendations. First, there is a need to acknowledge and recognise forms of mass, collaborative production and consumption – not just individual authorship. Second, the view of a copyright ‘work’ and other subject matter as a complete and closed piece of cultural production also should be reconceptualised. Third, the defence of fair

use should be expanded to accommodate a wide range of amateur, peer-to-peer production activities – not only in the United States, but in other jurisdictions as well. Fourth, the safe harbour protections accorded to Internet intermediaries, such as Wikipedia, should be strengthened. Fifth, there should be a defence in respect of the use of ‘orphan works’ – especially in cases of large-scale digitisation. Sixth, the innovations of open source licensing should be expressly incorporated and entrenched within the formal framework of copyright laws. Finally, courts should craft judicial remedies to take into account concerns about political censorship and freedom of speech – such as those that were evident in the Wikileaks litigation.

II. The republic of letters: Wikipedia

‘Wikipedia is a new paradigm in human discourse. It’s a place where anyone with a browser can go, pick a subject that interests them, and without even logging in, start an argument. In fact, Wikipedia is the largest and most comprehensive collection of arguments in human history, incorporating spats and vendettas on subjects ranging from Suleiman the Magnificent to Dan the Automator. As an unexpected side effect of being the perfect argument space, it’s also a pretty good place to find information about all the characters from *Battlestar Galactica*.’ (Sjoberg 2006)

There has long been controversy over copyright law and the creation of encyclopedia. In his erudite book, *Encyclopaedic Visions*, Richard Yeo considers the place of encyclopedia in the debate over literary property (Yeo 2001, pp. 195-221). He notes that there was a tension between the competing objectives of protecting private rights of authors and respecting the public right to information. Yeo observes that the compilers and owners of encyclopedia were opportunistic. They sought to exploit the arguments of both sides. They sought to assert authorship on the grounds of concise abridgement, clear definition of terms, the explication of theories and the overall organisation of the work. However, in the face of claims of plagiarism, they argued that the collections of such knowledge served the public interest in information.

In contemporary times, the debate over the copyright status of encyclopedia has intensified. There has been a great contest between traditional texts such as *Encyclopaedia Britannica*, new proprietary models such as Microsoft’s Encarta, and

open access online encyclopedia such as Wikipedia. Jonathan Zittrain has observed of this development: 'As the Internet exploded, the slow-to-change walled garden content of formal encyclopedia was bypassed by a generative proliferation of topical Web pages, and search engines that could pinpoint them' (Zittrain 2008, p. 131). There has been much competition between professional authors and amateurs, as well as antagonism between traditional publishers and open access advocates.

1. Wikipedia

In 2000, a Chicago futures trader and internet entrepreneur, Jimmy Wales, hired Larry Sanger to help him create an online general-interest encyclopedia called Nupedia. The idea was to solicit articles from scholars, subject the articles to a seven-step review process, and post them free online. Wales laments: 'After 18 months and \$250 000, we had 12 articles' (quoted in Pink 2005). Wales and Sanger decided to boost the appeal of Nupedia, through using wiki-based software.

In January 2001, Wales and Sanger founded Wikipedia, a multilingual Web-based free-content encyclopedia (see Goetz 2003; Ciffolilli 2003; Benkler 2006, pp. 70-74; and Younge 2006). The encyclopedia exists as a wiki, allowing volunteer Internet users to add, edit, and delete entries. Wales called it 'an effort to create and distribute a multilingual free encyclopedia of the highest possible quality to every single person on the planet in their own language' (Wales 2005a). On 31 December 2005, Wales observed in his appeal:

Wikipedia is based on a very radical idea, the realization of the dreams most of us have always had for what the Internet can and should become. Thousands of people, all over the world, from all cultures, working together in harmony to freely share clear, factual, unbiased information... a simple and pure desire to make the world a better place.... This is a radical strike at the heart of an increasingly shallow, proprietary and anti-intellectual culture. It is a radical strike at the assumption that the Internet has to be a place of hostile debate and flame wars. It is an appeal to the best within all of us (Wales 2005b).

As of March 2008, there are 2 266 463 articles in the English language version of Wikipedia. There are more than 75 000 active contributors working on some 9 million

articles in more than 250 languages. Chris Anderson observes that Wikipedia has a 'long tail' because it includes entries that no other encyclopedia can because of the constraints of paper or DVD limitations: While many critics focus on the worst entries, the really important thing about Wikipedia's Tail is that there is nothing else like it *anywhere*' (Anderson 2006, pp. 72-73).

In his *magnum opus*, *The Wealth of Nations*, Yochai Benkler rhapsodizes about the dramatic rise and growth of Wikipedia: 'As the project has grown, it has developed more elaborate spaces for discussing governance and for conflict resolution' (Benkler 2006, p. 73). He is intrigued by the community norms-based dedication to objective writing: 'The project relies instead on social norms to secure the dedication of project participants to objective writing' (p. 72).

In 2003, Wales established the Wikimedia Foundation Inc. as the parent organization to run Wikipedia. The Foundation has sought to build upon the success of the online encyclopedia and develop affiliated projects. Wikiquote is a repository of quotations taken from famous people, books, speeches, films or any intellectually interesting materials. Wikibooks aims to build a collection of free e-book resources, including textbooks, language courses, manuals, and annotated public domain books.

Wikisource is a multilingual project, started in November 2003, to archive a collection of texts that could be distributed as free and open content. Wikispecies is an open, wiki-based project to provide a central, more extensive species database for scientific taxonomy. The Wikinews project was launched in December 2004 with the mission to report the news on a wide variety of subjects. Wikimedia Commons was launched in September 2004 to provide a central repository for free photographs, diagrams, maps, videos, animations, music, sounds, spoken texts, and other free media. All of the projects of the Wikimedia Foundation are collaboratively developed by its users using the MediaWiki software. The Wikimedia Foundation Inc. has registered a trade mark in respect of Wikipedia in order to brand this family of related projects (Wikimedia Foundation 2004).

Wales has also been experimenting with commercial ventures. In 2004, Wales co-founded, with Angela Beesley, the for-profit company, Wikia Inc.. Wikia supports the creation and development of wiki communities – it currently supports over 5500

communities in more than 70 languages. Wikia Inc. is also developing an open source web search engine entitled 'Wikia Search'. Wales hopes that the service will challenge the hegemony of Google, noting: 'I trust Google reasonably well, but that's like saying you have a favorite politician' (Deutschman 2007). According to Wales, 'It is meant to take on Google by creating a search engine where all the editorial decisions are made by the general public and all the software is open' (Lewine 2007).

2. Authorship and Ownership

Copyright law is founded upon romantic assumptions about creative authorship – its underlying ideals are that authorship is individual, professional, and personal. Wikipedia and its relatives pose a number of challenges to the assumptions of copyright law about romantic, individual authorship. First, such open-source ventures are based upon a notion of mass collaboration and collective authorship, rather than individual authorship. Rishab Aiyer Ghosh has commented:

Humans are social creatures, and our greatest achievements have been collaborative efforts, often vast ones – especially in the realm of knowledge and the mind. That most of us assume creativity as necessarily individual, private and subject to the creative inputs of others only under commercial conditions, is a symptom of the conversion from knowledge and art – whether closely guarded secrets or widely published – to 'intellectual property' (Ghosh 2005, p. 1).

As a critic observes, copyright law should acknowledge 'the new realities of an age where traditional understandings of authorship are inapplicable and where creativity is increasingly an ongoing, collaborative exercise with no true fixed end-point' (Reuveni 2007, p. 343). Second, Wikipedia and its affiliates rely upon the efforts of amateurs, volunteers, and novices – rather than professionals and experts. Dan Hunter and his colleague, Greg Lastowka (Hunter and Lastowka 2004), have used the phrase 'amateur-to-amateur' to describe the social phenomenon of popular information creation and free distribution. Third, Wikipedia and its companions rely upon anonymous and pseudonymous contributors – rather than necessarily personally, identified authors. Such a model challenges the emphasis of copyright law upon the moral rights of individual authors to attribution and integrity (Adeney 2000).

Wikipedia requires all contributions to be licensed under the GNU Free Documentation License meaning that their content may be freely used, freely edited, freely copied and freely redistributed subject to the restrictions of that license. Wikinews contributions are licensed under Creative Commons Attribution 2.5. Accordingly, the copyright notice for Wikipedia reinforces this message:

The license Wikipedia uses grants free access to our content in the same sense as free software is licensed freely. This principle is known as copyleft. That is to say, Wikipedia content can be copied, modified, and redistributed *so long as* the new version grants the same freedoms to others and acknowledges the authors of the Wikipedia article used (a direct link back to the article satisfies our author credit requirement) (Wikipedia, Copyrights).

There have been a number of cases in which the courts have recognised that GNU Public Licences could be valid and enforceable.¹

There have been a number of disputes about authors wishing to publish both in traditional scientific journals, and new Web 2.0 services, such as Wikipedia. Wikipedia poses a particular threat to the norms and hierarchies of learned societies, scientific journals, and encyclopedia (Giles 2005; and Encyclopaedia Britannica 2005).

In 2008, a group of physicists – Jonathan Oppenheim, Robert W. Spekkens, and Andreas Winter – have clashed with a scientific publisher, the American Physical Society, who would not allow them to post parts of their work to the online encyclopedia, blogs, and other forums. The American Physical Society - <http://www.aps.org/about/> - has the mission statement: ‘In the firm belief that an understanding of the nature of the physical universe will be of benefit to all humanity, the Society shall have as its objective the advancement and diffusion of the knowledge of physics.’

According to an article in *New Scientist*, a group of physicists are protesting the decision of the American Physical Society to withdraw an offer to publish two studies

in its journal *Physical Review Letters* because the authors asked for a rights agreement that was compatible with their uploading to Wikipedia (Editorial, *New Scientist*, 2008). The American Physical Society, however, requires authors to transfer their copyright to the society before they can publish in an American Physical Society journal. This prevents the scientists from contributing their work to a website, such as Wikipedia. In response, Gene Sprouse, editor-in-chief, observed that the American Physical Society would review its copyright policy: ‘A group of excellent scientists has asked us to consider revising our copyright, and we take them seriously’ (Editorial, *New Scientist*, 2008).

One of the complainants, Jonathan Oppenheim, a physicist of the University of Cambridge, has explained the nature of the dispute on his website (Oppenheim 2008). He discussed the impulse behind his desire to contribute to Wikipedia, as well as the *Physical Review Letters*:

Technological advances have led to a vast array of tools that scientists can use to communicate their ideas. These tools include open access journals, online archives, paper rating websites, science blogs, quantum blogs, open courses, free universities, and open encyclopedias such as Wikipedia.... Not only does this enable scientists to better share ideas with each other, it creates a commons of scientific information that is freely available to the public (Oppenheim 2008).

Oppenheim observed that he and his collaborators ‘wanted the option to contribute parts of our paper to the intellectual commons’ (Oppenheim 2008). He commented that ‘the current transfer of copyright was drafted before the rise of Wikipedia and is simply no longer suited to current realities’.

Oppenheim argued that authors should grant the American Physical Society a licence, rather than an assignment of copyright. He noted: ‘I believe that if we want to maximise the rights of both parties to innovate as much as possible, then the most natural thing to do would be for the author to give a highly permissive license to [the *Physical Review Letters*] to make use of their work’ (Oppenheim 2008). Oppenheim suggests that ‘the increased exposure is more likely to increase the revenue of

traditional journals'. As a result of the dispute, Oppenheim and his collaborators published their pieces on *arXiv*, an e-print service run by Cornell University for the fields of physics, mathematics, and computer science (Oppenheim and Winter 2007; and Oppenheim, Spekkens, and Winter 2008).

3. Plagiarism, Fair Use, and Safe Harbours

In addition to grappling with questions about the authorship and ownership of copyright work, Wikipedia has had to contend with larger questions about dealing with the risks associated with copyright infringement. Jonathan Zittrain notes: 'To be sure, while outside regulation is not courted, Wikipedia's policy on copyright infringement exhibits a desire to integrate with the law rather than reject it' (Zittrain 2008, p. 143). The academic notes: 'Indeed, its copyright policy is much stricter than the laws of major jurisdictions require' (p. 143).

In an effort to ward off potential legal problems, Wikipedia has hired Mike Godwin as its general counsel (see Cohen 2007). The lawyer has gained significant experience working with the Electronic Frontier Foundation and Public Knowledge. Cohen observes: 'His task is to defend an online encyclopedia created by tens of thousands of (often anonymous) contributors who comment freely on living people and businesses, armed with decades of scholarship, no knowledge at all, or something in between' (Cohen 2007). Godwin has commented:

In another 25 years, all of our children will have grown up in a world in which media like these are mutable and changeable and people prank each other, and it will seem less important. Part of my job is to prevent restrictive rules from being put in place that prevent people from participating in massively democratic participatory media. And then let the new norms settle (Cohen 2007).

Godwin hoped to improve the advice that Wikipedia provided to contributors about copyright law. He said: 'You shouldn't have to be a lawyer to protect yourself from being sued' (Cohen 2007). Godwin has sought to dissuade Wikipedia users from resorting to litigation. A commentator, Ken Myers, observes: 'Wikipedia's best strategy to avoid liability may simply be to avoid plaintiffs' (Cohen 2007).

Wikipedia has sought to take advantage of the protection provided by the broad and flexible defence of fair use in the United States.² The developers note: 'In general, the educational and transformative nature of Wikipedia articles provides an excellent fair use case for anyone reproducing an article' (Wikipedia website, Copyright FAQ). In its copyright policy, the online encyclopedia observes:

Wikipedia articles may also include quotations, images, or other media under the U.S. Copyright law 'fair use' doctrine in accordance with our guidelines for non-free content. It is preferred that these be obtained under the most free content license practical (such as the General Free Documentation License or public domain). In cases where no such images/sounds are currently available, then fair use may be used in certain circumstances as described in the criteria for using non-free media (Wikipedia, Copyrights).

Wikipedia's policy for non-free content seeks to 'support Wikipedia's mission to produce perpetually free content for unlimited distribution, modification and application by all users in all media; 'minimize legal exposure by limiting the amount of non-free content, using more narrowly defined criteria than apply under United States fair use law'; and 'facilitate the judicious use of non-free content to support the development of a quality encyclopedia' (Wikipedia, Non-Free Content). Wikipedia also has a fair use project designed 'to aid the English Wikipedia by improving and monitoring its invocation of the 'fair use' clause of U.S. copyright law towards the use of copyrighted media, with the goal of preventing unnecessary and inappropriate copyright infringement, which could potentially cause all sorts of legal trouble for our beloved encyclopedia' (Wikipedia, Fair Use Project).

The operators of the online encyclopedia are no doubt conscious of the ramifications of the Supreme Court of the United States decision in the case of *Metro-Goldwyn-Mayer Studios Inc. v Grokster Ltd* 125 S. Ct 2764 (2005), which established a new inducement doctrine of liability for copyright infringement: 'We hold that one who distributes a device with the object of promoting its use to infringe copyright, as shown by clear expression or other affirmative steps taken to foster infringement, is liable for the resulting acts of infringements by third parties.' Accordingly, Wikipedia

actively discourages copyright infringement: it instructs participants to ‘never use materials that infringe the copyrights of others’ because ‘this could create legal liabilities and seriously hurt the project’ (Wikipedia, Non-Free Content).

Wikipedia seeks to take shelter under the safe harbours defence available for intermediaries under the *Digital Millennium Copyright Act* 1998 (US). In its copyright notice, the Wikimedia Foundation notes that it will respond expeditiously to complaints about copyright infringement of Wikipedia: ‘If you are the owner of content that is being used on Wikipedia without your permission, then you may request the page be immediately removed from Wikipedia’ (Wikipedia, Non-Free Content). First, the Foundation notes to copyright owners: ‘Wikipedia is a wiki, so you can remove the content yourself!’ (Wikipedia, Non-Free Content). Second, it notes that the Foundation will seek to assist the copyright owner, or their representative, after receipt of an informal request (Wikipedia, Non-Free Content). Third, the Foundation observes that its designated agent will respond to the slower process of a formal request under the take-down notice scheme of the *Digital Millennium Copyright Act*. Ken Myers observes: ‘There is a reason why no one has sued Wikipedia yet: it is amazingly responsive to claims of injury’ (Myers 2006, p. 204). He adds: ‘Wikipedia’s institutional flexibility and lack of dogmatic adherence to ‘free speech; might be just enough to keep it on the right side of the cutting edge’ (p. 204).

Daniel Brandt, the founder of the website, Wikipedia Watch, has suggested that Wikipedia will find it difficult to operate in the current legal environment: ‘The social networking model, from Wikipedia, to Orkut in Brazil, to Napster, Grokster, and YouTube and copyright, is headed for a more restrictive legal environment’ (Brandt 2008). He tried to investigate plagiarism using a sample of about one percent of Wikipedia's 1.46 million English-language articles (Brandt 2006). He found plagiarism in one per cent of those articles. Brandt questioned whether Wikipedia can attract protection under the safe harbour protection as a ‘service provider’ provided by section 512 of the *Digital Millennium Copyright Act*:

This formal structure of power is designed to enforce the many policies, formal and informal, about what constitutes appropriate content on Wikipedia.

I believe that this structure in itself means that the Foundation is already much closer to a 'publisher' than a 'service provider' (Brandt 2006).

Accordingly, he contends that 'the Foundation requires more due diligence to avoid copyright violations' (Brandt 2006). He observes: 'Administrators already make efforts to patrol copyright violations on images posted by users to illustrate articles, but no meaningful efforts have ever been made to detect plagiarism' (Brandt 2006). Brandt contends: 'If the Foundation is not protected by the special status of 'service provider' as defined by the *Digital Millennium Copyright Act* 1998 (US), then a lack of prior due diligence will increase the Foundation's liability for copyright violations' (Brandt 2006). In his view, 'the Foundation should launch a project to scan for plagiarism on all 1.46 million articles' (Brandt 2006).

4. Imitators, Rivals, and Competitors

Wikipedia has spawned a host of imitators, emulators, and rivals – including its Chinese imitator, Baidu Baike; Conservapedia, a wiki-based web encyclopedia project featuring a Conservative Christian viewpoint, and fun projects, like Wookieepedia, an online encyclopedia about the universe of Star Wars; and new ventures, such as Larry Sanger's Citizendium, and Google's mysterious new knowledge project, Knol.

The Wikimedia Foundation has expressed concern about a Chinese search engine, Baidu, copying and reproducing its articles on its own Chinese encyclopedia, Baidu Baike, without permission or acknowledgment. Florence Nibart-Devouard, the chair of the Board of Trustees at the Wikimedia Foundation, observed that Baidu failed to respect the terms of the GNU Free Documentation License: 'They do not respect the license at all. That might be the biggest copyright violation we have. We have others' (Nystedt 2007).

Baidu, in a notice posted on its Web site, says that 'it is Baidu's policy to attach great importance to the protection of copyright and comply with all the applicable [Chinese] laws,' and that it will remove links to copyrighted works 'in accordance with the applicable laws, regulations, and binding measures' (Woo 2007). Baidu claims that all content generated on Baike is subject to its own copyright protection.

Such an assertion of ownership over content derived from Wikipedia would amount to a breach of the GNU Free Documentation License, which requires new material to be shared alike on the same free terms as the original work.

At this point, Wikipedia has no plans to use legal means to resolve its conflict with Baidu. The founder of Wikipedia, Wales, observes: 'We only appeal to their moral judgment about what is right' (Woo 2007). Nibart-Devouard comments that, if need be, the affected authors and editors involved in Wikipedia could organise a class action: 'The Foundation does not hold a copyright on the articles, the editors or the authors do, so there is very little we can do' (Nystedt 2007). This conflict has echoes of the litigation being waged in United States courts by the Association of American Publishers and the Authors' Guild against the search engine, Google, over its appropriation and aggregation of copyright works on the service, Google Book Search (Rimmer 2007, pp. 225-260).

As a result of his concerns about the quality and credibility of Wikipedia, Larry Sanger established a new online encyclopedia project Citizendium in September 2006. He lamented: 'While Wikipedia is still quite useful and an amazing phenomenon, I have come to the view that it is also broken beyond repair' (Thomson 2007). Sanger noted: 'Wikipedia has gone from a nearly perfect anarchy to an anarchy with gang rule' (Schiff 2006). The online encyclopedia is designed to harness the participatory capacity of Wikipedia with the strengths of more traditional expert-based resources. Citizendium – 'a citizen's compendium of everything' – aspires to establish a 'republic of letters': 'We welcome experts as well as the general public; we will be built not by top-down orders but as and where contributors wish to work; and we will be organized as a genuine republic of letters governed by a rule of law' (Citizendium, FAQ).

Such a position has certain affinity with recent legal theory. The elegant German legal theorist, Gunther Teubner, has charted a shift in focus from the political constitution of the nation-state to the many civil constitutions of world society (Teubner 2004). As an example, he raises the instance of the autonomous digital law-making of the Internet Corporation for Assigning Names and Numbers (ICANN). Such an analysis

would be of equal force if applied to the self-regulation at work in online encyclopedia, such as Citizendium and its rivals.

The information technology expert, Roger Clarke, doubts whether the model of Citizendium will be able to compete with the popularity of Wikipedia (Clarke 2006). He observes: 'Ultimately, the community will vote with its feet, or consumers will determine what the market wants by paying with their clicks and eyeballs (choose your preferred metaphor)' (Clarke 2006). He suggests: 'Perhaps the venture's greatest contribution will be to help us learn about quality assurance of open content'.

In December 2007, the search engine, Google, announced that it, too, would, seek to challenge the dominance of Wikipedia with a new project called Knol (BBC News, 2007). Udi Manber, the vice president of engineering at Google, commented: 'A knol on a particular topic is meant to be the first thing someone who searches for this topic for the first time will want to read' (Manber 2007). He elaborated: 'The goal is for knols to cover all topics, from scientific concepts, to medical information, from geographical and historical, to entertainment, from product information, to how-to-fix-it instructions'. It is suspected that Knol represents an attempt by Google to displace Wikipedia entries from high rankings on its search engine.

III. The explosion of truth and justice: Wikileaks

'The action I am taking is no more than a radical measure to hasten the explosion of truth and justice. I have but one passion: to enlighten those who have been kept in the dark, in the name of humanity which has suffered so much and is entitled to happiness. My fiery protest is simply the cry of my very soul. Let them dare, then, to bring me before a court of law and let the enquiry take place in broad daylight!'

Emile Zola, *J'accuse!* (1898).

In addition to being used to build on-line encyclopedia, Wiki-based software has also had a significant impact upon the conduct and operation of political discourse. Don Tapscott has reflected:

The lessons of Wikinomics apply not just to corporations but to every institution in society. Arguably, those most in need of the approach we advocate are the institutions of democratic government. The Web 2.0 provides myriad ways for people to interact and collaborate, and yet the vast majority of our political systems still revolve around a one-way, broadcast model... In fact, using wikis to formulate policy is just one of many options. Blogs, jams, citizen juries, and digital brainstorming are ripe for the picking (Tapscott 2007).

Wikipedia has often been accused of bias and manipulation, a lack of objectivity. There have been concerns that the online encyclopedia has been corrupted and used as a means to promote political propaganda and demagoguery.

To unmask such abuse, an ingenious young programmer, Virgil Griffith, developed the tool WikiScanner. It consists of a database, which cross-references anonymous Wikipedia edits with data on the owners of the associated block of IP addresses. Griffith revealed 'wholesale removal of entire paragraphs of critical information', 'white-washing', and 'adding negative information to a competitor's page' (WikiScanner website, FAQ). WikiScanner has revealed that various vested interests have sought to edit Wikipedia – including government agencies in the United States, the United Kingdom, and Australia; a host of companies, including Coca-Cola, Walmart, and Nestle; and a few religious organisations, such as the Church of Scientology and the Vatican. Another website, Wikitruth, plays a complementary role to that of WikiScanner. This website seeks to document all the pages which have been deleted from Wikipedia. Wikitruth contends that the operators of Wikipedia have twisted and manipulated their own policies.

One of the most radical and confronting political wikis is Wikileaks, designed to encourage whistleblowing on the operations of national governments around the world. Eric Barendt has written that the internet and email communications 'play an increasingly substantial role in spreading new political causes and enabling groups to organise and expand' (Barendt 2006, p. 31). He suggests that 'in this context we should re-evaluate the relationship of personal privacy and freedom of speech' (p. 31). The litigation over Wikileaks has featured a clash of values between the protection of confidential information and privacy; and the public interest in transparency, freedom

of information and political expression. It has raised larger questions about the nature of deliberative and participatory democracy.

1. Wikileaks

Wikileaks is an internet website, which is designed to allow participants to anonymously disclose, and to comment upon confidential documents. In its own words, 'Wikileaks is developing an uncensorable Wikipedia for untraceable mass document leaking and analysis' (Wikileaks). Wikileaks was founded by 'Chinese dissidents, journalists, mathematicians and startup company technologists, from the US, Taiwan, Europe, Australia and South Africa' (Wikileaks). Its public advisory board includes journalists, representatives from refugee communities, ethics and anti-corruption campaigners, lawyers and cryptographers. Wikileaks involves over 1200 registered volunteers.

Wikileaks emphasizes its primary objective of exposing corruption and oppression in authoritarian states: 'Our primary interest is in exposing oppressive regimes in Asia, the former Soviet bloc, Sub-Saharan Africa and the Middle East, but we also expect to be of assistance to people of all regions who wish to reveal unethical behaviour in their governments and corporations' (Wikileaks). Wikileaks hopes to use new technologies to bring about greater transparency in government relations: 'We believe that transparency in government activities leads to reduced corruption, better government and stronger democracies' (Wikileaks). In 2007, Wikileaks disclosed the report by Kroll Associates on corruption in Kenya – implicating Daniel Arap Moi, his family, and the Kibaki Government. In 2008, Wikileaks posted videos of protests in Tibet against the Chinese Government (which had been censored). Wikileaks has also posted the operating manual used at Guantanamo Bay by the United States Government, and released documents about financial expenditure by the United States Government in its campaigns in Iraq and Afghanistan.

Wikileaks notes that with 'technological advances – the internet, and cryptography – the risks of conveying important information can be lowered' (Wikileaks). The Internet site notes that it combines wiki software with cryptographic technologies:

Wikileaks is an uncensorable version of Wikipedia for untraceable mass document leaking and analysis. It combines the protection and anonymity of cutting-edge cryptographic technologies with the transparency and simplicity of a wiki interface... Users can discuss the latest material, read and write explanatory articles on leaks along with background material and context. The political relevance of documents and their veracity can be revealed by a cast of thousands (Wikileaks).

Wikileaks integrates technologies including modified versions of MediaWiki, OpenSSL, FreeNet, Tor, PGP and software of its own design. Wikileaks information is distributed across many jurisdictions, organizations and individuals.

Although it has no formal relationship to Wikipedia, Wikileaks has been inspired by the example of the online encyclopedia: 'Wikipedia shows that the collective wisdom of an informed community of users may produce massive volumes of accurate knowledge in a rapid, democratic and transparent manner' (Wikileaks). However, there is no formal relationship between the two:

For legal reasons, Wikileaks has no formal relationship to Wikipedia. However both employ the same wiki interface and technology. Both share the same radically democratic philosophy which holds that allowing anyone to be an author or editor leads to a vast and accurate collective intelligence and knowledge. Both place their trust in an informed community of citizens. What Wikipedia is to the encyclopedia, Wikileaks is to leaks (Wikileaks).

Unlike Wikipedia, Wikileaks engages in editorial review as to what material is published: 'Wikileaks aims to harness this phenomenon to provide fast and accurate dissemination, verification, analysis, interpretation and explanation of leaked documents, for the benefit of people all around the world' (Wikileaks). There is a series of filters to ensure that the authenticity of documents can be assessed.

Wikileaks hopes to subject disclosed documents to rigorous community analysis: 'Wikileaks provides a forum for the entire global community to relentlessly examine any document for its credibility, plausibility, veracity and validity' (Wikileaks). It notes: 'If a document comes from the Chinese government, the entire Chinese

dissident community and diaspora can freely scrutinize and discuss it; if a document arrives from Iran, the entire Farsi community can analyse it and put it in context' (Wikileaks).

Defending its legal position, Wikileaks cites the precedent of *New York Times Co. v United States* ('The Pentagon Papers case') 403 US 713 (1971). In this matter the Supreme Court of the United States held that 'only a free and unrestrained press can effectively expose deception in government.' The internet website has been designed to be impregnable to legal challenges:

We are prepared, structurally and technically, to deal with all legal attacks. We design the software, and promote its human rights agenda, but the servers are run by anonymous volunteers. Because we have no commercial interest in the software, there is no need to restrict its distribution. In the very unlikely event that we were to face coercion to make the software censorship friendly, there are many others who will continue the work in other jurisdictions (Wikileaks).

Wikileaks is of the view that whistleblowing is ethical: 'Where there is a lack of freedom and injustice is enshrined in law, there is a place for principled civil disobedience' (Wikileaks). The organization concludes: 'We propose that authoritarian governments, oppressive institutions and corrupt corporations should be subject to the pressure, not merely of international diplomacy, freedom of information laws or even periodic elections, but of something far stronger – the consciences of the people within them' (Wikileaks).

2. Legal Action

In February 2008, the Swiss bank, Julius Baer & Co. Ltd, and the Cayman Islands bank, Julius Baer Bank and Trust Co. Ltd, filed an action in the United States District Court for the Northern District of California, alleging that WikiLeaks, Wikileaks.org, and Dynadot had unlawfully and wrongfully published confidential, as well as forged, bank documents (*Bank Julius Baer & Co. Ltd v Wikileaks* (no. 1)). They alleged that such publication violated consumer banking and privacy protection law both in the United States and overseas. Julius Baer & Co. Ltd alleged causes of action for unlawful and unfair business practices in violation of California Business and

Professions Code, declaratory relief, interference with prospective economic advantage, conversion, and injunctive relief.

In its complaint, Julius Baer & Co. Ltd and Julius Baer Bank and Trust Co. Ltd observed that a former employee, Rudolf Elmer, had disclosed confidential information to the newspapers and to the WikiLeaks website:

All data and records of the Julius Baer banks were and are protected not only under employee confidentiality agreements, but also under a number of different banking and consumer privacy laws of various nations, including and especially the laws of the Cayman Islands... After his employment with [Julius Baer Bank and Trust Co Ltd] had been terminated, it was discovered that Elmer had, without authorization, copied to and stored confidential information and documents about some of JBBT's clients on his home and office computers. There was no legitimate reason for such confidential banking and client information to have been stored on Elmer's computers (Bank Julius Baer 2008).

This is a case of unauthorised 'pod-slurping' – the downloading of large quantities of data to an MP3 player or memory stick from a computer. (This neologism was considered to be the word of the year by *Macquarie Dictionary* in 2007 because of its 'inventive and sensuous appeal' (Macquarie Dictionary 2007.)

The banks were contacted in June 2005 by a Swiss newspaper, CASH, which had been provided with a CD-rom containing a large number of the banks' confidential documents which had been stolen and unlawfully provided to the newspaper. Once the information came to light, the banks filed a criminal complaint against Elmer with the public prosecutor in Switzerland. There has been particularly strong protection of privacy interests in the European Union.³ In 2007 and 2008, Elmer placed hundreds of confidential banking documents belonging to the banks on the Wikileaks website. Some of this material, it was alleged, had been altered, forged or semi-forged by Elmer.

Julius Baer & Co. Ltd and Julius Baer Bank and Trust Co. Ltd accused Wikileaks of

engaging in unlawful conduct through obtaining protected consumer banking records:

Wikileaks and its owners, operators, and users attempt to operate under a veil of anonymity, or as they term it ‘transparency,’ yet its owners, operators and agents proudly post and disseminate the names, contact information and even private bank records of others. Wikileaks has sought to capitalize on and further exploit its own unfair and unlawful practices and conduct, as set forth herein, to increase their Website’s notoreity and traffic (Bank Julius Baer 2008).

The banks protested: ‘The publication, dissemination and exploitation of stolen, legally protected customer and consumer bank files related to Plaintiffs’ bank customers has resulted in harm to Plaintiffs’ reputations, its customers’ confidence in the bank its client/customer banking relationships, among other harms and actual losses’ (Bank Julius Baer 2008).

Julius Baer & Co. Ltd and Julius Baer Bank and Trust Co. Ltd served Daniel Mathews, a mathematics graduate student at Stanford University with an Amended Temporary Restraining Order and an Order to Show Cause in this action, purportedly on the grounds that he was an ‘officer’ of Wikileaks. In response, the lawyer for Mathews, Joshua Koltun, denied that he had any involvement in the leaking of the documents:

Mathews had no involvement in the leaking of the Julius Baer documents. He has not commented on or edited these documents. He never read any of the Julius Baer documents (Koltun 2008).

Mathews observed: ‘I have no other connection to this case, have not read the documents from Bank Julius Baer which are the subject of this case, have not written anything about them, and generally know very little about the case’ (Koltun 2008). In response, the counsel for the bank observed that it was entitled to serve him with a copy of the summons and complaint because ‘Wikileaks lists you as an officer of the company on its Facebook page’ (Koltun 2008).

The lawyer representing Mathews contended that it was not in the public interest to protect the privacy of bank clients sheltering in tax havens:

The crowning irony is that Plaintiffs – who purport to be shocked, *shocked* that Wikileaks has promised anonymity to leakers – are a Swiss bank and its Cayman Island subsidiary. They have brought this case to protect the ‘privacy’ of their customers (although they also vaguely allege that an unspecified number of these documents are ‘forged’). No doubt the bank secrecy laws of Switzerland and the Cayman Islands are regarded as sacred in those countries – which is precisely what enables such offshore tax havens to offer the ability to hide assets from the prying eyes of creditors, taxing authorities, and courts. But American courts need not be especially solicitous of this ‘privacy’ interest, let alone deem it to be so compelling as to overcome the ‘heavy presumption’ against prior restraints (Koltun 2008).

The lawyer observed: ‘A prior restraint is particularly unjustified here, since Congress has made a considered policy decision under section 230 of the *Communications Decency Act* 1996 (US) to immunize internet users such as Mathews and other Wikileaks contributors against liability for content created by third parties’ (Koltun 2008). He emphasized: ‘Thus both Wikileaks and Dynadot are immunized from any liability for the third-party posting of the Julius Baer Documents’ (Koltun 2008).

The Project on Government Oversight, the American Civil Liberties Union, and the Electronic Frontier Foundation, Jordan McCorkle of the University of Texas sought to intervene in the dispute, complaining:

In addition to protecting the rights of those who engage in expression themselves, the First Amendment ‘protects the public’s interest in receiving information.’ Moreover, ‘prior restraints on speech and publication are the most serious and the least tolerable infringement on First Amendment rights. Yet – without a word of opposition from any party to this action – the Court has entered a ‘permanent injunction’ pursuant to stipulation that renders inoperable a domain name known as ‘wikileaks.org,’ even though most of the documents and other materials on the site accessed through that domain name

have nothing to do with the controversy between Plaintiffs and Defendants (The Project on Government Oversight 2008).

The interveners contended that ‘the right to access the materials posted on the Wikileaks website is peculiarly deserving of protection under the First Amendment’ – especially as ‘these documents concern issues of national and international human rights, political corruption and other such core socio-political issues’ (The Project on Government Oversight 2008).

3. United States District Court for the Northern District of California

In *Bank Julius Baer & Co. Ltd v Wikileaks* 535 F.Supp.2d 980 (2008), the United States District Court for the Northern District of California reconsidered the question of whether an injunction should be granted in favour of Julius Baer & Co. Ltd and Julius Baer Bank and Trust Co. Ltd.

First, the judge noted that the would-be interveners raised legitimate questions about subject matter jurisdiction. His Honour noted: ‘From the founding of the federal courts, it has been unanimously held that ‘the courts of the United States have no jurisdiction of cases between aliens’ (535 F.Supp.2d 980 at 984(2008)). The judge expressed concerns that the matter could be a case of foreign plaintiffs suing foreign defendants:

From the face of the Complaint, Plaintiffs have indicated that they are themselves foreign citizens and entities formed and operated under the laws of Switzerland and the Cayman Islands. In addition, Plaintiffs have alleged that although Dynadot is a citizen of California, other ‘Defendants are each citizens or subjects of a State or different States or foreign states, with some of them located in and residing within the State of California.’ Plaintiffs further allege that Defendant WikiLeaks is ‘a fictitious business name, alias and/or entity of unknown type and origin, with its principal place of business in the State of California’ (535 F.Supp.2d 980 (2008) at 984).

The judge noted: ‘The Court is concerned that it may well lack subject matter jurisdiction over this matter in its entirety’ (at 984).

Second, the judge also took into account questions of public interest in determining whether or not an injunction should be issued: ‘As made abundantly clear by the various submissions of the *amicus curiae*, the current request for an injunction, as well as the Court’s original entry of a stipulated injunction, raises issues regarding possible infringement of protections afforded to the public by the First Amendment to the United States Constitution’ (at 984). The judge noted: ‘The First Amendment encompasses the “right to receive information and ideas”’ (at 984). The judge concluded: ‘Although the matter of the First Amendment implications of the permanent injunction against Dynadot or the more limited preliminary injunction Plaintiffs seek against WikiLeaks has not been fully briefed, it is clear that in all but the most exceptional circumstances, an injunction restricting speech pending final resolution of the constitutional concerns is impermissible’ (at 985). The judge was conscious of the free speech concerns raised by the American Civil Liberties Union, the Electronic Frontier Foundation, the Project on Government Information and Jordan McCorkle of the University of Texas.

Third, the judge questioned the efficacy of the broad injunction granted to Julius Baer & Co. Ltd and Julius Baer Bank and Trust Co. Ltd, suggesting that it had been counter-productive:

The private, stolen material was transmitted over the internet via mirror websites which are maintained in different countries all over the world.

Further, the press generated by this Court’s action increased public attention to the fact that such information was readily accessible online (at 985).

The judge concluded: ‘In addition, there is evidence in the record that ‘the cat is out of the bag’ and the issuance of an injunction would therefore be ineffective to protect the professed privacy rights of the bank’s clients’ (at 985).

Fourth, the judge emphasized the need for a narrowly tailored remedy to address the leaking of the personal banking information: ‘The Court is concerned that an injunctive remedy, if any, that may be available to Plaintiffs should be narrowly tailored and the least restrictive means to achieve the purpose of protecting banking

clients from disclosure of their personal information' (at 985). Accordingly, the United States District Court for the Northern District of California denied the motion for a preliminary injunction, dissolved the stipulated permanent injunction between Plaintiffs and Dynadot, and set the hearing and briefing schedule on the pending motions (at 986).

In late February 2008, Julius Baer issued a statement, seeking to dispel what it saw as misconceptions about the case:

This matter has nothing whatsoever to do with censorship or The First Amendment. Instead, Julius Baer's sole objective has always been limited to the removal of these private and legally protected documents from the website. The documents in question are protected and prohibited from unauthorized publication under U.S., California and foreign consumer banking and privacy protection laws. The posting of confidential bank records by anonymous sources significantly harms the privacy rights of all individuals. It is not and has never been Julius Baer's intention to stifle anyone's right to free speech (Julius Baer 2008).

On 6 March 2008, Bank Julius Baer abandoned its lawsuit against Wikileaks. The financial institution was no doubt concerned that the litigation had generated a great deal of publicity about the unauthorised disclosure of its financial records. The stock price of Bank Julius Baer dropped during the period of the controversy.

Perhaps the financial institutions were also concerned about the threat of a legal counter-strike. A continuation of the suit in California could have put the bank at risk of a countersuit under California's statute seeking to prevent strategic legal action against public participation, which protects people who have been sued for exercising their right to speak out about public issues.

The dispute over Wikileaks highlights the limits and boundaries to the protection of confidential information and privacy. Christopher Arup has observed in *Innovation, Policy and the Law* that the law betrays signs of this insecurity:

[T]he very nature of information militates against the capture and coordination of such a vital resource. Information is slippery stuff. It proves difficult to transfix, contain and rely upon as a means of economic advantage. Perhaps inarticulately, the present law is a realistic recognition of this limitation, especially in its disinclination to control the use of information once it has entered the public domain or merged with generalized bodies of knowledge (Arup 1993, pp. 151-152).

In the matter of Wikileaks, Julius Baer found it difficult to prevent the unauthorised circulation of the confidential information, once it had entered into the public domain.

IV. The book of all species: the Encyclopedia of Life

Imagine the Book of All Species: a single volume made up of one-page descriptions of every species known to science. On one page is the blue-footed booby. On another, the Douglas fir. Another, the oyster mushroom. If you owned the Book of All Species, you would need quite a bookshelf to hold it. Just to cover the 1.8 million known species, the book would have to be more than 300 feet long. And you'd have to be ready to expand the bookshelf strikingly, because scientists estimate there are 10 times more species waiting to be discovered. It sounds surreal, and yet scientists are writing the Book of All Species. Or to be more precise, they are building a Web site called the Encyclopedia of Life (Zimmer 2008).

In *Wikinomics: How Mass Collaboration Changes Everything*, Don Tapscott and Anthony Williams discuss the adoption of peer-to-peer production strategies in various fields of science (Tapscott and Williams 2006, pp. 151-182). The authors contend: 'Just as collaborative tools and applications are reshaping enterprises, the new Web will forever change the way scientists publish, manage data, and collaborate across institutional boundaries' (p. 157). They elaborate:

A new age of collaborative science is emerging that will accelerate scientific discovery and learning. The emergence of open-access publishing and new Web services will place infinite reams of knowledge in the hands of individuals and help weave globally distributed communities of peers (Tapscott and Williams 2006, p. 152).

There have been a number of examples of such strategies. In the area of scientific publishing, the Public Library of Science has sought to rely upon Creative Commons licences to facilitate the publication of sharing of scientific articles across a range of fields – including in respect of medicine, genetics, biology, pathology, computational biology, and tropical diseases (Rimmer 2007, pp. 283-287). In the field of biology, members of the public human genome project have adopted open source and peer-to-peer strategies in software such as Ensembl to share and annotate genetic information (Rimmer 2003; 2005; 2008; and Hope 2008). A good example of such innovation would be the Ensembl Project. The Merck Gene Index and the SNP Consortium sought to put genomics information in the public domain (Moody 2004). In the area of drug discovery, there has been some experimentation with open source strategies. There have been some striking innovations in respect of the use of wiki-software in scientific fields. Of note are specialised encyclopedias such as Quantiki, a Quantum Mechanics and Information Wiki at the University of Cambridge, Qwiki at Stanford University and the statistical mechanics wiki, SklogWiki. Perhaps one of the most ambitious projects has been the Encyclopedia of Life, a monumental initiative to develop a global database to record the world's biodiversity.

1. The Encyclopedia of Life

The *Rio Convention on Biological Diversity* 1992 decries 'the general lack of information and knowledge regarding biological diversity' and speaks of the 'urgent need to develop scientific, technical and institutional capacities to provide the basic understanding upon which to plan and implement appropriate measures.'

Edward O. Wilson (1998; 2002) is an eminent biologist, researcher, and naturalist ardently committed to the protection of biodiversity. In 2003, he envisaged the creation of a global database to document the world's biodiversity:

Comparative biology, crossing the digital divide, has entered a still largely unheralded revolution: the exploration and analysis of biodiversity at a vastly accelerated pace. Imagine an electronic page for each species of organism on Earth, available everywhere by single access on command. The page contains the scientific name of the species, a pictorial or genomic presentation of the

primary type specimen on which its name is based, and a summary of its diagnostic traits. The page opens out directly or by linkage with other databases such as ARKive, Ecoport, and GenBank. It comprises a summary of everything known about the species' genome, proteome, geographic distribution, phylogenetic position, habitat, ecological relationships, and, not least, its perceived practical importance for humanity. The page is indefinitely expansible. Its contents are continuously peer-reviewed and updated with new information. All the pages together form an encyclopedia, whose content is the totality of comparative biology (Wilson 2003).

He suggested that the all-species encyclopedia would serve human welfare in more immediately practical ways: 'The discovery of wild plant species adaptable for agriculture, new genes for enhancement of crop productivity, and new classes of pharmaceuticals can be speeded' (Wilson 2003). Moreover, he envisaged: 'The outbreak of pathogens and harmful plant and animal invasives will be better anticipated and halted' (Wilson 2003). It was his hope that 'the Encyclopedia of Life will provide valuable biodiversity and conservation information to anyone, anywhere, at any time' (Wilson 2003).

Inspired by this proposal, the Encyclopedia of Life – <http://www.eol.org> – was established in May 2007 to create an online reference source and database for every one of the 1.8 million species that are named and known on this planet. The Encyclopedia of Life is a collaborative scientific effort led by the Field Museum of Natural History, Harvard University, Marine Biological Laboratory, Missouri Botanical Garden, The Smithsonian Institution, and Biodiversity Heritage Library, a consortium including the core institutions and also the American Museum of Natural History (New York), Natural History Museum (London), New York Botanical Garden, and Royal Botanic Gardens (Kew). The Encyclopedia of Life is intended to 'serve as a global biodiversity tool, providing scientists, policymakers, students, and citizens information they need to discover and protect the planet and encourage learning and conservation' (The Encyclopedia of Life 2007).

The Encyclopedia of Life intends to establish a website for every species on the planet. Each site will have two components. There will be an edited, scientific account of the

species, managed by a scientific editor who will manage the authoritative content.

Ralph Gomory observes:

For more than 250 years, scientists have catalogued life, and our traditional catalogues have become unwieldy. The Encyclopedia of Life will provide the citizens of the world a ‘macroscope’ of almost unimaginable power to find and create understanding of biodiversity across the globe. It will enable us to map and discover things so numerous or vast they overwhelm our normal vision (The Encyclopedia of Life 2007).

Jonathan F. Fanton, president of the John D. and Catherine T. MacArthur Foundation, commented: ‘Just as a microscope reveals and helps us better understand the small and particular, the Encyclopedia of Life will allow us to discern patterns previously unseen, illuminating relationships, identifying gaps in our knowledge, and suggesting opportunities for new avenues of inquiry’ (The Encyclopedia of Life 2007).

There will also be an open access, Wikipedia-like component, which will enable members of the public to contribute information. The Encyclopedia of Life acknowledges that it was inspired in part by the online encyclopedia, Wikipedia:

Wikipedia accumulated about 1.5 million entries in English in its first four years. That gave us confidence that our tasks are manageable with current technology and social behaviour, although the expert community in a lot of the subjects for pages in Encyclopedia of Life may be only a handful of people. Wikipedia has also created some species pages, as have other groups. Encyclopedia of Life will, we hope, unite all such efforts and increase their value. The Wikimedia Foundation is a member of the Encyclopedia’s Institutional Council (The Encyclopedia of Life, FAQ).

The developers of the Encyclopedia of Life hope to emulate the success of Wikipedia: ‘Encyclopedia of Life has the potential to be a similar phenomenon, serving as a catalogue, database, and learning tool about every organism that has ever lived on the planet’ (The Encyclopedia of Life, FAQ). Jonathan Fanton comments: ‘The Encyclopedia of Life will be a vital tool for scientists, researchers, and educators

across the globe, providing easy access to the latest and best information on all known species' (The Encyclopedia of Life 2007).

In February 2008, the Encyclopedia of Life released its first 30 000 web pages for an alpha test and feedback (The Encyclopedia of Life 2008). The executive director, Jim Edwards, commented:

The Encyclopedia of Life is a good example of the way the World Wide Web can be used innovatively to assemble diverse kinds of information in an easy-to-use, ever-growing compendium. It can accommodate almost any kind of information about species and, unlike a published book, can be updated instantly (The Encyclopedia of Life 2008).

Later in 2008, the public will be able to contribute text, videos, images, and other information about a species. The Encyclopedia of Life will incorporate the best of this information into the authenticated pages. The authenticated pages will also include a diverse range of other materials, including peer-reviewed articles and access to DNA barcodes. The Encyclopedia of Life hopes over time to expand the project from its base of English language text to include a wide variety of other languages.

2. Legal Dangers

The developers of the Encyclopedia of Life note: 'A possible area of obstacles or dangers is intellectual property' (The Encyclopedia of Life, FAQ). They observe: 'The Encyclopedia will be very generous with credit and recognition, and we will soon be posting a general statement of principle about open and accessible content, encouraging sharing, and so on' (The Encyclopedia of Life, FAQ).

The Encyclopedia of Life will of course be free to publish material that has fallen into the public domain because copyright protection has expired. Graham Higley, the Head of Library and Information Services at the National History Museum, comments that the project has sought permission from learned societies and publishers to print material still under copyright protection:

The interesting thing is that we thought we would have to spend quite a lot of

time and effort persuading people to let us have their journals right up to date. The reverse is happening. A wall of people is coming to us, saying, 'Will you do our title?' We've signed agreements with more than 20 different institutions [as at December 2007]. And we only had the agreement in document in place a month ago. A lot more are talking to us (Hyams 2007).

The agreements will be attached to the scanned copies on the Biodiversity Heritage Library Project. In many cases, the Encyclopedia of Life is relying upon Creative Commons licences – which provide for flexible uses of copyright material (see Rimmer 2007, pp. 261-295).

In its terms of use, the Encyclopedia of Life explains that it relies upon Creative Commons licensing, which provides for flexible uses of copyright material: 'The Creative Commons has set up a robust, free, easy-to-use set of protocols by which content owners can easily mark their creative work with the freedoms or restrictions that they want the information to carry' (The Encyclopedia of Life, Terms of Use). The project observes that, in most cases, Encyclopedia of Life data partners have made content available for re-use under one of the following Creative Commons licenses:

- CC-BY (Attribution), which allows users to copy, transmit and reuse the information, and to remix or adapt the information, as long as attribution regarding the source of the information is maintained. (see <http://creativecommons.org/licenses/by/3.0/>)
- CC-BY-SA (Attribution-ShareAlike), which has the additional constraint on top of CC-BY that if you alter, transform, or build upon this work, you may distribute the resulting work only under the same, similar or a compatible license. (see <http://creativecommons.org/licenses/by-sa/3.0/>)
- CC-BY-NC (Attribution-NonCommercial), which has the additional constraint on top of CC-BY that you may not use this work for commercial purposes. (see <http://creativecommons.org/licenses/by-nc/3.0/>)
- CC-BY-NC-SA (Attribution-NonCommercial-ShareAlike) which has the additional constraint on top of CC-BY that if you alter, transform, or build upon this work, you may distribute the resulting work only under the same,

similar or a compatible license and that you may not use this work for commercial purposes. (see <http://creativecommons.org/licenses/by-nc-sa/3.0/>).

The project emphasizes: ‘If you wish to re-use any content for purposes other than those allowed by the associated Creative Commons license, you must get permission to do so from the copyright holder (Source)’ (The Encyclopedia of Life, Terms of Use). The project notes: ‘Content available on this site has been provided by the Encyclopedia of Life’s data partners, who may have placed restrictions on how you can re-use that content’ (The Encyclopedia of Life, Terms of Use). The project also observes: ‘You are required to check to see which license applies to any portion(s) of the page you wish to re-use and to abide by any restrictions on that content’ (The Encyclopedia of Life, Terms of Use).

As a large-scale digitisation project of archival and historical materials, the Encyclopedia of Life faces particular problems in gaining access to ‘orphan’ works – works where the copyright owner is untraceable. At present, potential users of ‘orphan’ works are concerned that they may be found liable for statutory damages, amounting to as much as \$150 000. Graham Higley, the Head of Library and Information Services at the National History Museum, noted: ‘We have thought hard about orphan works, and the changes to orphan works legislation, which we hope will be beneficial, but it’s not quite clear exactly how yet’ (Hyams 2007). There is currently a bill before the United States Congress called the *Shawn Bentley Orphan Works Act* 2008 (US). The legislation proposes to limit liability for copyright infringement where a person ‘performed and documented a qualifying search, in good faith, for the owner of the infringed copyright’; and ‘was unable to locate the owner of the infringed copyright’. Arguably, though, such reforms would provide little solace to the Encyclopedia of Life. The reputation of the large-scale digitisation project would be impugned, if it was found to have infringed copyright, even though the remedies available might be limited. It would be preferable for there to be a complete defence for use of ‘orphan’ works – much like there is for the ‘fair use’ of copyright works.

3. Collaborations

One of the participants in the Encyclopedia of Life is the Biodiversity Heritage Library. This group involves an alliance of ten major natural history museum libraries, botanical libraries, and research institutions (The Biodiversity Heritage Library). The Biodiversity Heritage Library is developing a strategy and operational plan to engage in the digitisation of the published literature of biodiversity held in their respective collections. This literature will be available through a global 'biodiversity commons'.

The Biodiversity Heritage Library is seeking to allow access to this historical material under an open access model: 'This material will be available for open access and responsible use as a part of a global Biodiversity Commons' (The Biodiversity Heritage Library). The prospectus for the venture notes: 'In the spirit of open access and responsible use, the libraries will seek to negotiate with relevant publishers, especially those with clear missions to disseminate biodiversity information for the public good – learned societies, museums, botanical gardens and herbaria – for permission to digitize and provide access to publications still protected by copyright' (The Biodiversity Heritage Library). Furthermore, the document notes: 'Contributing libraries may manage and repurpose as much of the content as they wish with the understanding that all currently public domain material will remain in the public domain and will be made available gratis in an open access mode' (The Biodiversity Heritage Library). Thus the material provided by the Biodiversity Heritage Library to the Encyclopedia of Life will not be encumbered by restrictions in relation to the reuse of that content.

The Missouri Botanical Garden has a fine botanical library, which was founded in 1859 by Henry Shaw. It is used in conjunction with the herbarium by Garden research staff, botany students, and visiting scientists from around the world. The Missouri Botanical Garden has established a freely accessible, web-based digital collection of its 18th century and 19th century botanical literature called 'Botanicus' (Botanicus). This project, funded by the W.M. Keck Foundation, includes illustrated and non-illustrated works of significant importance to taxonomic botany. The Missouri Botanical Garden has engaged in digitisation of its collection for a number of reasons: 'Digitizing, indexing, and annotating historical scientific literature is vital to future research in systematic botany, the science of the identification of plants' (Botanicus).

Another participant, the New York Botanical Garden, has established a 'Virtual Herbarium'. The C.V. Starr Virtual Herbarium, is the electronic gateway to the collections of the William and Lynda Steere Herbarium. The Virtual Herbarium aims to make specimen data available electronically for use in biodiversity research projects; to reduce shipping of actual specimens for projects where digital representations will suffice for study; and to reunite data elements derived from a specimen with the catalogue record for that specimen. The New York Botanical Garden allows for use of images of plant specimens for scientific or educational purposes without charge (The C.V. Starr Virtual Herbarium, Conditions of Use). However, it does demand permission for their use, and asks that the source of the image be acknowledged or cited. The 'Virtual Herbarium' currently comprises 850 000 herbarium specimens and 120 000 high-resolution specimen images. It is updated on a daily basis as the New York Botanical Garden pursues the goal of digitizing all of its 7 million plant and fungi specimens.

A United Kingdom participant, the Kew Royal Botanical Gardens, has been creating an electronic catalogue of its herbarium collection for both internal and external uses (Royal Kew Botanical Gardens, Herbarium Digitisation). The Kew Royal Botanical Gardens is also involved in a number of individual digitisation projects – including the African Plants Initiative, the Australian Virtual Herbarium, and Collections from Mount Jaya and West Cameroon (Royal Kew Botanical Gardens, Herbarium Catalogue).

The National Museum of Natural History at the Smithsonian Institute is also involved in the Encyclopedia of Life. Interestingly, the Smithsonian Institute has been criticised in the past for its obstructive approach to access to public documents. The advocacy group, Public Resource.org, was highly critical of the Smithsonian Institute placing draconian limits upon access to historical photographs, even though 'the overwhelming majority of the images in SmithsonianImages.SI.Edu appear to be public domain' (Public Resource.org 2007). As a result, Public Resource.org downloaded the images, and distributed them freely by various means, including on the website Flickr.

The Encyclopedia of Life will play an important role in uniting and synthesizing the

various digitisation projects of individual museums, herbariums, and botanical institutions.

4. Challenges

In addition to grappling with the various legal issues, the Encyclopedia of Life faces a number of other challenges. Edward O. Wilson anticipated: 'Construction of the complete taxonomic base will not, however, be just a smooth compilation of species' (Wilson 2003). It notes: 'The magnitude of biodiversity and the tangle of evolutionary processes that generated it still present formidable problems' (Wilson 2003).

First, the Encyclopedia of Life will have to overcome the scientific problems involved in classifying and cataloguing such a wide diversity of biodiversity – including micro-organisms. Edward O. Wilson anticipates that the species concept will have to grapple with incongruities. Daniel Brooks, a University of Toronto biologist, reflects pessimistically that previous efforts to catalogue every species on the planet have failed: 'I have seen 20 years of good ideas go nowhere' (Zimmer 2008).

Second, there are a number of technological issues that will need to be addressed in such a large bioinformatics project. Edward O. Wilson acknowledged that there was a need to address questions of inter-operability, quality control, funding, and preservation of data: 'In joining the bioinformatics nation, taxonomists and encyclopedists need to address and overcome the growing problem of information overload already bedevilling those managing DNA microarray analyses, airline schedules and bank accounts' (Wilson 2003).

Third, a number of researchers wonder whether the Encyclopedia of Life will have sufficient resources to achieve its goal. The website received start-up funds of \$US10 million from the John D. and Catherine T. MacArthur Foundation and \$US2.5 million from the Alfred P. Sloan Foundation, as well as funds from cornerstone institutes involved in the project. Rod Page, a taxonomist for the University of Glasgow, noted: 'For electronic material in general, how you sustain it forever is a huge issue' (Odling-Smee 2007). The project developers acknowledge that 'the steady-state costs of maintaining the Encyclopedia of Life, including data maintenance and incorporating new information, will cost between \$5 million and \$10 million per year

(that is, less than \$6 per species per year)' (The Encyclopedia of Life, FAQ).

The Encyclopedia of Life will need to avoid such pitfalls if it hopes to achieve its grand ambitions of enlightenment. Edward O. Wilson observes: 'These obstacles are daunting, but they are of a technical nature eminently vulnerable to human ingenuity' (Wilson 2003). Hopefully, the Encyclopedia of Life will be able to help what the *Rio Convention on Biological Diversity* 1992 calls the 'common concern of humankind' – the 'conservation of biological diversity'.

V. Conclusion

It must be recognised that such Wiki-based services as Wikipedia and the Encyclopedia of Life have been successful, in spite of the strictures of copyright law, confidential information, and contract law. Such enterprises remain vulnerable in this legal environment. Intellectual property rights pose certain threats to wiki-based ventures, such as Wikipedia and the Encyclopedia of Life. In an interview with *Quarto*, Lawrence Lessig discusses some of the challenges in copyright law faced by Wikipedia and its affiliated resources (Wikimedia Foundation 2005). He contemplates some of the long-term risks involved in the reuse of collective content:

Enterprises like Wikipedia strain copyright law, certainly. It is hard to express the understandings of the people participating in the construction of this creative work, and nobody understands how the work will develop and change. One of the hardest features of copyright law, for projects like Wikipedia, is the international variability of copyright terms. You could exploit that to create great liability for Wikipedia by finding content which is only free in some jurisdictions... and then use other jurisdictions to shut it down (Wikimedia Foundation 2005).

Lessig fears: 'The greatest long-term risk would be a series of legal decisions that throw into doubt, the ability of the project to rely on the collective assignment [of] rights' (Wikimedia Foundation 2005). He concludes: 'The way you deal with that is to figure out the [Free Documentation Licence] structure that best facilitates that

collective assignment of rights' (Wikimedia Foundation 2005).

There is a larger question of whether copyright law, and related fields, should be reformed in order to better accommodate wiki-based technologies, with the underlying norms of amateur, anonymous and collective authorship. Neil Weinstock Netanel comments in the conclusion to his book, *Copyright's Paradox*, about the need for copyright law to recognise both professional and amateur content:

Our system of free expression requires not just a diversity of content but a plurality of types of speech and speakers. It must embrace commercial mass media, cottage industry publishers, professional authors, publicly funded artists and media, nonprofit organizations and political activists, and a host of sundry creators and discussants who exchange their opinions, expression and personal reworkings of bits and pieces of popular culture without any expectation of monetary remuneration (Netanel 2008, pp. 217-218).

The author laments that 'today's increasingly bloated set of Blackstonian proprietary rights too often serves as a tool for private censorship, a burden on non-market and semi-market speech, and a bottleneck for incumbent copyright industries to ward off new media and other potential challengers' (Netanel 2008, p. 218).

A number of doctrinal reforms to copyright law and related rights could help provide a more sympathetic and congenial environment for wiki-based technology in the fields of education, politics, and science. First, the presumption of individual authorship under copyright law needs to be reformulated. There should be much greater recognition and acceptance given to forms of mass, collaborative authorship. Second, the definition of a copyright 'work' and other subject matter as a complete and closed piece of cultural production also should be reconceptualised. The advent of wiki software shows that a copyright 'work' or subject matter can be an open and incomplete form, subject to revision and supplementation. Third, the defence of fair use should be applied in a broad and flexible fashion – not only in the United States, but in other jurisdictions as well. There should be scope for the release of unpublished, confidential documents both under copyright law and confidential information. Fourth, the safe harbour protections accorded to Internet intermediaries should be clearly and

expressly extended to Web 2.0 services (Myers 2006). Fifth, there should be a defence in respect of the use of ‘orphan works’ – where reasonable efforts have been made to find a copyright owner, without avail. Large-scale digitisation projects of historical and archival material such as the Encyclopedia of Life show the need for such protection. Sixth, the innovations of open source licensing should be expressly incorporated and entrenched into the formal framework of copyright laws. There should be recognition for the validity and legitimacy of the options of free software licences, open source licences, and Creative Commons licences at a legislative level. At the same time, the scope of technological protection measures should be curtailed, so that they do not unduly interfere with open source licensing. Seventh, courts should exercise judicial discretion as to remedies to take into account concerns about freedom of speech – such as those that were evident in the Wikileaks litigation.

Finally, at an international level, a Treaty on Access to Knowledge (A2K) should be established to help assist global information networks – of which Wikipedia, Wikileaks, and the Encyclopedia of Life are exemplars. The Geneva Declaration on the Future of the World Intellectual Property Organization paid tribute to the ‘hundreds of innovative collaborative efforts to create public goods, including the Internet, the World Wide Web, Wikipedia, the Creative Commons, GNU Linux and other free and open software projects, as well as distance education tools and medical research tools’ (the Consumer Project on Technology 2005). The international intellectual property system should promote such endeavours of enlightenment and learning. As Jack Balkin (2008) has noted: ‘Opening up access to knowledge is a demand of global justice; it is both a human rights issue and a crucial factor in spurring economic development and technological innovation’.

References:

Adeney, E (2000), ‘The Mask of the Author- Anonymity and Pseudonymity in Two Common Law Countries’, *International Review of Industrial Property and Copyright Law* (IIC), 31, 913-949.

Anderson, Chris (2006), *The Long Tail: How Endless Choice is Creating Unlimited Demand*, London: Random House.

Arup, Christopher (1993), *Innovation, Policy and the Law: Australia and the International High Technology Economy*, Cambridge: Cambridge University Press.

Balkin, J. (2008), 'The Access to Knowledge Conference (A2K3)', the Information Society Project, Yale Law School, <http://www.law.yale.edu/news/6191.htm>.

Bank Julius Baer (2008), 'Plaintiffs' Ex parte Application for Temporary Restraining Order and Order to Show Cause Re Preliminary Injunction', 8 February 2008, in *Bank Julius Baer & Co. Ltd v Wikileaks* (no. 1) Slip Copy, 2008 WL 413737, N.D.Cal., February 13, 2008 (NO. C 08-00824 JSW).

Barendt, Eric (2006), 'Privacy and Freedom of Speech' in Kenyon, Andrew and Megan Richardson, *New Dimensions in Privacy Law: International and Comparative Perspectives*. Cambridge: Cambridge University Press, pp. 11-31.

BBC News (2007), 'Google Debuts Knowledge Project', BBC News, <http://news.bbc.co.uk/go/pr/fr/-/2/hi/technology/7144970.stm>, 15 December.

Benkler, Yochai (2006), *The Wealth of Networks: How Social Production Transforms Markets and Freedom*, New Haven and London: Yale University Press.

Brandt, D. (2006), 'Plagiarism by Wikipedia Editors', *Wikipedia Watch*, <http://www.wikipedia-watch.org/psamples.html>, 27 October.

Brandt, D. (2008), 'What is the Life Expectancy of Wikipedia?', *Wikipedia Review*, <http://wikipediareview.com/blog/page/2/>, 10 January.

Ciffolilli, A. (2003), 'Phantom Authority, Self-Selective Recruitment and Retention of Members in Virtual Communities: The Case of Wikipedia', *First Monday*, 8(12), http://www.firstmonday.org/issues/issue8_12/ciffolilli/index.html.

Clarke, R. (2006), 'Citizendium v Wikipedia: How to QA Open Content?', <http://www.anu.edu.au/people/Roger.Clarke/II/CvW.html>, 2 November.

Cohen, N. (2007), 'Defending Wikipedia's Impolite Site', *The New York Times*, 20 August.

The Consumer Project on Technology (2005), 'Geneva Declaration on the Future of the World Intellectual Property Organization',
<http://www.cptech.org/ip/wipo/futureofwipodeclaration.pdf>, 4 March.

Cunningham, W. (2002), 'What is Wiki?', <http://www.wiki.org/wiki.cgi?WhatIsWiki>, 27 June.

Deutschman, A. (2007), 'Why is this Man Smiling', *Fast Company Magazine*,
<http://www.fastcompany.com/magazine/114/features-why-is-this-man-smiling.html>, March.

Editor (2008), 'Writer's Block', *New Scientist*, 15 March.

Encyclopaedia Britannica (2005), 'Fatally Flawed: Refuting the Recent Study on Encyclopedic Accuracy by the Journal Nature',
http://corporate.britannica.com/britannica_nature_response.pdf, March.

The Encyclopedia of Life (2008) 'Scientists to Explore Life's Mysteries Through Encyclopedic "Macroscope"', *Encyclopedia of Life*, 26 February.

Ghosh, Rishab Aiyer (2005), 'Why Collaboration Is Important (Again)', *Code: Collaborative Ownership and the Digital Economy*, Cambridge (Mass.) and London: The MIT Press.

Giles, J. (2005), 'Internet Encyclopaedias Go Head to Head', *Nature*, 15 December, 900-901.

Goetz, T. (2003), 'Open Source Everywhere', *Wired Magazine*, 11 (11),
http://www.wired.com/wired/archive/11.11/opensource_pr.html.

Hope, Janet (2008), *Biobazaar: The Open Source Revolution and Biotechnology*, Cambridge (Mass.) and London: Harvard University Press.

Hunter, D. and G. Lastowka (2004), 'Amateur-to-Amateur', *William and Mary Law Review*, 46, 951-1030.

Hyams, E. (2007) 'The Encyclopaedia of Life: A Website for Each Species', *Library and Information Update*, 6(12), 31-33.

Julius Baer (2008), 'Statement on the Wikileaks.org Case', 28 February.

Kamm, O. (2007), 'Wisdom? More Like Dumbness of the Crowds', *The Times*, http://www.timesonline.co.uk/tol/comment/columnists/guest_contributors/article2267665.ece, 16 August.

Keen, Andrew (2007), *The Cult of the Amateur: How Today's Internet is Killing Our Culture*, New York: Doubleday.

Koltun, J. (2008), Daniel Mathews' Memorandum of Points and Authorities in Opposition to the Temporary Restraining Order, Proposed Preliminary Injunction, and Permanent Injunction, 28 February, in 535 F.Supp.2d 980, N.D.Cal., 29 February 2008 (NO. C08-00824JSW)

Lanier, J. (2006), 'Digital Maoism: The Hazards of New Online Collectivism', *Edge: The Third Culture*, http://www.edge.org/3rd_culture/lanier06/lanier06_index.html, 30 May.

Lewine, E. (2007), 'The Encyclopedist's Lair', *The New York Times Magazine*, 18 November.

Macquarie Dictionary (2007), 'Word of the Year 2007', <http://www.macquariedictionary.com.au/anonymous@FF99105302/-/p/dict/WOTY07/index.html>

Manber, U. (2007), 'Encourage People to Contribute Knowledge', <http://googleblog.blogspot.com/2007/12/encouraging-people-to-contribute.html>, 13 December.

Moglen, E. (2002) 'Declaration in Support of Defendant's Motion for Preliminary Injunction on its Counterclaims in *Progress Software Corp v MySQL AB*', <http://www.gnu.org/press/mysql-affidavit.pdf>

Moody, Glyn (2004), *How Bioinformatics Is Revolutionizing Science, Medicine, and Business*, Hoboken (NJ): John Wiley & Sons Inc..

Myers, K. (2006), 'Wikimmunity: Fitting the Communications Decency Act to Wikipedia', *Harvard Journal of Law and Technology*, 20, 163-208.

Netanel, Neil Weinstock (2008), *Copyright's Paradox*, Oxford: Oxford University Press.

Nystedt, D. (2007), 'Baidu May Be Worst Wikipedia Copyright Violator', IDG News Service, *PC World*, 6 August.

Odling-Smee, L. (2007), 'Encyclopedia of Life Launched: Online Effort Aims to Bring Together Biodiversity Knowledge', *Nature*, 9 May.

Oppenheim, J. (2008), 'Traditional Journals and Copyright Transfer' <http://www.damtp.cam.ac.uk/user/jono/item/toc.html>

Oppenheim, J. and A. Winter (2008), 'Uncommon Information (The Cost of Exchanging a Quantum State)', *arXiv*, <http://arxiv.org/abs/quant-ph/0511082>, 5 March.

Oppenheim, J., R. Spekkens, and A. Winter (2008), 'A Classical Analogue of Negative Information', *arXiv*, <http://arxiv.org/abs/quant-ph/0511247>, 25 March.

Pink, D. (2005), 'The Book Stops Here', *Wired Magazine*, 13(3),
<http://www.wired.com/wired/archive/13.03/wiki.html>

The Project on Government Oversight et al. (2008), 'Motion to Intervene, and Supporting Memorandum of Points and Authorities', 26 February, in 535 F.Supp.2d 980, N.D.Cal., 29 February 2008 (NO. C08-00824JSW)

Public Resource.org (2007), 'SmithsonianImages.SI.Edu',
<http://public.resource.org/memo.2007.05.19.html>, 19 May.

Reuveni, E. (2007), 'Authorship in the Age of the Conductor', *Journal of the Copyright Society of the USA*, 54(218), 1801-1859.

Rimmer, M. (2003), 'Beyond Blue Gene: Intellectual Property And Bioinformatics', *International Review of Industrial Property And Copyright Law*, 34(1), 31-49.

Rimmer, M. (2005), 'Japonica Rice: Intellectual Property, Scientific Publishing, and Data-Sharing', *Prometheus*, 23(3), 325-347.

Rimmer, Matthew (2007), *Digital Copyright and the Consumer Revolution: Hands off my iPod*, Cheltenham, UK and Northampton MA, US: Edward Elgar.

Rimmer, Matthew (2008), *Intellectual Property and Biotechnology: Biological Inventions*, Cheltenham UK and Northampton MA, US: Edward Elgar.

Sanger, L. (2006), 'The New Politics of Knowledge', Digital Universe Foundation,
<http://www.dufoundation.org/blog/?p=96>, 31 July.

Schiff, S. (2006), 'Know It All: Can Wikipedia Conquer Expertise?', *The New Yorker*, 31 July.

Sjoberg, L. (2006), 'Wired FAQK', *Wired Commentary*,
<http://www.wired.com/software/webservices/commentary/alttext/2006/04/70670>, 19 April.

Tapscott, D. (2007), 'Wiki Politics',
<http://www.wikinomics.com/blog/index.php/2007/01/26/wiki-politics/>, 26 January.

Tapscott, Don and Anthony Williams (2006), *Wikinomics: How Mass Collaboration Changes Everything*, New York: Portfolio, Penguin Books.

Teubner, Gunther (2004), 'Societal Constitutionalism: Alternatives to State-centred Constitutional Theory?', in Joerges, Christian, Inger-Johanne Sand and Gunter Teubner (eds) *Transnational Governance and Constitutionalism*, Oxford: Hart Publishing, pp.3-28.

Thomson, I. (2007), 'Wikipedia Broken Beyond Repair Says Co Founder',
Information World Review, 13 April.

Tkacz, N. (2007), 'Old Discourse, New Object: Wikipedia', *The Value of Knowledge*, the University of Melbourne, <http://www.inter-disciplinary.net/ati/education/tvk/tvk1/Tkacz%20paper.pdf>, 12-14 February.

Van Doren, C. (1962), 'The Idea of an Encyclopedia', *American Behavioral Scientist*, 6(1), 23-26.

Wales, J. (2005a), 'Wikipedia is an Encyclopedia', wikipedia-l@wikimedia.org, 8 March.

Wales, J. (2005b), 'Personal Appeal',
http://wikimediafoundation.org/wiki/Personal_Appeal, 31 December.

Wikimedia Foundation (2004), "'Wikipedia" in relation to "Providing Information in the Field of General Encyclopedic Knowledge via the Internet"', United States Patent and Trade Mark Office, Trade Mark Registration No. 3040722, Filing Date: 14 September 2004.

Wikimedia Foundation (2005), 'Interview with Lawrence Lessig', *Wikimedia Quarto*, 2, http://wikimediafoundation.org/wiki/Interview/Larry_Lessig

Wilson, Edward O. (1998), *Consilience: The Unity of Knowledge*, New York: Knopf.

Wilson, Edward O. (2002), *The Future of Life*. London: A Little, Brown Book.

Wilson, E.O. (2003), 'The Encyclopedia of Life', *Trends in Ecology and Evolution*, 18, 77-80.

Woo, E. (2007), 'Baidu's Censored Answer to Wikipedia; The Chinese Search Engine's Baiken Online Encyclopedia Blocks Politically Sensitive Entries; Some Say it Condone Plagiarism and Copyright Abuse', *Business Week Online*, 14 November.

Yeo, Richard (2001), 'Copyright and Public Knowledge', *Encyclopaedic Visions: Scientific Dictionaries and Enlightenment Culture*, Cambridge: Cambridge University Press, Ch. 8, pp. 195-221.

Younge, G. (2006), 'The Addictive Encyclopaedia', *The Guardian Weekly*, 1-7 September.

Zimmer, C. (2008), 'The Encyclopedia of Life, No Bookshelf Required', *The New York Times*, 26 February.

Zittrain, Jonathan (2008), *The Future of the Internet – And How to Stop It*, New Haven and London: Yale University Press.

Zola, Emile (1898), 'J'Accuse', *L'Aurore*, English translation at <http://www.marxists.org/archive/zola/1898/jaccuse.htm>, 13 January.

Case Law:

Bank Julius Baer & Co. Ltd v Wikileaks (no. 1) Slip Copy, 2008 WL 413737, N.D.Cal., 13 February 2008 (NO. C 08-00824 JSW).

Bank Julius Baer & Co. Ltd v Wikileaks (no. 2) 535 F.Supp.2d 980, N.D.Cal., 29 February 2008 (NO. C08-00824JSW).

Board of Education v Pico, 457 U.S. 853, 867 (1982).

Campbell v Acuff-Rose Music Inc, 510 US 569 (1994).

Campbell v Mirror Group Newspapers [2004] 2 All ER 995.

Central Hudson Gas & Electric Corp. v Public Service Commission of New York, 447 U.S. 557, 564 (1980).

Douglas and Zeta Jones v Hello! Ltd [2001] QB 967; [2003] 3 All ER 996; [2006] 1 QB 967; [2007] UKHL 21.

Hellewell v Chief Constable of Derbyshire [1995] 1 WLR 804.

HRH The Prince of Wales v Associated Newspapers Ltd [2006] EWHC 522 (Ch).

In re Charlotte Observer, 921 F.2d 47, 50 (4th Cir. 1990).

In re Harald Welte v SiteCom Germany No. 21 0 6123/04 District Court of Munich I (19 May 2004),
http://www.jbb.de/judgment_dc_munich_gpl.pdf#search=%22netfilter%20sitecom%22
2.

Kelly v Arriba Soft 280 F 3rd 934 (2002); 336 F.3d 811 (2003).

Kleindienst v Mandel, 408 U.S. 753, 762 (1972).

Metro-Goldwyn-Mayer Studios Inc. v Grokster Ltd 125 S. Ct 2764 (2005).

New York Times Co. v United States ('The Pentagon Papers case') 403 US 713 (1971).

Progress Software Corp. v MySQL AB 195 F.Supp.2d 328 (D.Mass.,2002).

Von Hannover v Germany (2005) 40 EHRR.

Wainwright v Home Office [2003] UKHL 53 (16 October 2003).

Wallace v Free Software Foundation, Inc Slip Copy, 2005 WL 3239208 (S.D.Ind., 2005).

Online Resources:

The American Physical Society, <http://www.aps.org/about/>

The Biodiversity Heritage Library, <http://www.biodiversitylibrary.org/About.aspx>

Botanicus, <http://www.botanicus.org/>

The C.V. Starr Virtual Herbarium,
<http://sciweb.nybg.org/Science2/VirtualHerbarium.asp>

Citizendium, http://en.citizendium.org/wiki/Main_Page

Conservapedia, http://www.conservapedia.com/Main_Page

The Creative Commons, <http://creativecommons.org/>

The Encyclopedia of Life, <http://www.eol.org/faq>

Ensembl, <http://www.ensembl.org/index.html>

The E.O. Wilson Biodiversity Foundation, <http://www.eowilson.org/>;

The Public Library of Science, <http://www.plos.org/>

Quantiki, <http://www.quantiki.org/>

Qwiki, http://qwiki.stanford.edu/wiki/Main_Page

Royal Kew Botanical Gardens, Herbarium Catalogue,
<http://apps.kew.org/herbcat/gotoProjects.do>

Royal Kew Botanical Gardens, Herbarium Digitisation,
http://www.kew.org/data/herb_digitisation.html

Sklog Wiki, http://www.sklogwiki.org/SklogWiki/index.php/Main_Page

Wikia, <http://www.wikia.com/wiki/Wikia>

Wikia Search, <http://alpha.search.wikia.com/>

Wikibooks, http://en.wikibooks.org/wiki/Main_Page

Wikileaks, www.wikileaks.org

Wikimedia Commons, http://commons.wikimedia.org/wiki/Main_Page

Wikinews, http://en.wikinews.org/wiki/Main_Page

Wikipedia, http://en.wikipedia.org/wiki/Main_Page

Wikiquote, http://en.wikiquote.org/wiki/Main_Page

WikiScanner, <http://wikiscanner.virgil.gr/>

Wikisource, http://wikisource.org/wiki/Main_Page

Wikispecies, http://species.wikimedia.org/wiki/Main_Page

Wikitruth, <http://wikitruth.info/index.php?title=Wikitruth>About>

Wookieepedia, http://starwars.wikia.com/wiki/Main_Page

Endnotes:

1. *Progress Software Corp. v MySQL AB* 195; see Moglen (2002); *In re Harald Welte v SiteCom Germany*; and *Wallace v Free Software Foundation, Inc.*
2. Section 107 of the *Copyright Act* 1976 (US) has been interpreted to extend to parody and transformative uses – as per *Campbell v Acuff-Rose Music Inc*; thumbnail images as per *Kelly v Arriba Soft*; and consumer uses such as time-shifting and space-shifting as per *Metro-Goldwyn-Mayer Studios Inc. v Grokster Ltd.*
3. There has been a dramatic expansion in the protection afforded to personal privacy over the last decade in the European Union: *Hellewell v Chief Constable of Derbyshire* [1995]; *A v B and C* [2002]; *Wainwright v Home Office* [2003]; *Campbell v Mirror Group Newspapers* [2004]; *Von Hannover v Germany* (2005); *Douglas and Zeta Jones v Hello! Ltd* [2001], [2003], [2006], [2007]; and *HRH The Prince of Wales v Associated Newspapers Ltd* [2006].