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WORKING KNOWLEDGE: EMPLOYEE INNOVATION AND THE RISE OF CORPORATE INTELLECTUAL PROPERTY, 1800-1930, by Catherine L. Fisk. University of North Carolina Press, 2009. 360 pp. Cloth $45.00.

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What do gunpowder, light opera, and road maps have in common? Each is produced through a commercial enterprise that, according to Catherine Fisk, exemplifies the nineteenth and early-twentieth century transformation of workplace knowledge into corporate intellectual property. By intertwining labor and business history with the legal history of intellectual property, Fisk builds her central argument that "corporate ownership of workplace knowledge came into existence as employment shifted from being a relationship where legal obligations were determined primarily by status . . . to being one where legal obligations are determined primarily by contract" (p.2). Modern intellectual property is, Fisk tells us, intrinsically a creature of employment law and practice. Her exploration of this joint history is a significant contribution to both fields.

The Du Pont company provides a through-line for Fisk's book. Founded in 1802 as a gunpowder manufactory, Du Pont built its business during its first decades on the secret chemical knowledge of its French founders. The papers of the Du Pont family, along with published opinions and court records of the cases litigated by the company, allow Fisk to trace the legal meanings and business practices surrounding workplace knowledge across her focal period, from 1800 to 1930. In the first decades of the nineteenth century, the family-run enterprise relied on "secrecy and reputational sanctions" to guard against the diffusion of its knowledge to competitors (p.45). The Du Ponts separated the steps of gunpowder production into different buildings, limiting the ability of their own employees to understand the entire process (and guarding against explosions), and also provided employee housing in a "remote and self-contained enclave"

outside of Wilmington, Delaware, allowing the owners to better control their employees' interactions with outsiders (p.46). In 1808, when a competitor sent an agent to lure away Du Pont workers and obtain some of the manufacturing equipment, the Du Ponts rapidly learned of the interloper, beat him severely, and had him prosecuted for theft (pp.46-48). The Du Ponts' self-help was more effective than the law – the agent was acquitted of criminal charges, and turned around and sued the company for malicious prosecution. A later competitor's attempt to buy information from a Du Pont powderman led the company to threaten the competitor with, not litigation, but reputational sanctions through publication of the correspondence with the powderman, which the company eventually did in a pamphlet called "Villainy Detected" (pp.50-53).

One hundred years later, the Du Pont company underwent a massive reorganization intended to transform the family business into a "large, vertically integrated, and centrally administered firm" (p.196) – in short, a modern corporation using modern management practices. Corporate R&D became part of the bureaucracy, concentrated in two laboratories (p.196). Instead of focusing on the villainy of their competitors, the Du Ponts focused on legal control of their own employees through written employment agreements requiring employees to acknowledge the company's ownership of all "inventions, improvements or useful processes" (p.197). In 1914, the company sued a departing chemist, seeking to prevent him from using knowledge the company claimed as trade secrets (p.203). Rather than the Du Ponts themselves intervening with fists, their patent attorney hired a private detective to infiltrate the new business of the former employee and collect evidence (p.206). While the litigation was inconclusive, it motivated the company to tighten all its employee contracts as a now-useful part of its business strategy (p.206). Its creative employees, meanwhile, had to reconfigure their middle-class status. Their hallmark as "free labor," the ability to exploit their own ideas and inventions, and to leave to develop their own businesses, had been removed. Instead, scientists and engineers employed by Du Pont and other similar corporations had to rely on the social markers of education, income, and consumption to designate their class status, becoming what Fisk calls the "new middle class" of the consumer society (p.245).

The Du Pont story exemplifies the transformation of the American workplace from the small shops of the early republic and Jacksonian period to the modern integrated corporation. Drawing on her expertise in labor and employment law, Fisk adds a much-needed perspective to the historical development of "intellectual property" as a concept. (The term was first

used in a published judicial opinion in 1845) (p.36). How did workplace knowledge change from something so unownable that the Du Ponts in 1808 had no legal basis to stop employees and their knowledge from walking out the door, to a taken-for-granted corporate asset, routinely protected by legally enforceable contracts by 1930? Part of the answer is the steady expansion of intellectual property itself, particularly in the coverage of copyright and trade secrets, topics to which Fisk devotes several chapters. The domain of "workplace knowledge" expanded. But Fisk goes beyond intellectual property doctrines to detail the accompanying change in the workplace itself. While Fisk steadfastly refuses to give a "monocausal explanation" in answer to her fundamental question (p.6), she argues for a list of contributing factors for this joint development: the ideology of free labor and its interaction with corporate power, changing understandings of the middle class, the transcendence of contract discourse, and the development of a consumer society (pp.6-11). Ultimately, Fisk places most of her emphasis on the "growth of corporations and the rapid spread of office and factory work" with an accompanying "'systemization of knowledge'" and "bureaucratic employment practices" (pp.240, 246-47). Together with the triumph of contract over status to define employer-employee relations, the new workplace supported the "commodification" of creative labor and the transformation of the creative entrepreneur of the 1830s into the corporate "man in the gray flannel suit" of the 1930s.

Fisk presents her historical narrative as a declension story: "For highly skilled, talented, and innovative workers, the move from status to contract was one from entrepreneurship to dependence" (p.2). It is a story which echoes one previously told by labor historians about the loss of autonomy by those who labored with their hands.[1] Fisk's story describes the uncomfortable similarity between the fate of manual labor and that of mental labor. These "mechanics" begin the nineteenth century as entrepreneurs, the "best case" for free labor ideology (p.249), owning the fruits of their hands and minds. At the end of her story, however, skilled workers are middle management drones, blocked from starting their own business, or even from moving to another corporate employer, by their inability to use any of their ideas or knowledge outside their employing corporation. Their reward instead is steady employment, compensation sufficient to support a suburban middle-class lifestyle, and internal recognition through financial rewards and attribution. Fisk's detailed knowledge of employment law allows her to draw the connection between the expansion of master-servant law and intellectual property law. Just as the knowledge of creative workers was unownable in the early nineteenth century, such men had been themselves unownable.[2] They were not

included within the narrow legal category of "servant," with apprentices and domestic help. By the end of Fisk's period, not only had the legal ownership of knowledge expanded through the developing law of intellectual property, but the category of servant had swallowed mental workers and manual laborers alike, destroying the previous legal distinction which had supported a class distinction.

To explain her argument, Fisk reaches beyond Du Pont's chemical processes and machines to artistic labors. The starting point of her story thus includes not only gunpowder but also the theater. Today's noncompete agreements can be traced in their earliest form, according to Fisk, to judicial orders prohibiting a performer from working for another theater, adopting an English case enjoining an opera singer from changing stages (pp.138, 160-62). Further, authors and adaptors of plays fought with theater owners for copyright control of works, and long before the work-for-hire doctrine was established by statute in 1909, a case involving the American adaptation of Gilbert and Sullivan's *Mikado* established the principal that ownership of creative works could be shifted to an employer through contract, even in the absence of formal assignment of copyright (p.158). Talent itself could be enjoined and transferred, by law and by contract, thereby undercutting earlier understandings of free labor as including the ability to quit employment and start anew, and the ability to own and control one's own work product. An opera singer, it turns out, is the legal antecedent of the man in the gray flannel suit working for Eastman Kodak in Rochester, New York (another of Fisk's corporate examples) (pp.188-196), or for the twentieth century diversified Du Pont company in Wilmington.

While accurately claiming to create "an intellectual history of legal doctrines and a social history of ideas," Fisk sells herself short. One of her book's great strengths is that it is as much a story of the particular history of the "mechanic" as a type of working man as it is a story of ideas. She mines four corporate archives in addition to the Du Pont family papers to discern actual workplace knowledge practices, combining the results with the traditional tools of legal history – case law, treatises, and court records. She grounds each chapter in detailed stories, fleshed out from legal disputes. In her concluding chapter, Fisk introduces the first American road maps as corporate intellectual property, the result of the early-twentieth-century understandings of talent and business management. From its founding in 1864, the Rand McNally corporation built its business on the long-term employment of numerous authors, managing creativity to sell maps and guides (p.227). By the turn of the twentieth century, it

"resembled the evolution of corporate research laboratories" in its organization, recruitment of creative talent, absolute ownership of all employee product, and substitution of "an internal economy of credit and reputation" for employee ownership of their work product (p.230). The "Father of Road Maps," John G. Brink, worked for Rand McNally as an independent contractor in the 1910s and 1920s, but all map copyrights were in the name of Rand McNally. When in the late 1920s the company decided to replicate its success in providing the first automobile travel maps with "air trails maps" for the new aviators, those maps were created and published without any individual authorship credit (pp.232-34). The author, just like the inventor, had been subsumed within the corporation.

Fisk's very readable and well-organized book will be of great interest to those specializing in contemporary aspects of intellectual property and labor and employment law, as well as to historians of labor, business, and technology. Less obviously, she speaks to other scholarly debates. While Fisk's focus is the skilled artisan, there are interesting parallels between her story and the development of the professions in the nineteenth century. During this period, doctors and lawyers struggled to define themselves based on specialized knowledge, a process which, for doctors, depended on establishing a property right in that knowledge. In the late nineteenth century, doctors bitterly claimed that their subpoenaed appearances in courtrooms as expert medical witnesses without compensation constituted theft of their "professional knowledge, which forms their capital in business.[3] Some doctors went so far as to refuse to testify without proper payment, risking contempt of court sanctions. In these legal battles, the opponent was not the corporation, but the state. Fisk's work provides an opportunity to reconsider the development of the medical examiner as a civil servant, and in so doing, to broaden her narrative beyond explicit reliance on intellectual property doctrines to the other ways of articulating property in knowledge in the legal context.

Her story of the transformation of workplace knowledge can also be read as a detailed case study that tests Morton Horwitz's theory of transformation of American law in the nineteenth century from the dominance of property to the dominance of contract.[4] Fisk's work embellishes this broad theme in two ways. It adds evidence to the rise of contract discourse by detailing the effects of reinterpreting the work of skilled, specialized producers through contractual understandings of their relationship to their mental efforts and to the firms which hired them. It also expands our understanding of the historical development of legal theories of property by tying one particular type of property, intellectual

property, precisely to the rise of contract. Fisk also deliberately sets her story of the "mechanic" as part of the intellectual history of free labor ideology as a guiding, but troubled, principle of American self-understanding, thus joining scholars such as Sean Wilentz and Christopher Tomlins in understanding the mutually constitutive transformation of American labor, law, and business in the late-nineteenth and early-twentieth century, and adding the "thinking man" to the "working man" in that history.[5] Fisk's inclusion of the development of a consumer society as a causal factor in the changes she traces is provocative and plausible, but steps beyond the strength of her careful research, leaving it a less convincing part of her argument – merely because other parts are made with such specificity and strength. There is room here for further work by Fisk or others. As Fisk suggests, she also offers food for thought to those considering commodification in the context of twenty-first century intellectual property debates (pp.2, 254-55). The commodification, or marketization, of "everything",[6] including invention and mental labor, is not, Fisk reminds us, a twenty-first or even twentieth century phenomenon. Nor, as Fisk has so carefully shown, is it a simple matter of new statutes or tweaked legal doctrines. Practice and customs in the "social setting of work" in multiple, diverse enterprises, from the stage to the factory floor, as well as "changes in the nature of human personality" need to be considered in contemporary policy discussions (p.254).

ENDNOTES

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[1] Fisk cites this literature in Introduction, note 2, and Part I, note 1. A further case study is Hugh G.J. Aitken, SCIENTIFIC MANAGEMENT IN ACTION: TAYLORISM AT WATERTOWN ARSENAL, 1908-1915 (Princeton University Press, 1985 [1960]).

[2] As Fisk recognizes, the use of "men" is appropriate, as her characters are nearly all men – with the notable exception of her discussion of Laura Keene, an actress, playwright, and theater manager (pp.143-49). The characters are also nearly all European Americans. Fisk makes a tantalizing reference to the failure of courts to take up postbellum sharecropper decisions into the mainstream of employee mobility jurisprudence, suggesting an avenue for future work regarding the racial dimensions of the class story she relates (p.163).

[3] James C. Mohr, DOCTORS AND THE LAW: MEDICAL JURISPRUDENCE IN NINTEENTH-CENTURY AMERICA (Johns Hopkins University Press, 1996 [1993]), 200.

[4] Morton J. Horowitz, THE TRANSFORMATION OF AMERICAN LAW, 1870-1960: THE CRISIS OF LEGAL ORTHODOXY (Oxford University Press, 1992).

[5] Christopher L. Tomlins, LAW, LABOR, AND IDEOLOGY IN THE EARLY AMERICAN REPUBLIC (Cambridge University Press, 1993); Christopher L. Tomlins, THE STATE AND THE UNIONS: LABOR RELATIONS, LAW, AND THE ORGANIZED LABOR MOVEMENT IN AMERICA, 1880-1960 (Cambridge University Press, 1985); Sean Wilentz, CHANTS DEMOCRATIC: NEW YORK AND THE RISE OF THE AMERICAN WORKING CLASS, 1788-1850 (Oxford University Press, 1984).

[6] A recent collection of essays from the large recent literature critiquing the commodification of seemingly everything is Gordon Laxer and Dennis Soron (eds.), NOT FOR SALE: DECOMMODIFYING PUBLIC LIFE (Broadview Press, 2006).

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