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## Shamans, software, and spleens: law and the construction of the information society [book review]

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James Boyle, *Shamans, Software, and Spleens: Law and the Construction of the Information Society*, Cambridge, MA, Harvard University Press, 1996, ISBN 0674805224, 288 pp., \$43.00 (hb), \$18.50 (pb).

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Over the last two decades, the significance of information products and intellectual property to the global economy has dramatically increased. Whether one is focused on the Internet or entertainment, software or pharmaceutical products, intellectual property law has widely been seen as both a necessary precondition for the development of information products and a foundational prerequisite for the development of any market for these products. Whether one sees intellectual

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1. *Eunomia: New Order for A New World* (1990), 411.
  2. *Ibid.*, 257.
  3. *La communauté internationale entre le mythe et l'histoire* (1986), 181.
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property as a cause or a consequence of the information economy, the last twenty years have been marked by an unprecedented expansion of Western intellectual property law in two senses. Western countries have demanded that intellectual property rights recognized in developed countries be respected across the globe.<sup>1</sup> At the same time, intellectual property rights in the West have been expanded to cover a wide range of new technologies and commercial activities. While most North American lawyers and policy-makers have supported these expansions,<sup>2</sup> a few scholars have sought to resist the proliferation of intellectual property in the name of economic fairness, political freedom, and the public domain.<sup>3</sup>

James Boyle's 1996 book, *Shamans, Software, and Spleens: Law and the Construction of the Information Society*, provided a manifesto for this resistance. It remains an important landmark in the development of a social theory, a legal theory and political strategy for understanding the consequences of expanding intellectual property rights in the 'new information age'.

Boyle's project is a staggeringly ambitious one.

Acknowledging the much-heralded arrival of the 'Information Society', Boyle seeks to demonstrate that the significance of information in this new society goes well beyond the cultural, social, and economic impact of technological marvels. Whether focusing on the ways in which information metaphors permeate and transform how we see and imagine the world, or on the ever-growing importance of information 'value-added' products and intellectual property to the global economy and international policy-making, Boyle places information, its use, modification, proprietization, and commodification through, among other things, intellectual property laws, at the epicentre of political, economic, domestic, intellectual, and cultural life in the twenty-first century.

At the same time, he argues, the law of information and its significance in modern life have been dramatically under-theorized. With acknowledged exaggeration for emphasis and a characteristic edge of irony, Boyle asserts that

*intellectual property and its conceptual neighbors may bear the same relationship to the information society as the wage-labour nexus did to the industrial manufacturing society of the 1900s. . . . [Yet] there is almost no critical writing about the cultural, ideological, and intellectual presuppositions behind those legal forms. It is as if we were trying to understand the development of industrial capital without Marx, Weber or even Adam Smith or Thorstein Veblen on our shelves. Call me an idealist, but this seems like a bad plan.* (pp. 13–14, emphasis in original)

It is into this theoretical breach, with intellectual guns drawn and invocations of (and implicit comparisons to) Marx, Weber, and Veblen on his breath, that Boyle

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1. See, e.g. the agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS), Annex 1C of the General Agreement on Tariffs and Trade (GATT) Final Act of 1994 providing for the establishment of the World Trade Organization.
  2. See, e.g., the Clinton Administration's 'White Paper' on the United States' National Information Infrastructure, 'Intellectual Property and the National Information Infrastructure', *The Report of the Working Group on Intellectual Property Rights* (Sept. 1995).
  3. Examples include Yochai Benkler, Julie Cohen, Rosemary Coombe, William Fisher, Lawrence Lessig, Jessica Litman, Paul Samuelson, Jonathan Zittrain, and, of course, James Boyle.

jumps to articulate nothing less than ‘a social theory of the information society’ (p. x).

For Boyle, the stakes couldn’t be higher. As Boyle puts it, ‘Consciously or unconsciously, we are already developing a language of entitlement for a world in which information – genetic, electronic, proprietary – is one of the main sources and forms of wealth’ (p. x). In this still fluid but rapidly congealing language of entitlement, much of present as well as future allocation and distribution of wealth in the global information society is being determined. To get a sense of Boyle’s vision, imagine, if you will, thousands of wagons racing at the sound of a gun from the then border of the American frontier into the ‘unclaimed’ territory to grab the land, creating property where none existed before until all of the vast frontier is ‘owned’ and the prospects of future generations become inextricably linked to those with prior entitlements.

While the elegance, nuance, and complexity of Boyle’s theory of law and the information society is virtually impossible to capture in a short summary, the crux of his argument evolves out of ideas about the complex and often contradictory role of information in liberal political and economic theory.

Boyle’s theory begins with reference to Marx’s classical articulation of the significance of the public/private distinction in liberal state theory (pp. 25–6<sup>4</sup>). Focusing on the ways in which liberal theory posits both the formal equality of citizens as citizens in the public sphere and the natural order of real differences in wealth, power, education, and class in the private sphere, Boyle argues that law both maintains and relies on the public/private distinction. As he puts it, ‘By policing the lines between public and private and between citizen and other citizens, the law offers us the hope of a world which is neither the totalitarian state nor the state of nature’ (p. 26).

From this starting point Boyle asserts that ‘Information plays a central, if not defining role in both the public and the private worlds of the liberal political vision’ (p. 28). Boyle drives this point home by showing the centrality of theories of information to liberal conceptions of the family, the state, and the market.

Specifically, Boyle argues that much of what liberal theory might understand as the ‘private’ world of the family is defined in informational terms by the ability to control access to or withhold information about the domestic sphere. For example, with whom you sleep, what videos you watch, what type of underwear you prefer are all commonly understood to be private information and the ability to keep that information ‘private’, at least vis-à-vis the state, is part of what we understand to be freedom in the private sphere.

In the ‘public’ world of politics, information plays an equally crucial role in justifying and empowering the democratic polity. Boyle states:

[T]he free flow of information is a prerequisite for atomistic citizens first to form and then to communicate their subjective preferences in the great marketplace of ideas. At the same time, the availability of information to citizens is thought to be as important a check on governmental activity as the rule of law, a point made famously by James Madison: ‘A popular Government, without popular information or the means

4. Citing Karl Marx, ‘On the Jewish Question’, in *The Marx-Engels Reader*, ed. R. Tucker (1972).

of acquiring it, is but a Prologue to a Farce or a Tragedy; or perhaps both. Knowledge will ever govern ignorance; And people who mean to be their own Governors must arm themselves with the power which knowledge gives.' (p. 29<sup>5</sup>)

Finally, in the context of the market – which Boyle argues is complexly situated as sometimes ‘public’ vis-à-vis the family and sometimes ‘private’ vis-à-vis the state – information also plays a central if sometimes contradictory role, particularly in the realm of liberal microeconomics. As Boyle puts it:

The analytic structure of microeconomics includes ‘perfect information’ – meaning free, complete, instantaneous, and universally available – as one of the defining features of the *structure* of the perfect market. But the perfect market must also treat information in a second way: as a good *within* the perfect market, something that will not be produced without incentives – costly incentives. This dual – and contradictory – incarnation of information reappears in the *actual* market. Our search for efficiency pushes us toward ever freer and less costly information flow at the same time as our understanding of incentives necessary for production tells us that information must be costly, partial, and deliberately restricted in its availability. (p. 29, emphasis in original)

After demonstrating the importance and centrality of theories of information to the liberal theories of the state, the market, and the family, Boyle seeks to show how these various theories of information create tensions between and within these liberal spheres. As an example of tensions between the spheres, Boyle suggests, ‘it is conventionally accepted that the public interest in a sphere of vigorous debate and discussion often clashes with the demands of personal privacy, while claims to own information in the market mix uneasily with the values of the First Amendment [to the United States Constitution protecting free speech]’. As an example of tensions within the spheres, Boyle states:

In First Amendment theory, analysts sometimes talk as if information exchange has its own inevitable tilt toward democratic values and the good life (‘the cure for bad speech is more speech’); at other times they present the First Amendment as the jewel in the crown of liberalism, drawing its nobility precisely from the fact that it is value-neutral as to content. (‘I loathe what you say but would die for your right to say it’.) (p. 30)

In this complex matrix of public and private, state, market, and family, legal problems regarding information are sorted and resolved, in part through locating the information within the matrix. As Boyle puts it, ‘This could be thought of as the geographical question; in which realm, which paradigm of justice, does this particular question of information control belong?’ (p. 30).

In addition to the geographical question, Boyle posits another overlay of complexity in resolving legal problems of information – what he calls the ‘question of characterization’. This issue boils down to two additional contradictory views of information, as ‘both *finite* and *infinite*, product and process’ (p. 30).

In its infinite characterization, information can be given away again and again – enriching the receiver without reducing the wealth of the giver. For example,

5. Quoting James Madison, Letter from James Madison to W. T. Barry, 4 Aug. 1822, reprinted in *The Complete Madison*, ed. S. K. Padover (1953), 337.

teaching a child how to do long division does not reduce the value of that information to the teacher. On the contrary, both are enriched because both teacher and student have that knowledge. According to Boyle, this characterization of information tends to result in legal requirements for the disbursement of more information. He states,

If we are thinking of information as a resource that is infinite in this sense, then the distribution of wealth does not seem to have been changed when parties are forced to transfer information. What has really happened is that one party has been forced to transfer a valuable resource to another. When that resource is money, we think 'socialism'. When the resource is information, it just seems 'fair'. (p. 31)

On the other hand, if we are viewing information as a finite resource, then we are more likely to see its production and distribution like any other commodity. Without enabling information producers to commodify and exploit their information products, too little information will be produced. Further, mandatory information transfer or disclosure 'is suddenly viewed as a forced exchange, rather than a baseline for informed decision making' (p. 31). As Boyle puts it, 'In economic terms, the positive side of the costlessness of information – that the same unit of the good can satisfy many consumers at little or no additional cost – suddenly becomes the basis of a public goods problem' (p. 31).

Summing up his theory of information thus far, Boyle asks one of the most important questions in the book:

If the concept of information has potentially conflicting roles to play in family, market, and state and if information itself is sometimes conceived of as infinite and sometimes as finite, how are social problems involving information decided? (p. 32)

In the remainder of the book, Boyle offers us a short and a much longer answer to this crucial question.

At the risk of dramatically oversimplifying, Boyle's short answer is captured in what he calls 'typing', or the largely indeterminate though not wholly irrational practice of resolving information problems through answering his questions of geography and characterization on an ad hoc basis. For example, to analyze a proposed regulation regarding a retailer's ability to sell data on its customers' buying habits to direct marketers, one could 'type' the information problem as presenting an example of the public/market exploitation of private consumer information, or the public/state's interference with the private/retailer's expensively collected and valuable customer information which wouldn't be produced without a legal licence to exploit it for profit, or the public/state's protection of the free speech of private/marketing companies, or perhaps others or perhaps one or more of these positions simultaneously.

According to Boyle, one's resolution of the information problem will be in part a function of how the problem is 'typed'. Further, one's sense of the justice or injustice or legal correctness or incorrectness of the particular resolution will in turn depend on whether one sees the problem as correctly typed and whether the justice norms applicable to the sphere in which the problem is typed are correctly applied. Continuing with the example above, if one saw the sale of consumer data as

fundamentally an issue of exploitation of private information, then a resolution which typed the sale of consumer data as protected free speech essential to the preservation of the public sphere would seem both unjust and incorrect even if the free speech norms of the public sphere were correctly and consistently applied. Further, if one were to see the problem as one properly typed in the 'private' market of information, one's view of the justness or legal correctness of a resolution might nevertheless depend on whether one saw the consumer data as critical market information that would improve market efficiency the more widely, and consequently more cheaply, it was disseminated, or as a 'public good' which had to be commodified and restricted in distribution in order to insure its continued efficient production.

Through this analysis Boyle quite convincingly demonstrates that the categories that purport to stabilize and rationalize the liberal legal regime of information and intellectual property are so inherently unstable and indeterminate that typing becomes little more than thinly veiled political choices which are contestable even from within the logic of the liberal categories themselves. So, assuming that the liberal intellectual property regime is neither wholly irrational nor an elaborate exercise in bad faith, Boyle must next explain how the regime seems to hang together, the indeterminacy of the liberal legal and theoretical categories notwithstanding.

This is where the 'long answer' comes in. And Boyle's theory about why this largely indeterminate 'typing' system seems coherent is found in the narrative, normative, and ultimately legal, power of what Boyle calls the image of the romantic author.

According to Boyle, the legal and cultural significance of the romantic author arises from the law of copyright but extends far beyond the confines of that legal regime. Boyle's exploration begins with a brief examination of eighteenth-century debates about the conceptual plausibility of creating a property right for an author in his or her books.

Boyle argues that at its inception intellectual property posed at least three significant conceptual problems, most of which persist in our current thinking about intellectual property. First, eighteenth-century theorists struggled with how to imagine a property regime that gave the 'owner' a property interest in the intangible without undermining the legal categories of tangible real and personal property. Second, there was the question of how to give property rights in intellectual property without restricting or foreclosing future innovation and the free flow of information that is the lifeblood of liberal political and economic theory. And, third, assuming that the first two conceptual difficulties were overcome, there was the question of how to justify creating a special form of property for authors of books when other labourers retained no residual rights in the fruits of their labours.

The answer to all three of these difficulties, which Boyle suggests remains as powerful today as it was in the eighteenth century, is the combination of 'the *figure* of the romantic author, the associated *theme* of originality, and the *conceptual distinction* between idea and expression' (p. 114, emphasis in original). Specifically, Boyle argues that the innovation of copyright law was to disaggregate the concept of property in books by retaining for the author the original form of authorial expression – the intellectual value-added, if you will, that provides the justification

for the author's rights in it – while the buyer of the book got the physical book and the ideas expressed in it. Boyle further argues that this separation of an author's 'original' expression from the ideas from which it is made and which it produces, serves four critical functions in resolving (or perhaps more accurately obscuring) some of the conceptual difficulties described above that the eighteenth-century theorists were grappling with and which remain at the core of liberal political and economic theories of information. As Boyle puts it:

First, [the idea/expression division] provides a *conceptual basis* for partial, limited property rights, without completely collapsing the notion of property into the idea of a temporary, limited utilitarian state grant, revocable at will . . .

Second, this division provides a *moral and philosophical justification* for fencing in the commons, giving the author property in something built from the resources of the public domain – language, culture, genre, scientific community, or what have you. If one makes originality of spirit the assumed feature of authorship and the touchstone for property rights, one can see the author as creating something entirely *new* – not recombining the resources of the commons . . .

Third, the idea/expression division circumscribes the ambit of a labor theory of property . . . Every author gets the right – the writer of the roman à clef as well as Goethe – but because of the concentration on originality of expression, the residual property right is only for the workers of the word and the image, not the workers of the world . . .

Fourth, the idea/expression division resolves (or at least conceals) the *tension between the public and private* . . . By disaggregating the book into the 'idea' and 'expression', we can give the idea (and the facts on which it is based) to the public world and the expression to the writer, thus apparently mediating the contradiction between public good and private need (or greed). (pp. 56–8, emphasis in original)

Boyle devotes a good portion of the remainder of the book to showing, again quite convincingly, the ways in which the image of the romantic author and borrowed conceptions of the distinction between idea and expression, pervade legal and economic analyses of information problems that extend well beyond the realm of copyright.<sup>6</sup> He further argues that these conceptions of the romantic author function to mediate and in many cases mask the ideological choices inherent in the 'typing' regime described above. He also seeks to demonstrate that the image of the romantic author, as it is manifesting itself in current information and intellectual property discourse, is not value-neutral. In fact, he asserts that there are significant ideological, cultural, and economic effects to the romantic author-based understanding of information creation and ownership that are unfair, unjust, and inefficient.

Perhaps the best way to present these final aspects of Boyle's argument is to walk through an example where he applies these argumentative propositions to a specific set of facts. The example involves Boyle's reading of a California Supreme Court case, *Moore v. The Regents of the University of California*.<sup>7</sup> Boyle states the facts of the case as follows:

In 1976, John Moore started treatment for hairy-cell leukemia at the University of California Medical Center. His doctors quickly became aware that some of his blood

6. See, e.g., pp. 61–80 (blackmail), and pp. 81–96 (insider trading).

7. 793 P.2d 479 (Cal. 1990), *cert. denied*, 111 S. Ct. 1388 (1991).



products and components were potentially of great commercial value. They performed many tests without ever telling him of their commercial interest, and took samples of every conceivable bodily fluid, including sperm, blood, and bone marrow aspirate. Eventually, they also removed Moore's spleen, a procedure for which there was an arguable medical reason, but only after having first made arrangements to have sections of the spleen taken to a research unit. In 1981, a cell line established from Moore's T-lymphocytes was patented by the University of California, with Moore's doctors listed as inventors. At no time during this process was Moore told anything about the commercial exploitation of his genetic material. The likely commercial value of a cell line is impossible to predict exactly, but by 1990 the market for such products was estimated to be over \$3 billion. (p. 22, citation omitted)

Boyle sees this case to be about information in two distinct senses. First, the case involves the withholding by Moore's doctors of the information regarding their commercial interest in his genetic materials. To the extent that this information might have influenced both Moore's and the doctors' treatment decisions, the court found that the doctors had breached their fiduciary duty to Moore by failing to obtain Moore's informed consent to their continued treatment of him.

The second, and perhaps more interesting, question is one regarding the 'ownership' of the genetic material and the cell line produced from it. In ultimately finding that Moore had no property interest in his extracted cells, the court takes us on an emblematic tour of many of the contradictory positions on information that Boyle has been describing throughout the book. For example, the court finds that Moore had 'abandoned' his cells when he consented to their removal; that the regulation by California of the removal and destruction of excised cells eliminated so many of the rights traditionally associated with a property interest that none could be said to exist; that since everyone's genetic material contains lymphokines, Moore could not claim any legitimate property interest based on their being unique to him; that Moore could not be given a property interest in his genetic material because it would hinder research; and that giving Moore a property interest in his cells would destroy the economic incentive to conduct similar medical research.<sup>8</sup> As Boyle puts it:

On the one hand, property rights given to those whose bodies can be mined for valuable genetic information will hamstring research because property is inimical to the free exchange of information. On the other hand, property rights must be given to those who do the mining, because property is an essential incentive to research. (p. 24)

How are these seeming contradictions resolved (or obscured)? Boyle suggests through the image of the romantic author. One could certainly have imagined this case being resolved by 'typing' it in the private realm – similar to our earlier example of a retailer selling customer purchasing data to third parties. The argument would run that Moore's cells, like his buying preferences, are 'private' information that shouldn't be available for 'public' commercial exploitation. However, by typing the case as one involving the market and information as a commodity, the court's vision shifted. As Boyle puts it, 'Once the shift is made, we are led to ask, "Who is the real

8. See pp. 23–4, and related citations.

author of the genetic information at issue here?” (p. 106). The court’s response is a paradigmatic example of Boyle’s argument. The court states:

Finally, the subject matter of the Regent’s patent – the patented cell line and the products derived from it – cannot be Moore’s property. This is because the patented cell line is both factually and legally distinct from the cells taken from Moore’s body. Federal law permits the patenting of organisms that represent the product of ‘human ingenuity’, but not naturally occurring organisms. Human cell lines are patentable because ‘long term adaptation and growth of human tissues and cells in culture is difficult – *often considered an art . . .*’ and the probability of success is low. It is this *inventive effort* that patent law rewards, not the discovery of naturally occurring raw materials.<sup>9</sup>

According to Boyle, the result of this form of analysis is to treat Moore and his cells as a ‘naturally occurring raw material’ that his doctors transform and make valuable through their ‘ingenuity’, ‘intensive effort’, and ‘artistry’ (pp. 106–7). As Boyle puts it,

To a greater extent than the other issues I discuss in this book, the *Moore* case may indicate both the contentious value judgments loaded into the conceptual structure of authorship and the way that discussions of entitlement to control information are carried out through the metaphor of ‘authorship’, even in fields far from copyright . . . Viewed through the lens of authorship, Moore’s claim appears to be a dangerous attempt to privatize the public domain and to inhibit research. The scientists, however, with their transformative, Faustian artistry, fit the model of original, creative, labor. For them, property rights are necessary to *encourage* research. Concern with the public domain fades away as if it had never existed. What should we think about this desire to cast around in every situation until we find the people who most resemble authors, whereupon we confer property rights on them? (p. 107, citations omitted)

What indeed! The example of the *Moore* case is useful not only as an exemplar of Boyle’s view of the romantic author in action, but also as a template for mapping Boyle’s answer to the question he asks at the end of the preceding quote, or, put another way – how might Boyle’s social theory of the information society help us to assess the costs and benefits of an information society and an intellectual property regime modelled on the romantic author?

While Boyle is careful to recognize the possibility of some benefits arising from the current intellectual property regime modelled on romantic authorship, he articulates three distinct costs that, on the whole, he argues, should give us pause in continuing to employ this authorship regime without taking responsibility for its intended and perhaps unintended consequences.

The first of these costs is that the regime of romantic authorship undervalues ‘sources’, ‘raw materials’, ‘the public domain’. Whether the materials at issue are cultural artefacts, medicinal bark from rainforest trees, computer programming algorithms, or shamanic knowledge of the healing properties of plants, the authorship paradigm tends to treat those things, like John Moore’s lymphokines, as ‘naturally occurring’ and without value until transformed by the original genius and ingenuity of an ‘author’. Played out on the global economic stage, with intellectual property

9. *Moore v. Regents*, 492–3 (citations and footnote omitted) (emphasis Boyle’s in part).

rights at the centre of developed country trade policy, the implications of this authorship regime are enormous. As Boyle puts it:

The author concept stands as the gate through which one must pass in order to acquire intellectual property rights. At the moment, this is a gate that tends disproportionately to favor the developed countries' contributions to world science and culture. Curare, batik, myths, and the dance 'lambada' flow out of developed countries, unprotected by intellectual property rights, while Prozac, Levis, Grisham, and the movie *Lambada!* flow in – protected by a suite of intellectual property laws, which in turn are backed by the threat of trade sanctions . . . Disparities in technology and wealth would mean that, *whatever* the intellectual property system adopted, the developed countries would better be able to exploit, market and profit from the objects of intellectual property. *But an intellectual property system centered on the ideal of the transformative and original creator compounds these tendencies. It does so because the traditional competitive advantage of the developing countries has been in supplying raw materials and an authorial regime values the raw materials for the production of intellectual property at zero.* (pp. 125–6, emphasis in original)

According to Boyle, a second and related 'cost' of the authorship regime is that, by undervaluing the informational sources of intellectual property, it overvalues the propertization of information products at the expense of the public domain. To demonstrate his claim, Boyle cites a range of powerful examples including a United States Supreme Court case upholding the US Olympic Committee's right to preclude a non-profit corporation from using the word 'Olympics' in connection with an Olympic-type athletic competition for gays and lesbians, based on a claim that the Olympic Committee 'owned' the word for certain commercial and promotional purposes (see pp. 145–8, where Boyle analyzes *San Francisco Arts & Athletics, Inc., et al. v. United States Olympic Committee*<sup>10</sup>); and a case by another US court finding a private copy centre liable for copyright violations for making copies of copyrighted works for educational purposes notwithstanding an express exception to the US Copyright Act treating the making of multiple copies of copyrighted works for educational purposes as 'fair use' that does not violate the rights of the copyright holder (pp. 130–2, analyzing *Basic Books, Inc., et al. v. Kinko's Graphics*<sup>11</sup>). A similar concern can be seen in the *Moore* case in that part of the court's analysis where it determines that granting Moore property rights in his cells would hinder research by limiting access to scientifically (and commercially) valuable genetic material.

Perhaps the most dramatic example of this tendency to overvalue property at the expense of the public domain comes in Boyle's analysis of the Clinton administration's 1995 'White Paper' on the National Information Infrastructure.<sup>12</sup> In that document, the drafters went so far as to characterize public access to information through a broad interpretation of the 'fair use' exception to the United States Copyright Act, as a 'tax' on copyright holders. The White Paper states:

Some participants have suggested that the United States is being divided into a nation of information haves and have nots and that this could be ameliorated by ensuring that the fair use defense is broadly generous in the NII [National Information Infrastructure]

10. 483 U.S. 522 (1987).

11. 758 F. Supp. 1522 (1991).

12. *Supra* note 2.

context. The Working Group rejects the notion that copyright owners should be taxed – apart from all others – to facilitate the legitimate goal of ‘universal access’.<sup>13</sup>

According to Boyle, through the alchemy of romantic authorship, the once ‘public’ raw materials become privatized and propertized to the enrichment of the rights holders and the impoverishment of the public at large. Further, unlike the first cost articulated above, which exacerbated the disparities between the developed and developing world, this cost can be felt the world over in developed and developing countries alike.

The third significant cost of the authorship regime follows from the other two. Boyle argues that devaluing sources and impoverishing the public domain through an overly aggressive intellectual property regime, while generally justified on the grounds that intellectual property is required to incentivize information production, is actually counterproductive because it reduces the raw materials and resources available for future innovation. For Boyle, whether one is talking about the patenting of computer programming algorithms that may restrict the availability of those solutions for other software applications, the prohibition of the practice of ‘sampling’ short pieces of existing songs to make new ones, or, as in the *Moore* case, patenting a powerful cell line which may inhibit related research, the result of ‘fencing the commons’ may be to limit rather than enhance future innovation. By compellingly raising the question as to whether author-centred intellectual property rights always reflects a proper balance between incentives to create and public access for future innovation, Boyle seeks to force a reconsideration both of the economic necessity of the existing regime and its actual costs and benefits. As Boyle puts it,

Let me stress, my claim is not that these are the only or even the predominant incarnations of an author-centred regime. Rather, these examples are intended to balance a previously one-sided account by showing how an author-centred regime actively encourages us to ignore some of the very issues we ought to focus on if we truly care about the utilitarian effects of intellectual property. (p. 119)

Through his articulation of his social theory of the information society, Boyle provides much needed critical tools both to describe and to challenge the existing intellectual property regime. His articulation of the system of ‘typing’ is invaluable in making visible the instability and indeterminacy of liberal political and economic theories of information and of the unrationalizability of those theories even within their own terms. His articulation of the narrative and legal power of the romantic author in modern intellectual property discourse has helped to explain how the tensions and contradictions within liberal theories of information are mediated or obscured from view. Further, his analysis demonstrates how the author-centred regime may produce consequences that are not only unfair and unjust, but also potentially disabling rather than enabling of future information production, even for those who might understand themselves to be benefiting from the status quo.

13. *Ibid.*, at 84.

While Boyle offers some proposals for reimagining information policy and intellectual property for the future, his project is not primarily a prescriptive one. By exposing the information society to the light of critique, Boyle hopes to facilitate creative possibilities rather than dictate outcomes. As he powerfully makes his point, with a characteristic mix of humility and hubris:

The author-vision that I have described here is not merely a set of mistakes in thinking about the balance between incentives and efficiency, public domain and private right. It is the focal point of a language of entitlement, an ideology every bit as rich and important as that of wage labor and the will theory of contract. Those who are negatively affected by this language of entitlement – be they programmers, satirists, citizens of the developing world, or environmental activists – see only the impact within their narrow bailiwicks. Focusing on effects, they fail to see the structure underlying those effects. Thus they lose the possibility of both theoretical analysis and the practical recognition of common interests. This truth may not set us free, but it is a start. (p. 173)

By now it should be apparent that I found Boyle's book a tour de force – both breathtaking in its ambition and often brilliant in its execution. Taken as a whole it represents a very significant example of, and, in its field, an advancement on, a tradition of American left critical legal theory with discernible roots in American Legal Realism<sup>14</sup> and the Critical Legal Studies Movement.<sup>15</sup> I also found the book to be a peculiarly successful attempt to do 'grand theory' in the tradition of Marx and Weber with an ever-present postmodern eye to avoiding the over-determined claims and conclusions that grand theorists so often make. And, while by and large I agree with the conclusions that Boyle does draw from his analysis, I would be remiss in my role as reviewer if I didn't offer up a few small challenges to Boyle's terrific work.

The first of these challenges relates to Boyle's broad and intentionally abstract conception of 'information'. His project is to identify trends and structures in the legal treatment of information that are often missed by focusing too intensely on doctrinal distinctions in respect of different types of information. By aggregating under the category of 'information' such doctrinally diverse issues as the patenting of software, the regulation of insider trading, the crime of blackmail, and the possibility of transgenic slavery, Boyle seeks to create and succeeds in creating a kind of intellectual and doctrinal disphoria that opens the possibility for imagining these issues in new ways, including seeing these issues as related through certain common tropes which form the basis for his social theory of information.

In one sense, it is Boyle's refusal to reduce information or the information society to an unending proliferation of problems involving particular types of information and requiring particular legal forms for resolution, that is the book's greatest strength. To borrow an overused metaphor, it is this perspective that enables us 'to see the forest from the trees'. At the same time, treating all these issues as about 'information' in some general sense makes it more difficult to see the difference that different types of information might make to Boyle's 'forest' theory itself.

14. For a general introduction to American Legal Realist scholarship, see W. W. Fisher, M. J. Horwitz, and T. H. Reed (eds.), *American Legal Realism* (1993).

15. For a general introduction to Critical Legal Studies scholarship, see M. Kelman, *A Guide to Critical Legal Studies* (1987).

For example, much of the force of Boyle's argument regarding the effects of the author-centred regime turns on the way an abstract image of information fills out his concepts of 'sources', 'raw materials', and the 'public domain'. The conception seems to be that these categories all refer to a pool of 'information', whether that information is understood to be language, the laws of physics, Renaissance poetry, a medicinal plant, or rock and roll music. That pool, the argument goes, is the necessary stuff from which future innovation and intellectual products derive. Further, perhaps stemming from the legal meaning of the 'public domain' – literally stuff that is freely transferable, copyable, and usable because it has never been or is no longer subject to intellectual property rights – Boyle's use of the terms 'raw materials', 'sources', and 'public domain' suggest that, but for intellectual property, the information that comprises these categories would be literally free and generally available. That is not to say that Boyle is not keenly aware that some of these 'sources' might not be produced or might be under-produced without some incentive scheme, whether from the current intellectual property regime or another, or that other ways of conceptualizing intellectual property rights couldn't produce greater protection for 'fair use' and public access. But, these acknowledgements notwithstanding, Boyle's conception of 'fencing the commons' and his assertion that the author-centred intellectual property regime will undervalue and therefore overly restrict the 'public domain' might be read to suggest a more or less zero-sum game between current intellectual property conceptions and public access.

However, if we focus on particular types of information rather than on an abstract pool of sources, the force of Boyle's claims is dramatically affected. For example, if the information at issue were the alphabet, all the possible sequences of human DNA, or all the laws of physics, Boyle's argument would dramatically understate the problem. In fact, by granting intellectual property rights in, for example, the alphabet, the possibility of innovation through the written word, at least as we currently know it, could be dramatically circumscribed.<sup>16</sup> At the other extreme, granting a patent on a particular formula for the production of a serotonin-affecting antidepressant might have little or no effect on innovation. It would depend on the range of available methods for producing such drugs and the knowledge value (as distinguished from the commercial value) of the method itself.<sup>17</sup> In other words,

16. I say 'could be' as opposed to 'would be' circumscribed because, as I will seek to show later, propertization of information does not always result in a reduction in public access. Further, even if the rights holder decided to limit access to the alphabet, presumably it could be acquired at some price. The price and the terms for access would depend on the nature of the property right granted, the relative bargaining power of the rights holder, and those seeking access, supply, demand, and other incentives in the market, etc. For example, in the case of the alphabet, it might make economic sense for the rights holder to charge a licence/access fee close to zero. In this way, the rights holder might encourage the broadest possible use of the alphabet and maximize returns. It might even make economic sense for the rights holder to sponsor large-scale literacy or education campaigns to ensure continued use of the alphabet and to discourage the development of substitutes. On the other hand, and perhaps more predictably, the rights holder might charge monopoly rents for access to the alphabet and dramatically restrict its use. The point here is not to predict likely results but rather to suggest that weighing the consequences of propertization in a particular case would depend on numerous factors in addition to whether a property right of some sort was granted or withheld.

17. It seems to me to be useful to distinguish the knowledge value of a particular invention or information product from its commercial value. For example, a paper clip may have terrific commercial value but add little to our understanding of engineering, use of materials or science in general. On the other hand, the



the degree to which we need to worry about the effect on the public domain and future innovation of a particular decision to grant or withhold intellectual property rights depends in each case on the particular qualities of the information itself. The fact that the particular information and context at issue may strengthen or weaken the effects of the author-centred intellectual property regime doesn't diminish the value of Boyle's framework, but it does suggest the risk of trying to move from Boyle's general theory of information to a particular information problem without significant additional analysis of the problem in its specificity.

A second challenge to Boyle's analysis stems from what seems to me to be his over-investment in seeing ownership and public access to information as being in opposition. For example, while it is certainly true that intellectual property rights give the owner a qualified right to restrict access to the protected information, those same property rights also frequently create an incentive to disclose information that would not be otherwise disclosed and/or to disseminate information that might not be otherwise available. The incentive I am describing here is distinct from the incentive to produce information in the first instance, and can be particularly important in the case of information that is already technically in the public domain.

For example, in the case of my serotonin-affecting antidepressant, the market incentive to produce the drug may or may not be affected by intellectual property rights, but the producer's willingness to disclose the science or processes surrounding the drug's development might well be. Assuming that the formula could be kept secret and that significant time, expense, and expertise would be required to understand the basic science, to determine how the drug was made and to copy it, even without intellectual property rights, there might be significant market incentives to produce the information and to keep it secret. Like the famous formula for Coca-Cola, it might remain in a vault, never to see the light of day. Under the current US patent system, while the inventor may ultimately get a patent on the drug, both the patent review process and the regulatory approval process for marketing the drug require that the invention be disclosed. And, while it is true that someone won't be able to copy that drug exactly during the term of the patent, the disclosure nevertheless becomes part of the 'raw materials' that spur future innovation. In other words, the knowledge value that certain kinds of serotonin-affecting compounds can have an impact on depression becomes part of the 'raw materials' that scientists can use for imagining new, if not identical, drugs. In this context, ownership of patent rights might be said to enhance, not to restrict, public access to 'sources' or 'raw materials'.

For an example of incentives created by intellectual property to disseminate information, I turn to two works from the public domain – Newton's laws of physics and John Milton's poetry are both technically in the public domain. Any copyright

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discovery of the possibility of using cells as 'biological' microprocessors might have very little commercial value in the short term, but might have enormous knowledge value to the extent that it generates a dramatic increase in experimentation and knowledge development in the fields of biology, artificial intelligence, computer science, etc.

that either author might have once had in the original articulation of their works has long since lapsed. While we can't say so with absolute assurance, it is certainly possible that notwithstanding both of these important works being in the public domain, their general availability to the public might be dramatically reduced if new 'authors' were not able to create and sell textbooks containing Newton's laws or Milton's poetry. In these cases, we are not concerned with the incentive to produce the information in the first instance, but rather the incentive to keep that information in public circulation rather than in some British aristocrat's library.

The key to both my drug example and these last two is that one can make a plausible argument that public access to 'raw materials' for innovation (whether the science of serotonin or the poetry of Milton) is sometimes enhanced rather than restricted by granting intellectual property rights. This is not to say that this result is always or even frequently the case. Rather, it is meant to suggest that focusing too much on the ways in which author-centred intellectual property ownership reduces public access might obscure the importance of those times when the opposite might be true and thereby lead us to errors in assessing the costs and benefits of an author-centred intellectual property regime in general.

My third challenge relates to Boyle's claims about the costs of the author-centred regime. While Boyle is careful not to overstate the relationship between a focus on romantic authorship and the current intellectual property regime, he suggests a strong correlation resulting from the particular ways in which the romantic author is currently conceived and used and the negative consequences he asserts. A major strength of Boyle's analysis in this regard is that it suggests a descriptive rather than a necessary correlation between the author-centred regime and the bad consequences. Nevertheless, one is left with the two related questions: should we dispense with romantic authorship, and, if so, what would be left when romantic authorship was stripped away?

On the first question, given the significant ideological and mediating functions the romantic author serves in liberal conceptions of information and the information society, a strategic question arises as to whether one should focus one's activism on altering the social and legal meaning of authorship rather than trying to re-imagine intellectual property without authorship. As Boyle so ably demonstrates, romantic authorship is a spectacularly successful device for mediating numerous tensions and conflicts in liberal political and economic theory. Further, it is clear from Boyle's analysis that these tensions and conflicts reflect real contested issues in local and global society over the use, availability, access, and ownership of information. In that context, it certainly seems possible to engage in meaningful struggle over these issues in the language of romantic authorship. For instance, in one example Boyle describes the way in which the current authorship regime treats shamanic knowledge about medicinal plants as 'raw material' and attributes 'authorship' to the pharmaceutical companies that turn that knowledge into drugs (pp. 128–9). However, one could certainly imagine deploying the language of 'ingenuity' and 'original creative labour' to make an 'author' of the shaman himself – but for his intense work, creative knowledge, and original resourcefulness, the healing properties of the medicinal plant would not be known.



It is important to note here that Boyle's demonstration of the constructed nature of current images of the romantic author is intended to show that many conceptions of authorship are possible and that intellectual property could similarly be re-imagined in new and different ways. The usefulness, justice, and/or efficiency of a particular conception of authorship in a particular informational context would be an ideological question to be answered by looking at the 'real social costs and benefits' which are now visible because no longer obscured by a romantic image of authorship we did not realize was there.

But this position leads to my second question above, namely, whether it is really possible to get behind our romantic conceptions, whether of authorship or otherwise, to assess the real social costs and benefits of a particular system, or what is left after romantic authorship is stripped away.

Even Boyle himself, whose whole project might be seen as an argument for the deromanticization of authorship, has trouble practising what he preaches. For example, in the preface, Boyle states:

*Actual* 'authors' – writers, inventors, genetic and software engineers – often lose out under the kind of regime I describe here. It is not merely that their work belongs to their employers. There are justifications for such a result, albeit ones that are currently invoked too widely. The true irony comes when we find that large companies can use the idea of the independent entrepreneurial creator to justify intellectual property rights *so* expansive that they make it much harder for future independent creators actually to create. (p. xiii, emphasis in original)

Presumably Boyle's opponents, say large pharmaceutical or software companies, would see themselves as 'actual authors' too, in the sense that without their efforts complex informational products such as prescription drugs or the Windows<sup>TM</sup> operating system would never be created. My point here is not to criticize Boyle for inconsistency, but rather to question his apparent faith that one *could* strip away the 'romance' and leave behind a discourse of real interests, costs, and benefits. Boyle's 'actual' (read deromanticized) authors above are precisely those least worthy in the eyes of his opponents and vice versa. Whether this very real dispute about creativity, incentives, and value takes place in the language of authorship or in some other new discursive mode, it will be no less 'romantic', no less 'mediated', and no less subject to the effects of power. That is not to say that it is not important, as Boyle has done, to expose powerful ideological formations of a particular social moment. But in my view, the value of such work is not contingent on an implicit notion that once exposed, the real unmediated social situation will present itself for analysis and perhaps transformation. Rather, the value of this type of analysis is to make ideological formations, such as romantic authorship, visible as ideology, and therefore subject to ideological contestation and critique.

My final challenge to the book is a question about the politics of the project itself. An implicit and explicit premise of Boyle's social theory of information is that, as Boyle puts it, 'information is different' (p. 174). Throughout the book Boyle seeks to demonstrate this 'difference' in numerous ways, including focusing on the complex and often contradictory roles that information plays in liberal political and economic

theory, on its status as sometimes 'public good', sometimes commodity, sometimes both, or on the particular ways in which 'fencing the information commons' may impoverish not only the public domain but future information production. Yet even assuming that similar or analogous claims couldn't be made about capital, land, or other things more traditionally the subject of property law, I wonder if there is any principled way of distinguishing intellectual or informational from other forms of property.

Boyle freely and repeatedly acknowledges that there is little or no difference between intellectual and other forms of property from the standpoint of political or economic theory. As he put it:

From what I have argued previously, it should be apparent that although intellectual property has long been said to present insuperable conceptual difficulties, it actually does present exactly the same problems as the liberal concept of property generally. It merely does so in a more obvious way and in a way which is given a particular spin by our fascination with information. All systems of property are both rights-oriented and utilitarian, rely on antinomian conceptions of public and private, present insuperable conceptual difficulties when reduced to mere physicalist relations but when conceived of in a more abstract and technically sophisticated way, immediately begin to dissolve back into the conflicting policies to which they give a temporary and unstable form. (pp. 51–2)

If intellectual property is a subclass of more traditional forms of property that is theoretically and politically interesting to people interested in the distributional effects of property because it makes the contradictions inherent in traditional property more overt, a question remains whether a more compelling claim can be made against those seeking to exploit intellectual property than against exploiters of any other form of property.

As a matter of political strategy, one might determine that taking on property rights *in toto* is just too hot to handle. Further, one might argue that intellectual property is 'new' property and becoming increasingly more valuable. Hence, it is vital to make claims on behalf of the have-nots now to be sure that they get a piece of the intellectual property pie. Thus, treating information and intellectual property as 'different' might make sense strategically, even if it's not technically true.

Yet it seems to me difficult to sustain with any real force an argument that suggests that the regulation of, and the ideological debate regarding, informational or intellectual property should be higher or more intense than the debate and discourse surrounding property generally. Further, the fact that in most of the developed world there is no real ideological challenge to tangible property at all makes attempts to challenge intellectual property seem, well, ideological.

An alternative approach might be to show that the contradictions and ideological choices inherent in intellectual property also infect more traditional forms of property. Thus, rather than strategically (and perhaps unconvincingly) asserting intellectual property's differentness from other forms of property, one would use the overtness of the ideological and contradictory choices inherent in intellectual property to challenge the coherence of property rights in general. There is a rich tradition in American legal theory of challenging the naturalness and coherence

of the legal regime of property.<sup>18</sup> And, I think Boyle's analysis enriches and renews this tradition by exposing the ideological transparency of intellectual property and bringing the earlier critique of property into modern focus. My query then, is not with the value of the project as a whole, but rather whether the power of Boyle's theoretical and political achievement is not in part obscured by what seems to me a half-hearted strategic attempt to treat 'information as different'.

*Dan Danielsen\**