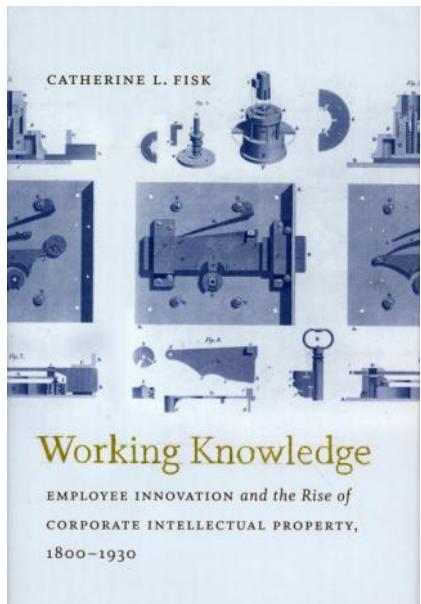


Controlling Knowledge

On Catherine Fisk's *Working knowledge*

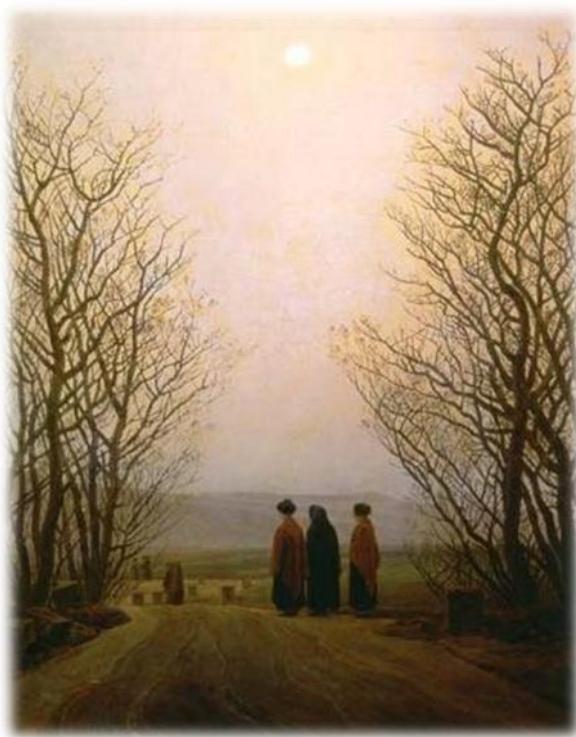
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This year, after a brief discussion, one of my students asked to see a lawyer. I need to admit at once that I have many faults. These, however, do not (fully) explain the request. It arose in a discussion of the practicalities of academic life and in response to students' concerns that basic scholarly practices are increasingly subject to non-negotiable contracts. If they plan to give a talk, their hosts may present a contract demanding the right to reuse the talk. If they write an article, journals will demand the copyright before publishing. If a university employs them, it may demand ownership rights to anything they invent or write on university property during their employment. If they begin collaborative research with other organizations, these may first insist on "nondisclosure agreements". Such "NDAs" may even allow an organization to remove negative findings from research results. And, of course, the act of downloading a software package or even opening a website often brings with it the implication that the user has read and agreed to innumerable and unfathomable pages of legal demands. In all, the student's request was perfectly reasonable. Particularly in the United States, "intellectual property" law increasingly encloses intellectual life, though, as I shall suggest, this siege has interestingly brought about some promising resistance in areas where such property has been most contested.

The university lawyer who answered my call was a great help to my students and to me. So too was Catherine Fisk's book, *Working Knowledge*. The book shows how workplace law changed, though confined to the period from 1800-1920, it makes clear the route that led academic work to its current state of increasing confinement. Fisk focuses on the United States, but for those in other countries not so far along this route, it should offer insight into how not to get similarly confined. In many ways, however, as the book shows, the U.S. route is exceptional. Intellectual property is woven into the fabric of the state through its constitution, which from its approval has held that Congress shall have the power "*To promote the Progress of*



Le Matin de Pâques,
Caspar David Friedrich
(1833)

Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries". One consequence of this clause is that, where the tradition of “*propriété industrielle*” has tended to keep industrial matters of patents and trade marks distinct from “*propriété littéraire et artistique*”, in the United States these two have held together and influenced one another from the start.

Fisk’s study of shifting ideas of workplace knowledge provides a useful challenge to the “originalist” school of constitutional theorists in the United States. This maintains that the constitution is unchanging and that judges much look to the “original intent” of the constitution’s authors to interpret it. By contrast, *Working Knowledge* shows how much the fundamental assumptions and resulting court judgements about intellectual property and workplace innovation have changed over time, with profound reinterpretations of the foundational idea of “*promot/ing) the Progress of Science and useful Arts*” – *progress* and *useful*, after all, are wonderfully adaptable words. These changes inevitably affected ownership rights in workplace knowledge across the nineteenth century, but thanks to the power of “originalism”, the appearance or assumption of continuity paradoxically made many of these changes invisible to the general public.

The changes Fisk is most interested in shifted control of workplace knowledge from the innovative employee to the employer. While she is particularly eager not to appear to be telling a linear or unidirectional account, and is aware of numerous competing forces at work, Fisk’s account makes clear that the idea of “working knowledge” in 1900 was very different from what it had been in 1800. In particular, notions of the contract, which is generally thought to promote individual liberty, in fact increased the power of corporations (including universities) over their workforce in many nonnegotiable ways. Fisk also makes clear, however, that while the rising control of intellectual property came at the price of individual freedom, it allowed corporations to expand research and development in remarkable and productive ways. In the late nineteenth century after studying successful German examples, firms from Kodak to AT&T became more confident that they and not their researchers would harvest the results, began to invest in research centres. In AT&T’s case alone, its laboratories gave rise to things as varied as Shannon’s theory of information; Shockley, Bardeen, and Brattain’s transistor (which led both to the microchip and to Intel); and Thompson and Ritchie’s ubiquitous Unix software—though this last paradoxically spurred a successful reaction to the grip of intellectual property contracts. Indeed, more than anything else, Fisk makes us aware of the inevitable and irresolvable tensions, contradictions, and counteractions that this kind of property raises.

While many such tensions and contradictions are universal, Fisk focuses on those that are particular to the United States. Like the constitution, some of these go back to the country’s birth and its attempt in striving for independence to leave behind royal privilege, systems of servitude, and the hierarchy of guilds and to provide instead a haven of independent labour and individual freedom of contract, which, it was assumed, would together promote science and arts in a country of inventors and

entrepreneurs. Though it may have been a British newspaper's *canard* that George Bush once suggested that the trouble with the French could be seen in the language's lack of a word for *entrepreneur*, faith that the U.S. system is uniquely supportive of invention and entrepreneurship remains strong.

In the early republic, however, these ideals and their implications for intellectual property had to confront the pragmatics of the new state. On the one hand, the developing economy was desperate for new technology, new ideas, and new inventors and was willing to take them from wherever it found them. Consequently, rather as China is viewed today, the United States was widely seen as an intellectual property "pirate", stealing ideas and enticing inventors from other countries. And on the other hand, despite high ideals about free labour, the country was, of course, deeply involved in slavery and the slave owners' property, one court ruled, included the slaves' "*intellectual and moral and social qualities ... as well as ... their capacity for labour*".

One of Fisk's major and insightful examples concerns the Frenchman Eleuthère Irenée du Pont de Nemours, who nicely illustrates the paradox of piracy. Well connected in the *Ancien Régime* (Turgot is said to have suggested his first name), Du Pont (as he became known) was a refugee more from European republicanism than from monarchy. Nonetheless, he was warmly welcomed to the new United States, particularly when he imported French improvements to the uncertain process of making of gunpowder. Having been trained by his father's friend and colleague Lavoisier at the Régie des Poudres at Essonnes, Du Pont established a U.S. factory (he originally planned to call it the "Lavoisier Mill") based on French ideas. But he had also brought with him old-world ideas about the obligations of employees, and wrestled against the U.S. "free labour" ideal in attempts to prevent his employees from carrying working knowledge from his factory to his rivals in much the same way as Du Pont had himself carried them from France. While other countries were developing laws to protect trade secrets, the United States at that time, with its premise of unrestricted labour, had not. Thus Du Pont found his unpatentable ideas were also unprotectable despite his protests. To the dismay of Europeans, the United States took a similar approach to foreign copyrights. Fisk looks at the very popular nineteenth-century, Anglo-Irish playwright Dion Boucicault, who not only married a French wife (and fortune), but also was known, as one of his biographers writes, for "*piratical raids on French dramatic literature*". Fisk could have added Isaac Funk, whose vocation as a Lutheran minister did not inhibit him from establishing a fortune by appropriating Ernest Renan's *Vie de Jesus*.

Over the nineteenth century, the country outgrew its piratical, slave-owning roots to flourish as a dynamic industrial nation. This political and economic transformation required in turn the transformation of the individualist ideals of the old republic so that they could adequately support the growing businesses of the new one. Fisk argues that it was judges' interpretations of existing law as much as legislators' writing of new laws that allowed Du Pont's successors to benefit from the legal controls over workers he had sought in vain. Simultaneously, entrepreneurs like Funk, who transformed himself into the head of a major publishing house, shed their past to become champions of strict national and international copyright.

Aspects of Boucicault's most famous play *Octoroon: or, Life in Louisiana* (1859) epitomise the multiple transformations of and different attitudes towards property that confronted one another on the eve of the country's civil war. The play, set in a slave state and including a dramatization of a slave auction helped dramatize realities of property in humans for northern audiences. Boucicault had written the

play while employed as an actor by a New York theatre. Its success led to a struggle between Boucicault and the theatre manager – who felt that in paying the actor Boucicault he had acquired his intellectual output – for control over the work and its subsequent production. A series of courts ruled in Boucicault's favour because, as one judge reasoned, ownership lay with the author “*whose intellect has given birth to the thoughts*” and not the manager who employed him. (This metaphor of paternity echoes Daniel Defoe's more succinct claim that his book was the “*brat of his brain*”.) This argument overlooked the fact that Boucicault had adapted his story from an earlier novel, but it established a sense of individual creativity, and ownership – a sense that though initially strong, proved transient.

It is a curiosity of history that *Octoroon* was scheduled to play at Ford's Theater the night after President Lincoln was assassinated there. Lincoln, who did more than any other politician to end slavery, brought yet closer together ideas of human freedom and intellectual freedom in his curious admiration for patent laws, which he put alongside the invention of writing and printing and the discovery of America as the transformational events of history. As Fisk notes, in many ways this view symbolised Lincoln's deep belief in the freedom both of labour and of the intellect. Nonetheless, in the aftermath of the Civil War, the victory over slavery was accompanied by changes in intellectual property law that gradually made free labour increasingly subject to control. “[C]ontract concepts came to dominate”, Fisk argues, and as they did they “eliminated employer obligation while yet enforcing dependence and subservience of employees under the guise of formal equality”. Work was subject, moreover, not only to explicit contracts which workers had to confront and sign, but also to “implied contracts” to which workers' actions (like ours on downloading a software package) subjected them. Changing law on trade secrets and worker obligations helped to address the employer Du Pont's fears of transient workers, while theories of work and authorship “for hire” undermined the employee Boucicault's victories.

This struggle between freedom and control in the middle of the nineteenth century had distant origins. In struggling to assert its independence, the new world of the United States relied not only on actual ideas and property from the old, but also on theories about property in ideas from the same source. John Locke's “labor theory” of ownership was particularly influential. He had argued that:

Whatsoever then [a man] removes out of the State that Nature hath provided, and left it in, he hath mixed his Labour with, and joyned to it something that is his own, and thereby makes it his Property. It being by him removed from the common state Nature placed it in, it hath by this labour something annexed to it, that excludes the common right of other Men. (*On Government*, Ch 5. Of Property)

This was no doubt a plausible argument for real property, but, though often used, it provided a less clear justification for intellectual property. In defending the latter, it raised questions about what exactly were those things lying in the original state of nature to which intellectual labour was added. For real property, it was unclaimed land, of which there was plenty in the United States. But if, as some proposed, ideas were similarly “joyned” with the work of those who had come before, like the novel *The Quadroon* which Boucicault had adapted, that earlier work could hardly be thought of as a state of nature nor *The Octoroon* the “birth” of Boucicault's imagination alone. In France, Diderot famously argued less for Locke's addition to the state of nature, and more for the utter originality of intellectual production (an approach that Boucicault's judge echoed):

En effet, quel est le bien qui puisse appartenir à un homme, si un ouvrage d'esprit, le fruit unique de son éducation, de ses études, de ses veilles, de son temps, de ses recherches, de ses observations ; si les plus belles heures, les plus beaux moments de sa vie ; si ses propres pensées, les sentiments de son cœur, la portion de lui-même la plus précieuse, celle qui ne périt point, celle qui l'immortalise, ne lui appartient pas ? Quelle comparaison entre l'homme, la substance même de l'homme, son âme, et le champ, le pré, l'arbre ou la vigne que la nature offrait dans le commencement également à tous, et que le particulier ne s'est approprié que par la culture, le premier moyen légitime de possession ? Qui est plus en droit que l'auteur de disposer de sa chose par don ou par vente ? (*Lettre historique et politique sur le commerce de la librairie* (1763), quoted in Baetens, 2001, p. 28)

From these two, the contrasting tracks of Anglo-Saxon alienable property (or *droits patrimoniaux*) and the more inalienable French *droits moraux* that Beaumarchais articulated in the idea of *droits d'auteur* start to separate. The United States tried to hold the two together, and though the outcome was ultimately more Lockean, it is intriguing to hear echoes of Diderot's "originalist" view in U.S. court judgements that Fisk reports, which argued that the law was protecting "what did not before exist ... never belonged to another person, or the public". New ideas, from this perspective, had no antecedents but sprang in the mind of individuals, a view that helped support the U.S. ideal that creativity was thoroughly individual, which was important to the republic's sense of itself.

Thus from this direction too, where European workers were seen as indentured to masters, or enmeshed in hierarchical guilds until they graduated to the status of "journeyman" (the term comes from the French *jour* and indicates those who were free to provide labour by the day as opposed to those who were bound to the course of an apprenticeship), the U.S. worker, by contrast, was in theory dependent on no-one else and his ideas were his own to take with him when he went from one job to another. Growing attention to individual "inventors" helped to reinforce this view for the public. While seventeenth-century books regularly acknowledged that printing appeared in China long before Gutenberg, by the nineteenth, Gutenberg is an unchallenged and unprecedented individual inventor – and his invention the only technology in Lincoln's list of discoveries. Similarly, their success not only with technology but also with patents, allowed Morse to take credit for the telegraph, Bell for the telephone, Edison for the gramophone, and Marconi for the radio, as if these all were isolated breakthroughs and not cumulative and sometimes collective developments.

But, while such ideas promoted the spirit of individual entrepreneurship for the public, they were, as Du Pont showed, a threat to the developing commerce of the day. Journeymen moving at will from one employer to another could remove irreplaceable skill or "steal" ideas and thus undermine competitive advantage. Here as elsewhere, Du Pont's argument produced a tangle. On the one hand, workers were assumed to be sufficiently knowledgeable that their departure could be threatening; on the other, they were assumed to be sufficiently dull that they deserved no credit for the knowledge accumulated in a workplace and hence had no right to take it with them.



Le vendeur de poulet – détail,
Pensionante Del Saraceni (1618)

Indeed, Du Pont once claimed that his employees were “*common laborers who understand nothing*”, even as he denounced rivals who wanted to employ Du Pont workers on account their knowledge and experience. Two Germans working in the English Potteries were said to have resolved this problem by deliberately hiring only stupid workers. But it was resolved more conveniently by introducing trade secret law and ultimately non-compete contracts, which protected those ideas not already protected by patents, even though these restricted the idealized freedom of individual, innovative workers either to move or to negotiate better terms with employers.

The United States, as I indicated, explicitly resisted trade secret law at first, but as Fisk shows, judges’ “creativity” slowly began to read it into existing law with the help of the influential Judge Story’s *Commentaries* (first published in 1836) and other legal *bricoleurs*. Control over workplace knowledge thus began its migration from employees and towards employers. “Shop right” gave employers the right to knowledge developed by their employees. Contracts, explicit and then implied, required employees to assign their inventions to employers. While the individual remained the ideal inventor, firms were willing to deny themselves public credit in order to gain increasing control. Eventually the strain between ideals and reality was resolved by recalling the constitution and affirming that innovation and the public interest could, as Fisk argues, “*best be achieved by protecting the firm, not the employee ... lawyers had begun to roll all categories of employee knowledge into one general category of human capital that employers were entitled to control*”. The idealised individual survives in the process of patenting workplace knowledge, which begins by assuming a single inventor but immediately assigns ownership and control to employers. It was with this security that the great research laboratories arose and, from Kodak and AT&T in the nineteenth century, to Hewlett-Packard and Xerox in the twentieth, these produced sufficient innovation to help justify the claim. So in the twenty-first century, as in the eighteenth, pragmatism and property, rather than natural or moral rights dominate.

And yet, by the twenty-first century, though after Fisk’s period of concern, there had also been a distinct reaction. It is no longer so easy to assert that property rights promote innovation. Patent “trolls” and “pools” have become competitive weapons, used as much to hold rivals to ransom or simply hold them up as to assure the “progress” spoken of in the constitution. Battles like those currently waged between Apple and Samsung have everything to do with property but very little to do with innovation. Yet even in this depressing example that exasperates judges, we can see evidence of alternative approaches. Apple’s computers, if not its phones, run on FLOSS (“free/libre open source software”), software which is compiled so that no-one can claim a controlling right in it. Apple’s underlying software (“BSD”), which anyone can use without interference from Apple, developed from “Unix”, initially the product of AT&T’s labs, but was dramatically advanced by contributions from university students, contributions to which, a seminal court ruling held, AT&T could not lay claim. In accordance with this decision, open source software has been built from the contributions of numerous programmers who surrender their code to the project, but not their ownership rights and the result has proved so robust that even Apple is willing to use it. And Samsung, too, runs its phones on the Android system, which, though supervised by Google, is itself an open source project.

Much of this is invisible to the consumer, who still must pay Apple’s and Samsung’s prices. But, apart from being technologically robust and open to anyone to use,

FLOSS has changed the relationship of programmers to their work and their employees. In accordance with the workplace law of 1900, people working on proprietary software must usually leave their contributions and interests behind if they leave the company that hired them, and often they must sign non-compete and non-disclosure agreements. Those who work with FLOSS have no such problem, they can take their work with them, or they can continue to contribute on whatever terms they choose. The success of FLOSS has also inspired related approaches to workplace knowledge. “Creative Commons”, a Silicon Valley organization, has developed a series of widely used licenses that allow people to license and share their copyright while limiting the controls that licensees can apply. Meanwhile, Twitter has developed an “Innovator’s Patent Agreement” encouraging companies to allow the original inventors they employ to limit the ways in which the employers can use patents. Though its effectiveness has been questioned, the plan in theory allows inventors to stop a company from using their patents as no more than tactical weapons in interfirm competition. In all, it may be that the sector that grew out of some of the most famous research laboratories, which in turn grew out of the enclosure of intellectual property in the nineteenth century, is now developing ways to limit the control and open access to such knowledge.

This alternative route seems increasingly popular and successful. Indeed, the contracts of which my students are becoming increasingly aware may be a sign not that corporate control is ever more effective, but that corporate control on certain fronts is in retreat and corporations are looking for legal reinforcements as much for intimidation as for justifiable control. Not only has digital technology made it harder to hold onto trade secrets or to secure intellectual property, but people working on digital products have found ways to resist the enclosures established by 1900 and to regain at least some of the freedom of labour and intellect of the journeymen of 1800.

References

- Baetens Jan (2001) *Le combat du droit d'auteur. Anthologie historique, suivie d'un entretien avec Alain Berenboom*, Paris, Les impressions nouvelles.
- Fisk Catherine L. (2009) *Working Knowledge: Employee Innovation and the Rise of Corporate Intellectual Property, 1800-1930*, Chapel Hill (NC), University of North Carolina Press ■