

Working Knowledge: Trade Secrets, Restrictive Covenants in Employment, and the Rise of Corporate Intellectual Property, 1800-1920

by
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*[E]quity has no power to compel a man who changes
employers to wipe clean the slate of his memory.¹*

A foundation of the modern law of intellectual property is that firms own some of the ideas that exist in the minds of their employees. Ownership of employee knowledge is a legal construct that is now an accepted part of our culture and economy. Its development and enforcement in the nineteenth century, however, was a prolonged and painful contest between the perceived exigencies of economic development and the ideology of “free labor,” and between the norms of artisan production and the expansion of the factory system. These very real economic and legal struggles were fought out partly at the highly abstract level of competing habits of legal discourse about property and contract, and partly in the daily

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1. *Peerless Pattern Co. v. Pictorial Review Co.*, 132 N.Y.S. 37, 39 (App. Div. 1911).

lives of employees and firms. This is the story of the struggles that created the modern law.

Today's legal wrangling over employee recruitment occurs within the framework of doctrinal categories that developed when today's most salient concepts and practices—"corporate control of intellectual property" and "management of human capital"—were almost unimaginable. The practices were unimaginable because corporations in the modern form, as institutions capable of amassing enormous wealth and systematically conducting business activity, did not exist. The concept of "intellectual property" did not exist either as a field of law or as a form of property right.² Today's practices and doctrines developed in the context of radical changes in the American law and workplace culture, which were brought about by the nineteenth-century industrial revolutions. The conflict between employee freedom and corporate control of intellectual property sharpened as courts realized the importance of knowledge to economic development and began to recognize workplace knowledge as an asset of the firm rather than an attribute of the employee.

The invention of the trade secret doctrine in the mid-nineteenth century enabled employers to enjoin revelation of secret information by current or former employees. At the same time, courts expanded

2. Although today's disputes are not simply a phenomenon of the Information Revolution's emphasis on intellectual property and a technology-generated burst of employee mobility, these phenomena do shape the terms of the debate. See, e.g., William M. Carley, *Secrets Suit: What Did He Know?*, WALL ST. J., Jan. 19, 1998, at B1; Terzah Ewing, *Dow Chemical Sues GE over Trade Secrets*, WALL ST. J., Apr. 2, 1997, at A3; Erik Larson, *Modern Operandi: In High-Tech Industry, New Firms Often Get Fast Trip to Courtroom; Silicon Valley Is a Hotbed of Trade-Secrecy Suits Against Former Workers*, WALL ST. J., Aug. 14, 1984, available at 1984 WL-WSJ 208449; Brandon Mitchener, *Lopez Charged with Betraying GM Secrets to VW*, WALL ST. J., Dec. 12, 1996, at A3; Emily Nelson, *Wal-Mart Accuses Amazon.com of Stealing its Secrets in Lawsuit*, WALL ST. J., Oct. 19, 1998, at B12; Emily Nelson & George Anders, *Wal-Mart, Amazon.com Settle Fight over Recruitment and Trade Secrets*, WALL ST. J., Apr. 6, 1999, at A2; Gabriella Stern & Brandon Mitchener, *VW Agrees to Give GM \$100 Million to Settle Lopez Trade-Secret Lawsuit*, WALL ST. J., Jan. 10, 1997, at A3; see generally ROBERT B. REICH, *THE WORK OF NATIONS: PREPARING OURSELVES FOR 21ST CENTURY CAPITALISM* (1991) (describing the "new economy" as a "global web" of "symbolic analysts" who are (highly paid) "problem solvers," "problem identifiers," and "strategic brokers" with little loyalty to individual corporations or nations); ANNALEE SAXENIAN, *REGIONAL ADVANTAGE: CULTURE AND COMPETITION IN SILICON VALLEY AND ROUTE 128* (1994) (explaining that the highly mobile workforce in Silicon Valley contributed to the rapid diffusion of new technologies, innovation, and the large number of start-up firms); John K. Markey & James F. Boyle, *New Crimes of the Information Age*, 43 BOSTON BUS. J., May-June 1999, at 10; Lester C. Thurow, *Poaching Patents*, 19 CAL. LAW., Nov. 1999, at 23 ("In today's economy, skills and knowledge are becoming the only sources of a sustainable, long-term competitive advantage in the corporate world.").

the permissible uses of post-employment covenants not to compete so as to prevent dissemination of knowledge. Together, these doctrinal developments created a new obligation—sometimes articulated as an express or implied contract, and sometimes expressed as a “duty of trust and confidence”—not to use knowledge acquired on the job elsewhere. The nineteenth-century law of trade secrets and restrictive covenants thus defined the bounds of permissible entrepreneurship. Equally as significant, these doctrines both generated and reflected a profoundly new perspective on the nature and control of workplace knowledge.³

Two questions dominated the nineteenth-century development of this law at the intersection of intellectual property and employment: (1) What legitimate interests did the employer have in maintaining monopoly control over knowledge? (2) How should that interest be reconciled with the employee’s right (or obligation) to work and with the public’s interests in free competition and in the fruits of everyone’s work? Judges and lawyers addressed these issues in a period of rapid social, economic, and technological changes that followed the disappearance of the artisanal relationship among the master, the journeyman, and the apprentice. Legal recognition of trade secrets and covenants not to compete imposed stricter controls on the use and dissemination of knowledge than had existed in the pre-industrial artisanal workplace. This legal change to the modern corporate management of intellectual property.

Yet, the development of the concept of an employer’s ownership interest in employee knowledge was not without difficulties. Courts, treatise-writers, and lawyers did not immediately understand how

3. Two other developments were also important in this regard: the evolution of the employer’s shop right in employee patents for inventions and the evolution of the work-for-hire concept in copyright. Both the shop right and the work-for-hire doctrine grant intellectual property rights to employers in the creative products of employees based on the employer’s right to control and benefit from all aspects of the employees’ work. I have dealt with the ownership of workplace knowledge issues at the intersection of patent law and employment law elsewhere. See, e.g., Catherine L. Fisk, *Removing the “Fuel of Interest” from the “Fire of Genius”: Law and the Employee-Inventor, 1830-1930*, 65 U. CHI. L. REV. 1127 (1998).

Although a thorough study of the origins of the work-for-hire doctrine has not been published, related issues are probed in the scholarship on the “invention” of authorship and the development of copyright law. See generally PAUL GOLDSTEIN, *COPYRIGHT’S HIGHWAY: THE LAW AND LORE OF COPYRIGHT FROM GUTENBERG TO THE CELESTIAL JUKEBOX* (1994); MARK ROSE, *AUTHORS AND OWNERS: THE INVENTION OF COPYRIGHT* (1993); *THE CONSTRUCTION OF AUTHORSHIP: TEXTUAL APPROPRIATION IN LAW AND LITERATURE* (Martha Woodmansee & Peter Jaszi eds., 1994).

inchoate knowledge that formerly would have been considered an attribute of the skilled craftsman could be an asset of a firm. Initially, therefore, they focused on the tangible embodiments of technological creativity—the blue prints, the notebooks containing formula, the machines—rather than on abstract knowledge itself. Even when they did begin to recognize the possibility of property in ideas or knowledge, it was an unpalatable prospect to enjoin a man not to use the contents of his brain in a society infused with an ideology of free labor (at least for some).

This significant chapter in the history of intellectual property and employment law raises historiographic issues about the role of law in economic development and the importance of law as an ideological structure shaping the terms of the free labor debate.⁴ Existing scholarship on the history of trade secrets and noncompete agreements has focused principally on evolving judicial, business, and public attitudes toward competition.⁵ With some significant variations on the theme, the usual story goes like this. At times, the courts favored robust competition and regarded with hostility contractual restrictions on the ability to practice a trade. In sixteenth-century England, this hostility stemmed from concern about the economic and political power of the guilds and the cities' control of

4. This is a debate among legal historians about the extent to which courts used law instrumentally to promote economic development, *see e.g.*, MORTON J. HORWITZ, *THE TRANSFORMATION OF AMERICAN LAW, 1780-1860* (1977), and the extent to which law was a more autonomous ideological structure that developed according to its own logic, *see e.g.*, CHRISTOPHER L. TOMLINS, *LAW, LABOR AND IDEOLOGY IN THE EARLY AMERICAN REPUBLIC* (1993). Part of the debate also concerns how law was a force shaping the actions of business and labor, and vice versa. *See, e.g.*, WILLIAM E. FORBATH, *LAW AND THE SHAPING OF THE AMERICAN LABOR MOVEMENT* (1991). As I hope to show, there is considerable support for all of these positions in the history of intellectual property in the workplace. More interesting than the question whether law drove the market or vice versa is the process by which courts characterized facts and developed legal categories that made the application of law to fact seem determinate when in fact it was anything but.

5. *See, e.g.*, 8 WILLIAM S. HOLDSWORTH, *A HISTORY OF ENGLISH LAW* 56-62 (1926); HERBERT HOVENKAMP, *ENTERPRISE AND AMERICAN LAW, 1836-1937*, at 272-91 (1991); MICHAEL J. TREBILCOCK, *THE COMMON LAW OF RESTRAINT OF TRADE: A LEGAL AND ECONOMIC ANALYSIS* 4-29 (1986); Harlan M. Blake, *Employee Agreements Not to Compete*, 73 *HARV. L. REV.* 625, 630-46 (1960); *see also* 1 KURT H. DECKER, *COVENANTS NOT TO COMPETE* 22-26 (2d ed. 1993) (discussing cases from the fifteenth to the eighteenth centuries in England); Milton Handler & Daniel E. Lazaroff, *Restraint of Trade and the Restatement (Second) of Contracts*, 57 *N.Y.U. L. REV.* 669, 721-31 (1982) (and sources cited therein). On the rhetoric of the judicial and legislative debates about competition, *see generally* RUDOLPH J.R. PERITZ, *COMPETITION POLICY IN AMERICA, 1888-1992: HISTORY, RHETORIC, LAW* (1996).

trades that effectively restricted the availability of products.⁶ In America, without the tradition of guild and city control of trade, adherence to the English precedents' hostility toward restrictions was a logical response to the endemic shortages of skilled labor and technological know-how.⁷

This variant of a dominant thesis of nineteenth-century legal historiography—that judges used law to promote economic development⁸—does, in some respects, account for the treatment of trade secrets and restrictive covenants. In devising new rules to govern ownership of ideas and skill, judges, treatise-writers, and lawyers perceived the issue as one of economic policy and used the law to achieve certain economic goals. In enforcing contracts—at first, only if they were express, and later by recognizing such contracts as implied—to maintain secrecy of the employer's methods, courts created a new species of “intellectual” property at the expense of older notions of artisanal independence. This was undoubtedly a case of “creative destruction” of one form of economic privilege to create another—the corporate intellectual property.⁹ But, unlike in other areas, such as changes in water rights and legislatively conferred bridge charters, this was not a self-conscious process of trading one form of property right for another. Here, a major part of the legal

6. 8 HOLDSWORTH, *supra* note 5, at 57. On the craft guilds in the late seventeenth and early eighteenth centuries, see EDWARD P. CHEYNEY, AN INTRODUCTION TO THE INDUSTRIAL AND SOCIAL HISTORY OF ENGLAND, 126-38 (rev. ed. 1920), CHARLES GROSS, THE GILD MERCHANT (1890), 3 EPHRAIM LIPSON, THE ECONOMIC HISTORY OF ENGLAND 10-183 (7th ed. 1937) (on select industries), and 4 LIPSON at 330-51 (on the craft guilds in the sixteenth to eighteenth centuries). On the scholarly dispute of a century ago as to the role of law in diminishing the power of the English craft guilds from the late middle ages until the sixteenth century, see SHEILA KRAMER, THE ENGLISH CRAFT GILDS AND THE GOVERNMENT: AN EXAMINATION OF THE ACCEPTED THEORY REGARDING THE DECAY OF THE CRAFT GILDS (2d prtng. 1968). One ought not take for granted the nineteenth-century perspective on the operation of the medieval craft guilds; the obsession with economic theory, laissez faire, and fair competition was the intellectual currency of the nineteenth century, not necessarily the fifteenth. See Gervase Rosser, *Crafts, Guilds and the Negotiation of Work in the Medieval Town*, PAST & PRESENT, Feb. 1997, at 3, available at 1997 WL 17730943.

7. On the potency of the free labor ideology in nineteenth-century America, see generally ERIC FONER, FREE SOIL, FREE LABOR, FREE MEN: THE IDEOLOGY OF THE REPUBLICAN PARTY BEFORE THE CIVIL WAR (1995); JONATHAN A. GLICKSTEIN, CONCEPTS OF FREE LABOR IN ANTEBELLUM AMERICA (1991); ROBERT J. STEINFELD, THE INVENTION OF FREE LABOR: THE EMPLOYMENT RELATION IN ENGLISH AND AMERICAN LAW AND CULTURE, 1350-1870 (1991).

8. See generally HORWITZ, *supra* note 4; J. WILLARD HURST, LAW AND THE CONDITIONS OF FREEDOM IN THE NINETEENTH-CENTURY UNITED STATES (1956).

9. See generally STANLEY I. CUTLER, PRIVILEGE AND CREATIVE DESTRUCTION: THE CHARLES RIVER BRIDGE CASE (Repr. ed. 1990).

change was a gradual shift to recognizing knowledge, especially inchoate knowledge, as a form of property, and then recognizing that property as belonging to someone other than the employee who possessed it.

The conventional view of this law as the precursor of modern antitrust and economic policy fails to illuminate certain aspects of the history of trade secrets and restrictive covenants material. As applied to trade secrets and restrictive covenants, an exclusive focus on competition policy is anachronistic, reflecting the economic concerns of the late-century laissez-faire era more than the perspective of the antebellum period. The antebellum concerns about monopoly and free trade were different from the Gilded Age anxieties.¹⁰

By contrast, in the early to middle nineteenth century, courts and firms assessed firm ownership of workplace knowledge as much in ethical as in economic terms. The moralistic tone in which judges, litigants, and businesses framed the debate seems odd to the modern sensibility, which is accustomed to seeing these issues in terms of economic (dis)incentives to hire and innovate, the regulation of a market in technology, and the economic advantages of a rapid diffusion of information.¹¹ This aspect of trade secret and restrictive covenant law is a product of the “moral economy” of the early nineteenth century, in which notions of honor, trust, and the moral value of work (“industry”) loomed far larger than they did at the end of the century.

The development of this doctrine also forged in the law a new epistemology of technical know-how. Judges, lawyers, employers, and workers based their legal arguments about the nature of workplace knowledge on views that were very different from ours. In creating the concept of “intellectual property” in a rapidly industrializing society, courts worked out the legal consequences of

10. Most of the extant scholarship on the history of restrictive covenants relies to some extent on a number of economic histories written shortly after the turn of the twentieth century. These histories studied the guild and city regulation of trade in pre-industrial England from the implicit or explicit perspective of legitimating the Progressive-era legal regulation of monopolies and large corporations by showing extensive economic regulation to have been a feature of the common law for centuries.

11. Much modern scholarship on employee “human capital” and intellectual property focuses on the legal issues from the perspective of economics. *See, e.g.,* Edmund W. Kitch, *The Law and Economics of Rights in Valuable Information*, 9 J. LEG. STUD. 683 (1980); Stewart E. Sterk, *Restraints on Alienation of Human Capital*, 79 VA. L. REV. 383 (1993) (arguing that the justifications for limited enforceability of restrictive covenants are unpersuasive).

the increasingly social nature of the production of technological knowledge.¹² Changing assumptions about the duties of master and servant left their imprint on the law's handiwork over the course of the century, as did the evolving judicial understanding of the value of workplace knowledge and the desirability of its dissemination. The expansion of scientific and technological research at universities and the first corporate efforts to systematize the development of new technology through research and development also made their mark on the law.¹³ These profound changes in the organization of knowledge both contributed to the new legal rules and were made possible because judges and lawyers were prepared to regard knowledge as a business asset to be bought, managed, and sold.¹⁴

The doctrinal developments are only part of the story. The law reflected in the treatises and cases very likely did not reflect how businesses and workers thought about their own situations. Of course, a disjunction between "the law on the books" and "the law in action" is not news to anyone with a passing acquaintance with recent law and society scholarship (or to one who recalls the era of the national fifty-five miles-per-hour speed limit). However, a particular ambiguity characterizes the relationship between the law and the practice of trade secrets and restrictive covenants. It has been contended, for example, that the Silicon Valley phenomenon of high

12. I argue that the social context in which scientific or technological knowledge is developed shapes the legal system's regard for the value and rightful use of the knowledge. A related point has been made by a historian of science who has argued that the social context of the development of scientific knowledge in the seventeenth century affected perceptions of veracity. See STEVEN SHAPIN, *A SOCIAL HISTORY OF TRUTH: CIVILITY AND SCIENCE IN SEVENTEENTH-CENTURY ENGLAND* 5, 40-41 (1999).

13. On the development of the modern forms of organization of academic knowledge, see generally *THE ORGANIZATION OF KNOWLEDGE IN MODERN AMERICA, 1860-1920* (Alexandra Oleson & John Voss eds., 1979). On the development of modern industrial research and development, the work of David Hounshell stands out. See DAVID A. HOUNSHELL, *FROM THE AMERICAN SYSTEM TO MASS PRODUCTION, 1800-1932* (1984); see also sources cited *infra* note 105; Naomi R. Lamoreaux & Kenneth L. Sokoloff, *Inventors, Firms and the Market for Technology in the Late Nineteenth and Early Twentieth Century United States*, in *LEARNING BY DOING IN FIRMS, MARKETS, AND NATIONS* (Naomi R. Lamoreaux et al. eds., 1999).

14. A history of trade secrets and restrictive covenants presents two particular legal-historiographic challenges. First, the notion that these cases are about "owning knowledge" reflects the view, by now a cliché of the Information Age, that knowledge is economically valuable and that firms must "manage" knowledge—which is usually treated as an abstraction. While nineteenth-century lawyers were certainly capable of significant feats of abstraction, they did not endeavor to generalize from the synthesis of trade secrets and restrictive covenants concepts any general understanding of who owned workplace knowledge. See generally JAMES BOYLE, *SHAMANS, SOFTWARE & SPLEENS: LAW AND THE CONSTRUCTION OF THE INFORMATION SOCIETY* (1996).

labor mobility and rapid diffusion of new technology occurred in California, rather than elsewhere, for two reasons. First, California's restrictive law of trade secrets was *not* enforced as it is written.¹⁵ Second, California's flat prohibition on post-employment restrictive covenants was enforced *exactly* as written.¹⁶

The debate about the effect of the law regarding employee intellectual property on the Silicon Valley phenomenon suggests that one cannot begin to understand the nature and operation of the law of trade secrets and post-employment restrictive covenants without studying both the doctrine in the books and the practices of firms. Pending a more comprehensive study of corporate archives, I studied a sample of several large and small firms in a number of different industries, including explosives/chemistry (E.I. du Pont de Nemours Company ("Du Pont")), railroads (the Pennsylvania Railroad and the Reading Railroad), textiles (two medium-sized Pennsylvania-based firms), and steel (Lukens Steel Co.).¹⁷ My principal source in this Article is the records of the Du Pont company, which was the only one of these firms that kept well-archived records showing that it paid systematic attention to controlling the use of its employees' knowledge. The Du Pont company, from its founding in 1802, was acutely aware of the value of its employees' knowledge and intellectual capital. As such, and because of its well-documented records, Du Pont is an ideal case study. Precisely because of its attention to these issues, Du Pont is not representative of the firms in that era. Nevertheless, Du Pont does provide some insight into how the few firms that did care about ownership of employee human

15. See ALAN HYDE, WORKING IN SILICON VALLEY: ECONOMIC AND LEGAL ANALYSIS OF A HIGH VELOCITY LABOR MARKET (forthcoming 2001) (manuscript on file with author).

16. See generally Ronald J. Gilson, *The Legal Infrastructure of High Technology Industrial Districts: Silicon Valley, Route 128, and Covenants Not to Compete*, 74 N.Y.U.L. REV. 575 (1999).

That courts are usually unwilling to enforce post-employment restrictions in California does not mean that employers do not insist that employees sign them anyway. Anecdotal evidence and a scattering of cases suggest that employers see an *in terrorem* value of such contracts, regardless of their enforceability. See, e.g., *Application Group, Inc. v. Hunter Group, Inc.*, 72 Cal. Rptr. 2d 73 (Ct. App. 1998); David Maharaj, *Aetna Discards "Non-Compete" Tactic for Retaining Workers*, L.A. TIMES, Feb. 10, 2000, at C1 ("Even though having workers sign so-called non-compete contracts is illegal in California, some employers use the threat of enforcing them to dissuade their employees from leaving. Non-compete contracts, experts say, have become more popular among employers as workers increasingly jump from one job to another, taking their training and knowledge with them.").

17. All of these archives are available at the Hagley Museum & Library, Wilmington, Delaware.

capital used the law to protect their investment in developing intellectual property.

This Article is organized chronologically. Part I begins with the legal regime at the beginning of the nineteenth century, when covenants not to compete were not yet used to control employee knowledge and trade secrets did not exist as a legal concept. After examining the seeds of the trade secret rule in treatises and a few cases, and the dominant approach to contractual restraints on the practice of a trade articulated in a seminal English case, Part I looks to how Du Pont adapted itself to the absence of legal protection for its technology in the early nineteenth century. It examines in detail two episodes in which Du Pont resorted unsuccessfully first to the law and, later, to public humiliation of disloyal employees and competitors to assert the illegitimacy of its competitors' efforts to get technology by enticing away Du Pont employees. Part II examines the first recognition of using trade secrets and restrictive covenants doctrines to control employee knowledge, beginning shortly after the Civil War and continuing until the 1880s. Part II also examines the scant records of Du Pont practice in this era and compares it with anecdotal evidence of information-sharing among other firms. Part III covers 1890-1920, which witnessed the major transformation of these doctrines to the form they have today.

After describing the establishment of the obligation to guard trade secrets as an incident of all employment relations and the expansion of the uses of restrictive covenants to guard company secrets, I return to Du Pont. Du Pont brought a trade secret suit against Walter Masland, a research chemist who had been in charge of the company's effort to develop artificial leather and who left to start his own artificial leather business.¹⁸ Interestingly, although Du Pont was a pioneer in corporate research and development and a catalyst of legal change in bringing the *Masland* suit, the company integrated into its employment practices only some of the new rules that had developed. Thus, Du Pont both led and lagged behind the wave of legal change chronicled in this Article. It is my hope to show how the "law"—doctrines and institutions—simultaneously constitutes and is constituted by social practices and, ultimately, by how we understand the line between our "selves" and the world in which we live and work.

18. *E.I. du Pont de Nemours Powder Co. v. Masland*, 216 F. 271 (E.D. Pa. 1914).

I. Secrets and Contracts, 1800-1860

A. The Legal Doctrines Restricting Dissemination of Workplace Knowledge, 1800-1860

At the beginning of the nineteenth century, the law recognized few ways that employers could restrict their employees' use of knowledge in subsequent employment. Enticement prohibited hiring away another's employee, but it did not prevent a free employee from leaving and taking his knowledge with him.¹⁹ An action for enticement lay irrespective of whether the employee possessed any valuable knowledge.²⁰ Enticement protected the employer's right to the employee's labor, not to his or her knowledge. The existence of the action reflected judicial awareness of the economic costs of employee mobility. But, because employees could, at the end of a term of employment, freely depart with whatever skill and knowledge they had acquired, there was no legal protection for the value of employee knowledge.

Legal regulation of artisanal work relations explicitly contemplated that the apprentice eventually would become a journeyman or a master and, as such, would be free to use all knowledge that he had acquired. Although courts enforced covenants not to compete in connection with the sale of a business, they did not allow masters to extract them from apprentices.²¹

19. *Boston Glass Manufactory v. Binney*, 21 Mass. (4 Pick.) 425, 428 (1827); John Nockleby, Note, *Tortious Interference with Contractual Relations in the Nineteenth Century: The Transformation of Property, Contract, and Tort*, 93 HARV. L. REV. 1510, 1514-15 (1980).

20. See, e.g., TAPPING REEVE, *THE LAW OF BARON AND FEMME, OF PARENT AND CHILD, GUARDIAN AND WARD, MASTER AND SERVANT AND OF THE POWERS OF THE COURTS OF CHANCERY* 536-37 (3d ed., 1862, repr. ed. 1970) ("Whenever a servant is enticed from his master's service, the master is entitled to his action of trespass on the case, with a per quod.").

21. In *A HISTORY OF ENGLISH LAW*, Holdsworth states that, beginning in the early seventeenth centuries, courts allowed masters to restrain newly freed apprentices from using their "trade secrets" to compete, although it is unclear from the text or the single citation whether this was a widely accepted rule, and there is no mention of how "trade secret," as he called it, was defined. 8 HOLDSWORTH, *supra* note 5, at 58. Other scholarship on apprenticeship notes the hostility that courts showed toward the efforts of masters to restrict competition from persons who had completed apprenticeships and were thus fully entitled under the guild system to make full use of the "mystery" in which they had been instructed. See, e.g., CHEYNEY, *supra* note 6, at 133.

On the role of apprenticeship contracts and the duty to guard the master's secrets in fostering technological innovation in pre-industrial Europe, see S.R. Epstein, *Craft Guilds, Apprenticeship, and Technological Change in Preindustrial Europe*, 58 J. ECON. HIST. 684, 703-04 (1998).

In the pre-industrial economy, craft knowledge was transmitted through families or from master to apprentice. The secrecy of recipes and techniques that passed from generation to generation enabled a family or a firm to gain a reputation and to retain exclusive control of production.²² Apprenticeship indentures recognized the value of guarding secrecy while ensuring the passage of knowledge by specifying that the master was to instruct the apprentice and to reveal his “mystery” to him, and, in return, the apprentice pledged to keep these techniques secret during the term of the apprenticeship.²³ As the concentration of production associated with industrialization eliminated the possibility of owning a workshop in most trades, the master-apprentice relationship eroded and soon was no longer the dominant form of work organization.²⁴ One of the most significant consequences of the decline of the artisan relationship by which the master was obligated to train the apprentices was a change in the way that knowledge was transmitted among generations and within trades.²⁵ The mutual obligations to instruct and to guard the secrets of the craft were eventually supplanted by a new set of rules.

The replacement of the artisanal system of controlling dissemination of knowledge by the combination of patents, trade secrets, and contracts was gradual. The class of employees whose

22. W.J. RORABAUGH, *THE CRAFT APPRENTICE: FROM FRANKLIN TO THE MACHINE AGE IN AMERICA* 32-33 (1986).

23. The duty of the apprentice to guard the master's secrets was a standard term included in form apprenticeship agreements. *See id.* One such form agreement, executed for a boy apprenticed in 1829 to William Whittaker & Sons of Philadelphia, a textile mill, stated that the boy, Henry Barber, “doth covenant and promise his said master faithfully to serve, his secrets to keep, and his lawful commands every where readily to obey.” 1829 Apprenticeship agreement between William Whittaker & Sons of Philadelphia and Henry Barber, (on file with the Hagley Museum & Library, Wilmington, Delaware, Accession 1471, Box 198). For his part, the master “doth covenant and promise to use the utmost of his endeavours to teach, or cause to be taught or instructed, the said apprentice in the trade or mystery of [here was written in the blank ‘a cotton spinner’].” *See id.* The duty to guard secrets was a standard term in apprenticeship agreements as early as the fifteenth century. *See* Indenture of Apprenticeship (1459), *reprinted in* ENGLISH ECONOMIC HISTORY: SELECT DOCUMENTS at 147 (A.E. Bland et al. eds., 1914) (“[T]he aforesaid John Goffe shall well and faithfully serve the aforesaid John Gibbs and Agnes his wife as his masters and lords, shall keep their secrets, shall everywhere willingly do their lawful and honourable commands, shall do his masters no injury nor see injury done to them by others. . .”).

24. *See, e.g.*, ALAN DAWLEY, *CLASS AND COMMUNITY: THE INDUSTRIAL REVOLUTION IN LYNN* (1976); RORABAUGH, *supra* note 22, at 32-33; Charles G. Steffen, *Changes in the Organization of Artisan Production in Baltimore, 1790-1820*, at 36 WM. & MARY Q. 101 (1979); Christopher L. Tomlins, *The Ties That Bind: Master and Servant in Massachusetts, 1800-1850*, 30 LAB. HIST. 193 (1989).

25. RORABAUGH, *supra* note 22, at 32-33.

knowledge and experience made them especially valuable were the first-generation descendants, not of the apprentice boys, but of the more middling sort—journeymen in the crafts, as well as mechanics, machinists, and men with some education in chemistry or drafting. This class of employees historically had not been bound by the apprentice's duty of confidence. The independence and the entrepreneurial spirit of these men were recurring images in the republican antebellum culture and the developing commercial and manufacturing economy.²⁶ The development of one unified law of master and servant and the rise of factory production during the second industrial revolution after 1870 were necessary before courts would obliterate the legal distinctions among different statuses of working men and assert a duty of confidentiality for all employees ranging from factory laborers to research chemists.

Today, trade secret doctrine accepts as given that employment is a relationship of "trust and confidence" that obligates the employee to keep some information secret.²⁷ In 1800, trade secret doctrine as such did not exist. Only some employment relations were characterized as confidential and, therefore, incorporated an obligation not to divulge workplace secrets. The relationship of master to apprentice explicitly incorporated a duty of confidence. The guilds shored up this restriction by prohibiting the dissemination of knowledge outside the guild. The household servant's obligation to keep family confidences affected a significant number of workers in a pre-industrial economy in which the boundaries among family,

26. See generally DAWLEY, *supra* note 24; TOMLINS, *supra* note 4; SEAN WILENTZ, CHANTS DEMOCRATIC: NEW YORK CITY AND THE RISE OF THE AMERICAN WORKING CLASS, 1788-1850 (1984).

27. See, e.g., FRANCIS CURRY, BREACH OF CONFIDENCE (1984) (examining the nature and incidents of the "indisputable" proposition under English law that "an employee owes a duty of fidelity to his employer" which is breached by the revelation of confidential information); EMPLOYEE DUTY OF LOYALTY: A STATE-BY-STATE SURVEY 1 (Stewart S. Manela et al. eds., 1995) ("The employment relationship is one of trust, confidence and loyalty" which obligates employees to use and to refrain from using information in certain ways.); TRADE SECRETS: A STATE-BY-STATE SURVEY (Arnold H. Pedowitz et al. eds., 1997). Kim Lane Scheppele has linked the duty of confidence that is the basis for trade secret protection to the philosophical and economic justifications for a right of privacy. KIM LANE SCHEPPELE, LEGAL SECRETS: EQUALITY AND EFFICIENCY IN THE COMMON LAW 231-47 (1988). The duty of confidence is not, however, the sole basis that courts assert for trade secrets; as Professor Robert Bone's extensive recent study points out, trade secret doctrine relies variously on duty of confidence, property, and contract notions. Robert G. Bone, *A New Look at Trade Secret Law: Doctrine in Search of Justification*, 86 CAL. L. REV. 241, 244-45 (1998).

household, and workplace were quite indistinct.²⁸ Under certain circumstances, an agent might have had a fiduciary responsibility that would include guarding the confidences of a principal. Skilled workers would have been bound by none of these obligations. The superintendents, partners, skilled chemists, and machinists whose work was crucial in early industrialization were not deemed analogous to apprentices, household servants, or fiduciaries. Not until the creation, in the latter half of the nineteenth century, of a homogeneous law of “master and servant” applicable to workers of all stations,²⁹ would there have been any basis to apply to all work relationships the limited duties of confidence that existed in a few such relationships.

A similar break with the past exists in the realm of restrictive covenants. Today, noncompete covenants are widely used against former employees to protect trade secrets or other “proprietary information” by preventing the employee from working in any other occupation requiring the knowledge or skill which the employer seeks to control.³⁰ In the past, English law allowed the use of restrictive covenants in connection with the sale of a business or the formation or dissolution of a partnership to enable the buyer of the business or partnership effectively to acquire the business goodwill.³¹ There was,

28. The law of master and servant evolved from a variety of different legal relations, including those of master and apprentice, head of a household and his staff, and principal and agent. The nineteenth-century treatises, following Blackstone's lead, typically treated master and servant as a species of the law of domestic relations. See sources cited *infra* notes 29 and 86.

29. On the development of a law of “master and servant” governing all workers, rather than the category of household servants to whom the concept “servant” had applied in the eighteenth century, see Christopher L. Tomlins, *Law and Power in the Employment Relationship*, in *LABOR LAW IN AMERICA* 71-98 (Christopher L. Tomlins & Andrew J. King eds., 1992); Tomlins, *supra* note 24.

30. In a few states, the only legitimate use of post-employment restrictive covenants is to protect trade secrets. See, e.g., CAL. BUS. & PROF. CODE §§ 16600 *et seq.* (West 1994) (making covenants not to compete unenforceable except in connection with the sale of a business or the dissolution of a partnership; the use of such agreements to protect trade secrets is a judicially created exception to the statutory ban); MICH. COMP. LAWS § 445.761 (1945) (restrictive post-employment covenants were unenforceable except for 90 days), *repealed by* 1984 Mich. Pub. Acts 274, § 17.

31. Covenants not to compete were also used occasionally to divide up territory so as to avoid competition among firms. Courts in the United States were hostile to such covenants, and the development of the law of antitrust in the late nineteenth and early twentieth century severely restricted the enforcement of them. See, e.g., *Gibbs v. Consol. Gas Co.*, 130 U.S. 396 (1889) (holding that agent who negotiated a contract to eliminate competition in gas prices by dividing territory is not entitled to compensation for his services because the contract is void as a restraint of trade). In *United States v. Addyston Pipe & Steel Co.*, 85 F. 271, 282 (6th Cir. 1898), *modified*, 175 U.S. 211 (1899), Circuit

however, no evidence of judicial approval of such covenants against employees before the late nineteenth century. When courts began, at the end of the nineteenth century, to apply the same concepts to employment relationships, they obscured the novelty of enforcing restrictive covenants against employees by relying on eighteenth-century cases having little to do with employment.

The English courts had long held that some restrictive covenants were contrary to public policy, and the American courts adopted this common law rule. The early cases relating to sales of business and, later, to post-employment restrictive covenants, therefore, offer the only perspective on what judges deemed to be the public's interest in the dissemination of knowledge that a covenant sought to restrict. Since the question was whether to enforce a contract, the cases compelled judges to reconcile liberty of contract values with other values, including the value of restricted labor and trade and that of freely usable knowledge. Thus, courts explicitly had to consider whether the employee's knowledge was alienable. Courts also had to consider whether or how much value must be paid for such knowledge, whether employers were likely to exploit employees in seeking to control the use of knowledge, and whether the employer's interest justified the restriction on an employee's freedom (or obligation) to work.³²

The pre-industrial concern with the power of masters and guilds to restrict trade continued to inform the development of the law, as

Judge Taft stated that an agreement not to compete would be valid only if it was ancillary to the main purpose of another lawful contract, such as a sale of business or an employment contract. Taft's opinion, in the words of Herbert Hovenkamp, "fused the neoclassical model of competition with the legal doctrine of combinations in restraint of trade" and in the process "created the illusion that the law of combinations in restraint of trade had always been concerned with 'competition,' neoclassically defined." HOVENKAMP, *supra* note 5, at 287.

32. Although the laws of trade secrets and restrictive covenants not to compete are linked by an important commonality, the sources of the law are confusingly disparate. The law was borrowed from England, and English cases remained important precedent in American courts throughout the nineteenth century and into the twentieth. Further, the rules were worked out and the litigation occurred in myriad courts and procedural settings: state and federal courts, the law courts and the equity courts, under common law and statute. Noncompetition covenants sometimes would be litigated on the law side in a suit for damages, and sometimes in equity seeking specific performance. The early English cases involved covenants that were suits on a bond; pursuant to the covenant, the employee agreed to pay a specified sum if he worked in violation of the terms, and the litigation was a suit on the debt. In many cases, however, the employer preferred specific enforcement of the covenant because of the difficulty of ascertaining and collecting damages. When the employer sought an injunction to restrain the employee from working, the action was in equity.

the landmark decision of *Mitchel v. Reynolds*,³³ remained a common starting point for judicial analysis of restrictions on the dissemination of knowledge. *Mitchel's* hostility to restrictive covenants was a response to the guild tradition that skilled artisans could practice only a single trade in a single area.³⁴ If an artisan promised not to practice his trade, he gave up his livelihood. In the centuries before *Mitchel*, when the economy was still reeling from the death of half the workforce due to the Plague, the inability to practice one's trade was not only disastrous for the individual but a serious loss to the public as well. Enforced idleness would also run afoul of the *Statute of Labourers*, which responded to the labor shortage caused by the Plague by regulating wages and making it a crime for an able-bodied person without independent means to refuse to work.³⁵ As the most pressing labor shortage faded over time and the overwhelming power of the guilds dissipated, the English law's hostility to restraints on trade diminished. Although the Parliament enacted legislation restricting craftsmen's attempts to prohibit competition by former apprentices,³⁶ courts eventually began to allow some covenants not to compete.

33. 24 Eng. Rep. 347 (Q.B. 1711). In upholding a limited restriction, the court declined to follow the much-cited *Dyer's Case* from 1414 which had held that any restriction on the practice of a trade, irrespective of reasonableness, was void. Y.B. 2 Hen. 5, fol. 5, Michaelmas, pl. 26 (Eng. 1414). The *Dyer's Case* remained a common citation in English and American cases into the twentieth century. Perhaps the judicial and scholarly fondness for it may be attributed to the intemperance of the language of the judge in condemning such covenants. The judge said, about the party who sought to enforce the covenant: "Per Dieu si le plaintiff fuit icy il irra al prison, tanque il ust fait fyne au Roye." ("By God, if the plaintiff were here he would go to prison until he paid a fine to the King.")

Holdsworth cited some cases from the fifteenth and sixteenth centuries upholding covenants in limited circumstances, typically in connection with the sale of a business and with the efforts of guilds to control the trade in a particular town. 8 HOLDSWORTH, *supra* note 5, at 58-59.

34. See CHEYNEY, *supra* note 6, at 50-62, 83-115, 133-38; Handler & Lazaroff, *supra* note 5, at 721-24; 1 LIPSON, *supra* note 6, ch. 8; 8 *id.* at 279-94, 347-51; TREBILCOCK, *supra* note 5, ch. 1; Blake, *supra* note 5, at 632-38; Charles E. Carpenter, *Validity of Contracts Not to Compete* 76 U. PA. L. REV. 244, 246 (1928); William L. Letwin, *The English Common Law Concerning Monopolies*, 21 U. CHI. L. REV. 355, 379-80 (1954).

35. 23 Edw. 3 (Eng. 1349), *reprinted in* ENGLISH ECONOMIC HISTORY: SELECT DOCUMENTS at 164-67 (A.E. Bland et al. eds., 1914). On the Statute of Labourers and subsequent related legislation, see MARC LINDER, *THE EMPLOYMENT RELATION IN ANGLO-AMERICAN LAW: A HISTORICAL PERSPECTIVE* 45-55 (1989).

36. In 1536, Parliament enacted the Act for Avoiding of Exactions Taken Upon Apprentices, which prohibited any master to "compel or cause any apprentice or journeyman, by oath or bond . . . that he, after his apprenticeship or term expired, shall not set up or keep any shop" 28 Hen. 8, c. 5 (1536), *reprinted in* ENGLISH ECONOMIC HISTORY: SELECT DOCUMENTS, at 284-86 (A.E. Bland et al. eds., 1914).

Mitchel was the watershed. It is the seminal case on restrictive covenants and early trade secrets, as most nineteenth-century cases on these issues cited it.³⁷ In *Mitchel*, the defendant was a baker who apparently violated a restrictive covenant he had signed when he leased his bakery to the plaintiff.³⁸ The defendant argued that the covenant was void because he was a baker, had served an apprenticeship in it, and could not be restrained from practicing his trade.³⁹ The court upheld the covenant, and gave an elaborate opinion for doing so.⁴⁰ Because of the opinion's thoroughness and attention to policy, as well as its "impressive display of synthetic and analytical reasoning,"⁴¹ *Mitchel* was influential. Its approach to the validity of restrictive covenants shaped the nineteenth-century courts' approach to the issue in the employment relationships even though *Mitchel* did not concern employment but, rather, the sale of a business.

Mitchel established a multifaceted analysis of reasonableness that has ever since dominated the law's approach to contractual restraints on the practice of a trade and thus to the dissemination of workplace knowledge. First, the opinion analogized the situation to the grant by the Crown of limited monopolies to serve the public interest, including the system of patents.⁴² The court also noted that prior cases had determined the public interest to allow the restriction of some trades to particular persons, or the exclusion of "foreigners"; on this basis, the court suggested it might be in the public interest to "prevent a town from being overstocked with any particular trade."⁴³ The court explained that enforcement of covenants would protect artisans by enabling them to sell a business more easily.⁴⁴

Mitchel also recited the arguments against enforcing restrictive covenants. First, there was the law's favor for "trade and honest

37. See generally *Mitchel v. Reynolds*, 24 Eng. Rep. 347 (Q.B. 1711).

38. *Id.*

39. *Id.*

40. *Id.*

41. TREBILCOCK, *supra* note 5, at 11.

42. *Mitchel*, 24 Eng. Rep. at 348.

43. *Id.* at 350.

44. The court made this point by describing the hypothetical case of an old man, who finding himself under such circumstances either of body or mind, as that he is likely to be a loser by continuing his trade, in this case it will be better for him to part with it for a consideration, that by selling his custom, he may procure to himself a livelihood, which he might probably have lost, by trading longer.

Id.

industry.”⁴⁵ Restrictive covenants may cause “mischief,” “1st, to the party, by the loss of his livelihood, and the subsistence of his family; 2dly, to the publick, by depriving it of an useful member.”⁴⁶ Furthermore, the court continued, such agreements are subject to abuse:

[A]s for instance, from corporations, who are perpetually labouring for exclusive advantages in trade, and to reduce it into as few hands as possible; as likewise from masters, who are apt to give their apprentices much vexation on this account, and to use many indirect practices to procure such bonds from them, lest they should prejudice them in their custom, when they come to set up for themselves.⁴⁷

The court devised a limited rule to accommodate these competing considerations: the law presumes restrictive covenants invalid, but the party seeking enforcement may prove that, in the particular circumstances, it is “a just and honest contract.”⁴⁸ A “just and honest contract” must, first of all, be supported by adequate consideration.⁴⁹ In addition, the restriction should be only such as necessary to benefit the person seeking enforcement (i.e., limited in time, in geographic scope, and in the occupations that are prohibited).⁵⁰ Finally, the public must not be unduly injured by the restriction.⁵¹

Mitchel established the outlines of a multifaceted reasonableness rule that has been applied in trade secret cases as well as in the enforcement of restrictive covenants. But this apparent continuity in the law masks significant discontinuity in the nature of its application. The proposition that injunctive restrictions against former employees are permissible restraints of trade or labor was not established in *Mitchel*; further, this proposition was not established in the United States until shortly after the Civil War.

The classic explanation for the changing law of restrictive covenants was that it was an imperative of economic development. As William Holdsworth explained, “[T]he law as to contracts in restraint of trade has, more than any other class of contracts, been moulded by changing ideas of public policy.”⁵² Public policy, as he described it,

45. *Id.*

46. *Id.*

47. *Id.*

48. *Id.* at 352.

49. *See id.* at 348.

50. *Id.*

51. *Id.* at 351.

52. 8 HOLDSWORTH, *supra* note 5, at 56.

consisted mainly of attitudes about the desirability of regulating commerce and industry.⁵³ Holdsworth attributed changing attitudes to the ebb and flow of the political power of the “merchant class”:

[A]fter the Revolution [of 1688], . . . [the] Whigs were backed by the merchants; and the mercantile opinion which favoured freedom of trade got more weight in the Legislature. It was inevitable that this changed point of view should react upon the courts, and that, in the light of it, they should revise their views as to the validity of contracts in restraint of trade.⁵⁴

And, so was the court influenced in *Mitchel v. Reynolds*. Holdsworth’s somewhat reductionist economic explanation of the inevitability of legal change captures some of the truth, for the judicial rhetoric plainly does reveal economic concerns. I think, however, that it underestimates the ideological influences on the law, both those endogenous to the legal system in the sense that they were the products of legal categories and perspectives, and those that stemmed from the manner in which the merchants, manufacturers, and the employees regarded workplace knowledge. Moreover, it is not obvious that a “freedom of trade” perspective would necessarily favor enforcement of restrictive covenants.

The judges’ growing understanding of the alienability and the value of employee skill led courts to recognize ever more legitimate uses for restrictive covenants. Courts eventually agreed that covenants could be used to protect “trade secrets,” a concept that became more capacious over time. Some courts further recognized that covenants could be used to protect an undefined category of “proprietary information” in addition to trade secrets. Similarly, courts changed their assessments of which relationships with customers were business goodwill, and hence company property, and which were simply an aspect of an employee’s personality or experience. Moreover, in applying the *Mitchel* rule that a covenant must be reasonably limited, the scope of a permissible covenant expanded to keep pace with the expanding category of knowledge that could be deemed as corporate asset.

Regarding *Mitchel* from the perspective of controlling employee knowledge also helps explain the opinion’s confusing and commonly litigated distinction between valid partial restraints—covering a limited territory—from the invalid general restraints—covering all of

53. *Id.*

54. *Id.* at 59.

England.⁵⁵ The general-partial distinction in *Mitchel* made policy sense because, as the court found, “what does it signify to a tradesman in *London*, what another does at *Newcastle*? and surely it would be unreasonable to fix a certain loss on one side, without any benefit to the other.”⁵⁶ American courts struggled to apply this distinction in the context of state versus national restrictions.⁵⁷ Eventually, courts on both sides of the Atlantic abandoned the partial-general rule in favor of a more flexible doctrine that limited the scope of valid covenants to the extent of the employer’s market.⁵⁸

Just as English statutes, both before and after *Mitchel*, forbade masters from using restrictive covenants to prevent their apprentices from setting up for themselves at the termination of the apprenticeship, some American states enacted legislation regulating apprenticeships by including prohibitions on contracts that restricted competition by former apprentices. Chancellor Kent’s *Commentaries on American Law* described a New York statute that

specialy and justly provided, that no person shall take from any journeyman or apprentice any contract or agreement, that, after his term of service expired, he shall not set up his trade, profession, or employment in any particular place; nor shall any money or other thing be exacted from any journeyman or apprentice, in restraint of the place of exercising his trade.⁵⁹

Such statutes no doubt informed the courts’ early understanding of some abuses of restrictive covenants.⁶⁰ Yet, just as courts and

55. See *Mitchel*, 24 Eng. Rep. at 349.

56. *Id.* at 350.

57. Story’s COMMENTARIES ON EQUITY JURISPRUDENCE no doubt contributed to this, as he repeated the partial-general distinction. 1 JOSEPH STORY, COMMENTARIES ON EQUITY JURISPRUDENCE 120 (1836).

58. Some courts’ unwillingness to enforce covenants that covered an entire state or the entire United States was criticized by scholars of the era in their effort to allow firms greater latitude to restrict competition from former employees. An article in the 1890 HARVARD LAW REVIEW summarized the law and asserted that it demonstrated that a restraint could be valid even though it covered an entire state or nation so long as it was “reasonable,” and reasonableness was to be determined by looking at whether such a broad restraint was necessary for the employer and whether it harmed the public (notice that harm to the employee was not part of the inquiry, nor was the adequacy of consideration). Amasa M. Eaton, *On Contracts in Restraint of Trade*, 4 HARV. L. REV. 128, 136 (1890).

59. 2 JAMES KENT, COMMENTARIES ON AMERICAN LAW 263 (1826) (quoting N.Y. REV. STAT., ii. 160, §§ 39, 40).

60. The St. George Tucker edition of BLACKSTONE’S COMMENTARIES from 1803 may have been influential in leading American courts to see their indigenous artisanal tradition differently than England’s. In the passage on the law of master and servant in which Blackstone discussed the English statutes restricting the practice of a trade to those who had served an apprenticeship in it, Tucker noted in the footnotes that Virginia law, unlike English law, did not so restrict entry into a trade. 2 ST. GEORGE TUCKER,

treatise-writers did not cite the express obligation in apprenticeship indentures to guard secrets as the basis of the trade secret obligation, they also failed to cite the later statutory restrictions on restrictive covenants against former apprentices as the analogous precedent. In short, courts and commentators did not look to positive law, but to other sources in developing an approach to the ownership of employee knowledge.

Joseph Story's *Commentaries on Equity Jurisprudence*,⁶¹ first published in 1836, was the first treatise to discuss the principles that later became the law of trade secrets, and it remained the only commentary on that subject until after the Civil War. His discussion was extremely brief. One sentence stated simply that "a person may lawfully sell a secret in his trade or business, and restrain himself from using that secret."⁶² A more fertile statement came in the discussion of injunctions to enforce copyrights, in which Story said that equity would "restrain a party from making a disclosure of secrets communicated to him in the course of a confidential employment. And it matters not, in such cases, whether the secrets be secrets of trade or secrets of title, or any other secrets of the party important to his interests."⁶³ Yet the cases cited as support suggest that Story may have intended this sentence as nothing more than a description of the obligations owed in the few employment relations that were already recognized as being confidential. Courts later used Story's propositions, however, as a basis for expanding the number of employment relations that incorporated a duty of confidence.

BLACKSTONE'S COMMENTARIES WITH NOTES OF REFERENCE TO THE CONSTITUTION AND LAWS OF THE FEDERAL GOVERNMENT OF THE UNITED STATES AND OF THE COMMONWEALTH OF VIRGINIA 427-28 (1803). The early American judges who turned to this Americanized edition of Blackstone might have taken inspiration that the tendency toward monopoly posed by the English tradition of regulating apprenticeship did not exist in the freer American economy, and that restrictive covenants were not likely to be abused in the same way. On the other hand, American anti-monopoly sentiment, plus a shortage of skilled labor, might have led courts to be especially hostile to restrictive covenants. On the pre-industrial efforts of the colonies and states to regulate the artisanal relations so as to prevent monopoly and encourage training and quality manufacturing, see 1 JOHN R. COMMONS ET AL., HISTORY OF LABOUR IN THE UNITED STATES 43-47, 340 (1918).

61. See 1 STORY, *supra* note 57.

62. *Id.* at 121. Interestingly, this statement had no citations to support it, although *Yovatt v. Winyard*, 37 Eng. Rep. 425 (Ex. Ch. 1820), and *Bryson v. Whitehead*, 57 Eng. Rep. 29 (V.C. 1822), would have been apt citations. When Story first published the COMMENTARIES in 1836, there were no American cases on this issue; the first, *Vickery v. Welch*, 36 Mass. (19 Pick.) 523 (1837), was decided a year later.

63. 2 STORY, *supra* note 57, at 389.

Story cited three English cases for the proposition that equity would restrain the disclosure of secrets learned in confidential employment. The first, and most analogous, was *Yovatt v. Winyard*,⁶⁴ in which a veterinarian's journeyman had surreptitiously copied his employer's medicine recipes that he had been explicitly forbidden to see or use. The Lord Chancellor concluded that the journeyman had breached a duty of trust and confidence and, on that basis, enjoined the former employee from using or publishing the purloined recipes.⁶⁵ According to the court's description of the employment agreement, the defendant was "to be instructed in the general knowledge of the business, but was not to be taught the mode of composing the medicines."⁶⁶ The plaintiff's counsel conceded that the court might not protect the secret if the proprietor had himself communicated it. Here, since the defendant had first learned of the secret in breach of duty, he could be enjoined from using the knowledge.⁶⁷

Later English cases, often cited by American courts and by later editions of Story's treatise, repeated the same point. If the employee "was permitted to acquire, and did acquire, a full knowledge" of the trade secret to enable him to perform his duties, the employer could not afterwards "restrain him from using any knowledge so acquired or any secret so disclosed."⁶⁸ At its origins, therefore, the law prohibited employees from illicitly learning secrets, but not from using knowledge that they acquired through their work.⁶⁹

The other two cases Story cited had even less to do with what later became the law of trade secrets. One, *Cholmondeley v. Clinton*,⁷⁰ held that a solicitor's clerk, who later became a solicitor for an adversary of his former employer's client, could not use for the benefit of his new client any knowledge that he had acquired while working as a clerk.⁷¹ In contemporary parlance, the case concerned attorney-client privilege and conflicts of interest; the court simply stated the unremarkable proposition that an attorney cannot switch from representing the defendant to the plaintiff in the same case.⁷²

64. 37 Eng. Rep. 425 (Ex. Ch. 1820).

65. *Id.* at 426.

66. *Id.*

67. *Id.*

68. *Morison v. Moat*, 68 Eng. Rep. 492, 501 (V.C. 1851) (enjoining defendant from using secret recipe for patent medicine because he had learned the recipe illicitly).

69. *Merryweather v. Moore*, 2 L.R.-Ch. 518 (Eng. 1892).

70. 34 Eng. Rep. 515 (1815).

71. *Id.* at 515.

72. *Id.* at 518. The former clerk, Montrou, had worked as clerk and then as solicitor for a firm that represented Lord Clinton in matters concerning his land holdings. In that

Story's third citation, *Evitt v. Price*,⁷³ held that a firm of attorneys could get an injunction forcing an accountant to return their account books after the accountant refused to relinquish their books until he received payment due to him.⁷⁴ Neither of these cases is wholly unrelated to the ownership of information, of course. However, a lawyer's duty to guard client confidences, which was well established by the middle ages,⁷⁵ is a far cry from a general duty of all employees to protect all secrets of every employer.

Story's own creativity played a role in the invention of trade secret doctrine.⁷⁶ The synthetic and systematizing work of treatise-writing revealed the possibilities that had not been apparent before. Yet, the absence of any other treatise asserting that employees had a duty of confidence suggests that Story's comments were about the available remedies for breach of an existing duty of confidence, not a description of all employment as confidential relationships. Other early treatises contained no mention of the duty to guard secrets. For example, Chancellor James Kent's *Commentaries on American Law* described the relationship of principal and agent as one in which the principal confides the management of some business to the agent, and the agent undertakes the "trust"; however, that treatise mentioned

employment, Montriou prepared abstracts and deeds and developed considerable knowledge about the titles to Lord Clinton's estates. *Id.* at 515. During that time Earl Cholmondeley claimed title to one of Lord Clinton's estates by virtue of some defect in Clinton's title. *Id.* About a year after dissolution of the law partnership, Montriou became solicitor to Cholmondeley to represent him in litigation concerning the estate. The court enjoined Montriou from using for Cholmondeley knowledge he had acquired while representing Clinton. *Id.* at 519.

73. 57 Eng. Rep. 659 (Ch. 1827).

74. *Id.* at 659.

75. James A. Brundage, *Keeping the Client's Secrets: An Ethical Obligation of Medieval Advocates* (presented at the Annual Meeting of the American Society for Legal History, Princeton, Oct. 21, 2000) (on file with author).

76. Story did not single-handedly invent the trade secret rule; his overstatement of the principle recognized in the precedents should be understood as the nineteenth-century treatise-writer's tendency toward abstraction and generalization. Not every later trade secret case cited Story, which suggests that the trade secret concept developed for reasons other than Story's influence. Furthermore, that a treatise states a legal principle that does not find solid support in the cases cited does not mean that the author conjured the principle out of thin air. *Cf. generally* Deborah A. Ballam, *The Development of the Employment at Will Rule Revisited: A Challenge to Its Origins as Based in the Development of Advanced Capitalism*, 13 HOFSTRA LAB. & EMP. L.J. 75 (1995); Jay M. Feinman, *The Development of the Employment at Will Rule*, 20 AM. J. LEGAL HIST. 118 (1976). All of us have written enough footnotes to know the sometimes-attenuated relationship between what one knows to be the law and the sources one can find ready at hand when the time comes to polish the footnotes. If that can be a problem in the modern age of easily accessible libraries and electronic research, imagine the difficulties confronting a treatise writer in the early nineteenth century.

nothing of a duty to guard secrets.⁷⁷ Tapping Reeve's *The Law of Baron and Femme* contains no such mention.⁷⁸ Neither do other treatises that discuss the law of master and servant or equity mention anything of a duty to guard secrets.⁷⁹

The other early antecedents of trade secret doctrine were an 1822 English decision, *Bryson v. Whitehead*,⁸⁰ and an 1837 American case, *Vickery v. Welch*,⁸¹ both of which granted specific performance of an agreement for the sale of a secret recipe in connection with the sale of the business (a dye recipe in *Bryson* and a chocolate recipe in *Vickery*).⁸² Both of these cases established a novel rule that the recipe, a discrete thing reflected in a written form, was an asset of a business that could be sold; once sold, however, the seller lost the right to use that recipe.⁸³ Interestingly, in *Vickery* the defendant had argued that the seller's obligation to refrain from selling the recipe to anyone else was void as a restraint of trade, citing *Mitchel v. Reynolds*.⁸⁴ The court was unpersuaded:

The public are not prejudiced by the transfer of [the chocolate recipe] to the plaintiff. If it were worth any thing, the defendant would use the art and keep it secret, and it is of no consequence to the public whether the secret art be used by the plaintiff or by the defendant.⁸⁵

If Story was the unwitting antecedent of the trade secret rule that all employment entails a confidential relationship, these cases are the equally unwitting precursors of the modern notion that trade secrets are a species of property in ideas. Throughout most of the century, however, trade secret law recognized the existence of property rights

77. 2 KENT, *supra* note 59, at 614-15.

78. REEVE, *supra* note 20. This work does not mention trade secrets in the section on the law of master and servant, on the law of apprentices, or even in the section on the powers of chancery courts.

79. See generally SIR EDWARD FRY, A TREATISE ON THE SPECIFIC PERFORMANCE OF CONTRACTS (1858); THEOPHILUS PARSONS, THE LAW OF CONTRACTS (6th ed. 1873); JAMES SCHOULER, LAW OF THE DOMESTIC RELATIONS EMBRACING HUSBAND AND WIFE, PARENT AND CHILD GUARDIAN AND WARD, INFANCY AND MASTER AND SERVANT (1905).

80. 57 Eng. Rep. 29 (V.C. 1822).

81. 36 Mass. (19 Pick.) 523 (1837).

82. *Bryson*, 57 Eng. Rep. at 31; *Vickery*, 36 Mass. (19 Pick.) at 523.

83. *Bryson*, 57 Eng. Rep. at 35-37; *Vickery*, 36 Mass. (19 Pick.) at 526.

84. 24 Eng. Rep. 347 (Q.B. 1711).

85. *Vickery*, 36 Mass. (19 Pick.) at 527. Six years later, New York adopted the concept of a trade secret as being the saleable property of a business. *Jarvis v. Peck*, 10 Paige. Ch. 118 (N.Y. 1843); accord *Hard v. Seeley*, 48 N.E. 428 (N.Y. Sup. Ct. 1865) (enforcing covenant ancillary to the sale of a business by which seller promised not to reveal "the art and mystery of compounding and manufacturing" a medicine known as "Dermador").

only in things and not in ideas.⁸⁶ As we will see, when Du Pont aimed to prevent the dissemination of its secret methods of manufacturing gunpowder, it sought to prosecute the theft of the drawings of its machinery and of some devices for refining powder. It did not, because it could not, prosecute the misappropriation of the knowledge embodied in them or the efforts of its competitors to obtain the knowledge by hiring former Du Pont employees.

Especially later in the nineteenth century, trade secrets were often characterized as property, both in the cases and in popular parlance.⁸⁷ Until the twentieth century, however, this property right was limited: Courts ordered the return of trade secrets if they were things but did not enjoin the use of the knowledge expressed in those things. Judges emphasized the presence of physical things in part because they did not understand inchoate knowledge to be a firm's asset. For example, in an early Pennsylvania case, *McGowin v. Remington*,⁸⁸ a surveyor in Pittsburgh had left his maps and surveying instruments with his former assistant while he started a new business elsewhere. When he returned to Pittsburgh, the assistant refused to relinquish the maps and instruments and was busy copying the maps for his own use. The court ordered the defendant to return the maps and instruments, along with the copies he had made.⁸⁹

Why did courts not recognize (at least initially) that employers could have property rights in intangibles? In that era, there were property rights in intangible things—for example, courts recognized future interests in property. Focusing only on the tangible objects certainly had the advantage of allowing courts to avoid a problem

86. In *Peabody v. Norfolk*, the first American case to hold that an employer could sue a former employee for misappropriating a trade secret, the court said that the employer "has a property in" a secret process enforceable against "one who in violation of contract and breach of confidence undertakes to apply it to his own use." 98 Mass. 452, 458 (1868). In that case the employee breached an express contract requiring him to guard the secrecy of designs for machinery and provided exact copies of drawings of the machinery to a competitor of his former employer—thus the opinion was founded on contract, property, and confidence notions. *Peabody* is discussed *infra* in Part II.A.

87. See TREBILCOCK, *supra* note 5, at 82. For example, a reference in a non-legal publication (a book publishing secret recipes for various medical and household purposes which the author claimed to have obtained while working for several technical journals) referred to "all those recipes and so-called 'trade secrets' which have been so extensively advertised and offered for sale." JOHN PHIN, TRADE "SECRETS" AND PRIVATE RECIPES: A COLLECTION OF RECIPES, PROCESSES & FORMULAE THAT HAVE BEEN OFFERED FOR SALE BY VARIOUS PERSONS AT PRICES RANGING FROM TWENTY-FIVE CENTS TO FIVE HUNDRED DOLLARS iii (Industrial Publication Co., 1887) (on file with the Hagley Museum & Library, Wilmington, Delaware).

88. 12 Pa. 56 (1849).

89. *Id.* at 58, 63.

that was both practically and ideologically difficult. It obviated the need to distinguish knowledge that courts were willing to prevent employees from using in subsequent employment from that which was an inalienable aspect of a person's skill, intelligence, or life experience. Granting the employer the physical things, rather than the right to control the former employee's use of knowledge, was also a more acceptable legal remedy in a society infused with the ideology of free labor.

Early trade secret cases also reveal that courts did not regard the obligation to keep secrets to be a feature of every employment relationship. A New York decision, *Deming v. Chapman*,⁹⁰ is illustrative. In *Deming*, an employer had obtained a preliminary injunction based on an express written contract that the employee would not divulge the employer's technique for marbleizing iron or slate.⁹¹ The New York supreme court dissolved the injunction, suggesting two reasons why actions to protect such secrets were not cognizable.⁹² First, the court reasoned that such actions could not be tried in equity because the court would necessarily have to learn the secret in order to determine whether it was a secret and what to enjoin, thus destroying the secrecy of the process.⁹³ Second, the court suggested that the federal patent law was the sole source of protection for such economically valuable and novel information.⁹⁴ The court's view that it lacked the ability to grant equitable enforcement even of a signed contract promising to keep a particular, named secret suggests the novelty of the employer's claim.⁹⁵

The court's belief that patent was the only legal protection for technology reflects a widely held view during much of the nineteenth century. Even as courts began to expand the trade secret doctrine

90. 11 How. Pr. 382 (N.Y. Sup. Ct. 1854).

91. *Id.*

92. *Id.* at 382. The court also based its ruling on the ground that the employer lacked an equitable claim to the secret because it had been revealed to him in breach of a duty to the one who had invented it. *Id.* at 382-83.

93. *Id.*

94. *Id.*

95. *Id.* at 383. One additional fact suggests that the *Deming* court did not believe the law recognized an obligation of employees to guard secrets. The opinion is not clear about whether the defendant was in fact a former employee. If there had been any recognized duty of employees to guard secrets, one would expect the court to have emphasized whether Chapman was an employee and what obligations of secrecy flowed from employment. One can infer from a sentence in which the court notes that the plaintiff, Deming, obtained a "written instrument" like Chapman's "from three *other employees*, only one week before Chapman's" that Chapman was an employee. *Id.* at 382-83 (emphasis added).

later in the century, employers were slow to realize the doctrine's potential as an alternative to patent protection. At the turn of the twentieth century, Du Pont focused mainly on patents, as it required employees to assign patents to the firm after 1904. However, it did not attempt to restrain by contract the disclosure of trade secrets or post-employment competition until the company's trade secret litigation against former research chemist, Walter Masland, made obvious the inadequacy of contracts focusing only on patent assignments.

As *Deming* indicates, antebellum courts did not see employment contracts as imposing a duty of confidentiality regarding technology. *Deming* went further in refusing to enforce even an express written contract. The courts did, however, begin to recognize the use of restrictive covenants in preventing employees from using their knowledge about customers. In 1825, in *Homer v. Ashford*,⁹⁶ an English court first recognized that an employer asserted a legitimate interest in preventing the employee from soliciting former customers.⁹⁷ Across the Atlantic, however, no American court ruled on whether covenants could be used to protect customer information.⁹⁸ *Homer* is noteworthy even though it found no

96. 130 Eng. Rep. 537 (C.P. 1825).

97. *Id.* at 539.

98. Massachusetts courts published the largest number of covenant cases in the antebellum era. They very early determined the public interest to allow restrictive covenants in connection with the sale of a business, and in all of the five cases decided between 1811 and 1828 on such covenants, the courts rejected the contentions that consideration was inadequate. In essence, the courts concluded that the defendant had sold his business for a reason and had received value for the sale, and the courts were disinclined to accept post hoc arguments that the consideration for the covenant that was part of the sale was insufficiently beneficial. *See, e.g.,* *Pierce v. Fuller*, 8 Mass. (7 Tyng) 223, 228 (1811).

The first case in which a Massachusetts court held a covenant unenforceable was an 1837 case in which the defendant, in connection with the sale of stock in an iron foundry, covenanted never to work as an iron founder or caster, or even to be "interested . . . directly or indirectly" in the iron foundry or casting business. *Alger v. Thacher*, 36 Mass. (19 Pick.) 51, 51 (1837). The covenant was limited neither in duration nor in geographic scope. The court declined to enforce the covenant, stating in very broad terms the evils associated with restrictive covenants. Although the policies it invoked in its reasoning—the deprivation of the capacity to earn a livelihood, the loss to the public of the services, the diminution of competition—suggested a broader ruling, the decision rested on the rule that unlimited restraints were invalid. *Id.* at 54.

Massachusetts' leading role in trade secret and restrictive covenant cases before 1870 invites explanation. Unfortunately I must be cautious in venturing any. First, relying mainly on published decisions without having searched court records for unpublished dispositions, I cannot be sure that Massachusetts courts did indeed decide more cases as opposed simply to publishing more. Second, at least by the later part of the century, courts in each state freely cited cases from other states and England, thus reducing

immediate following in the United States because of the breadth of its reasoning and its insistence on the needs of commerce as a basis for wider enforcement of restrictive covenants. In *Homer*, the defendant had worked for a saddler's ironmonger in the job of clerk and traveling salesman.⁹⁹ The court enforced a covenant prohibiting the defendant from soliciting in specified towns for fourteen years.¹⁰⁰ The court proffered the needs of growing businesses as a basis for the ruling: "Manufactures or dealings cannot be carried on to any great extent without the assistance of agents and servants," the court reasoned.¹⁰¹ "These must soon acquire a knowledge of the manufactures or dealings of their employers. A merchant or manufacturer would soon find a rival in every one of his servants, if he could not prevent them from using to his prejudice the knowledge acquired in his employ."¹⁰² In the context of those facts, the "knowledge" to which the court referred is knowledge of customers' needs and, more generally, business goodwill. It is not all of the employee's knowledge of his trade.

The court thought that protecting the employer's customer relationships would benefit the public's interest in trade: "Engagements of this sort between masters and servants are not injurious restraints of trade, but securities necessary for those who are engaged in it. The effect of such contracts is to encourage rather than cramp the employment of capital in trade, and the promotion of industry."¹⁰³ The court emphasized that the relationship between the salesman and the customers was a product of the employer's "liberality," and a covenant was necessary to prevent its abuse: "We know the influence that a rider has over the customers of his employer, and with how much effect he may use the argument—

differences among states in theory, although certainly differences remained in application and interpretation of the widely cited precedent. In later phases of this project, I plan to study possible local variation in leading industrializing states in the context of nineteenth-century differences in state policies regarding law, commerce, and governmental involvement in economic development. See OSCAR HANDLIN & MARY HANDLIN, *COMMONWEALTH* 226-27 & n.123 (2d ed. 1969) (discussing these cases); See generally LOUIS HARTZ, *ECONOMIC POLICY AND DEMOCRATIC THOUGHT: PENNSYLVANIA, 1776-1860* (1948); cf. JONATHAN PRUDE, *THE COMING OF INDUSTRIAL ORDER: TOWN AND FACTORY LIFE IN RURAL MASSACHUSETTS, 1810-1860* (1983).

99. 130 Eng. Rep. at 537-38.

100. *Id.* at 538.

101. *Id.* at 539.

102. *Id.*

103. *Id.*

encourage young beginners. This influence is gained by the liberality of his employer, and ought not to be used against him.”¹⁰⁴

That commercial employers should prevent solicitation of their customers involved no affront to the individuality of skilled employees. That an industrial employer should prevent its skilled craftsmen from using knowledge of their own trade, however, seemed a far more alarming infringement on the very selfhood of craftsmen, engineers, and factory superintendents. The distinction between technical and commercial knowledge also found support in cases going back to *Mitchel*. Courts had long recognized that restrictive covenants could be used to transfer business goodwill when the person bound was the seller of a business or a partner in a dissolving partnership. But even cases that involved customer relations were troubling sometimes, particularly as salesmen and dental and medical assistants argued that their relations with customers or patients were largely a product of their own talent, personality, or experience.

In sum, apart from apprenticeship and fiduciary relationships, none of the various and different early nineteenth-century employment relationships incorporated a duty of confidentiality. Nor was there any basis in the American cases to use restrictive covenants to restrain employees, and English cases were few and conflicting on this point. There simply was no basis in the law for most people who employed assistants to prevent them from using in a later employment the knowledge that they acquired in an earlier employment. In other words, workplace knowledge and skill remained, in the eyes of the law, an attribute of each worker, not an asset of a firm.

B. The Early Practice in Restricting the Dissemination of Knowledge: The Du Pont Powder Yards, 1808-1812

The limits of the available legal doctrine from the standpoint of employers is illustrated in two episodes from Du Pont's early history. For the first hundred years of its existence, the Du Pont company was

104. *Id.* at 540. Some English courts expressed reservations about the use of covenants to restrict former employees from soliciting the business of a firm. In two cases the courts questioned whether employers did have a legitimate interest in protecting customer relations but the holding in each rested on the overly broad geographic scope of the prohibition. *Ward v. Byrne*, 151 Eng. Rep. 232, 238 (C.P. 1831) (declining to enforce a nine-month prohibition on solicitation, reasoning that “the public are altogether losers for that time of the services of the individual, and do not derive any benefit whatever in return”); *Horner v. Graves*, 131 Eng. Rep. 284, 288 (C.P. 1831) (declining to enforce a covenant barring the practice of dentistry within 100 miles of the city of York that was to last so long as the plaintiff maintained a practice).

basically a family-controlled manufacturer of explosives. Most of the economically valuable knowledge about the chemistry and manufacture of gunpowder was developed or possessed by the du Pont family members and their close associates. For the most part, the du Ponts managed the company and supervised its research throughout the nineteenth century.¹⁰⁵ Thus, the company's approach to employee intellectual property depended on close family control supported by informal sanctions and self-help. The legal rules that now form the principal weapons in the employer's arsenal for protecting economically valuable knowledge—nondisclosure and noncompete agreements and trade secret litigation—were either unavailable or unknown to the du Ponts.¹⁰⁶ Interestingly, Du Pont did not begin to use contracts to restrict its employees' later use of knowledge until the second decade of the twentieth century.

Throughout the nineteenth century, the company relied mainly on secrecy and reputational sanctions to make it difficult for employees to take company secrets to competitors.¹⁰⁷ In common

105. Du Pont has captured the attention of many scholars interested in the history of technology and business, but most of the works have focused on the company in the twentieth century. The history of Du Pont research and development in the twentieth century is told in DAVID A. HOUNSHELL & JOHN KENLY SMITH, *SCIENCE AND CORPORATE STRATEGY: DU PONT R & D, 1902-1980* (1988). David A. Hounshell, *Interpreting the History of Industrial Research and Development: The Case of E.I. du Pont de Nemours & Co.*, 134 *PROC. AM. PHIL. SOC'Y* 387 (1990) is a fascinating essay on the writing of this leading work. A leading work of business history is ALFRED D. CHANDLER, JR. & STEPHEN SALSURY, *PIERRE S. DU PONT AND THE MAKING OF THE MODERN CORPORATION* (1971). A very sympathetic, even romantic, telling of the nineteenth-century history of the Du Pont company for a popular audience is WILLIAM S. DUTTON, *DU PONT: ONE HUNDRED AND FORTY YEARS* (1942). The family is the subject of WILLIAM H.A. CARR, *THE DU PONTS OF DELAWARE* (1964). Many of the histories of the family and the company in the nineteenth century rely on an understandably sympathetic book by BESSIE GARDNER DU PONT, *E.I. DU PONT DE NEMOURS AND COMPANY, A HISTORY, 1802-1902* (1920), as well as on the vast quantity of notes and documents she assembled in preparing the history; her notes are preserved intact at the Hagley Museum & Library in Wilmington, Delaware. A far less sympathetic discussion of Du Pont in the twentieth century is GERARD COLBY ZILG, *DU PONT: BEHIND THE NYLON CURTAIN* (1974).

106. Most who have written about the Du Pont company and the family that founded it begin the company name with a capital D and the family name a lower case d. See, e.g., sources cited *supra* note 105.

107. On du Pont family management of the company and supervision of the research in the late-nineteenth century and early twentieth, see CHANDLER, *supra* note 105, at 34. Chandler illustrates the phenomenon of family control over research and development with an episode from the research on smokeless powder at Du Pont's Carney's Point plant. The research was supervised by Francis G. du Pont, the brother of the head of the company, and assisted by Pierre S. du Pont, who became the head of the company in the twentieth century. Though Pierre later wrote that the Du Pont company invention of

with other antebellum business proprietors whose superior technology gave them a competitive edge, such as Samuel Slater of Massachusetts, the du Ponts carefully guarded their secret processes by restricting access to the mills and discouraging employee mobility. Slater, who himself had copied designs he had seen elsewhere, “swore early employees to secrecy about ‘the nature of the works’; he paid his key operatives elevated rates to prevent their ‘aiding and assisting another mill’; and he was ‘ever cautious of admitting strangers to view’ his technology.”¹⁰⁸

On the rare occasion when the du Ponts resorted to legal proceedings, they relied on the law of criminal theft and an action for enticement. Only in the early twentieth century, when the company had grown too large for the du Pont family members to manage research and production by themselves and when reputational sanctions had lost their bite, did the company begin systematically to resort to contracts and occasionally to trade secret litigation to protect its claims to employee knowledge. The change in Du Pont company practice reflects, in microcosm, the change in the law. The respects in which Du Pont company practice diverged from the legal entitlements are as revealing, however, as the ways in which its practice mirrored the law.

Eleuthere Irenee du Pont de Nemours, a French aristocrat who prided himself on having studied the chemistry of gunpowder under the famous chemist, Lavoisier, came with his family to the United States in 1800 to start a business (and, not incidentally, to escape the difficult situation confronting aristocrats after the French Revolution). The family bought land along the Brandywine river near Wilmington, Delaware, to build a powder mill and commenced the business in 1802.¹⁰⁹ Du Pont correctly believed that his chemical knowledge would enable him to manufacture gun powder superior to any then made in the United States.¹¹⁰ It was not long before others tried to discover what accounted for du Pont’s superior product. The chronicle of du Pont’s efforts to guard his secrets and to marshal both

smokeless powder for use in shotguns was the product of the “inventive genius of Francis G. du Pont,” the patent was issued to Pierre and Francis jointly because Pierre had accidentally discovered it while working in the laboratory at Carney’s Point. *Id.* at 34-35.

108. PRUDE, *supra* note 98, at 44-45 (quoting letters written by Samuel Slater).

109. This early history is told in the first several chapters of DUTTON, *see supra* note 105. I have also drawn some of the background material on the family and the business from JOHN BEVERLY RIGGS, A GUIDE TO THE MANUSCRIPTS IN THE ELEUTHERIAN MILLS HISTORICAL LIBRARY 21-25, 576-80 (1970).

110. DU PONT, *supra* note 105, at 37 (observing that du Pont’s “unusual experience as both chemist and machinist” was essential to his success).

law and public opinion in his defense reveals a great deal about early-nineteenth-century attitudes toward ownership of knowledge in the workplace.

The Brandywine mills consisted of a number of stone buildings along the bank of the river which supplied the power, the water, and the security from unwanted visitors. The mills were in many respects a remote and self-contained enclave, with a blacksmith shop to make parts, and separate buildings for the multiple steps of the refining process. Du Pont regulated working conditions closely to ensure continuous production, to produce quality powder, and to reduce the risk of explosion. In many respects, therefore, the organization of work was more like the factories that later would develop in textiles than the artisanal, small-shop mode of production that was more typical in the first decades of nineteenth-century America. Du Pont's personal involvement in and control over the process of the manufacturing presaged the factory-based, employer-controlled work process of the later century more than the artisanal, worker-controlled process of the pre-industrial skilled crafts. Du Pont's early mills thus seem to resemble some of the rural, moderately financed, and proprietor-run mills of Massachusetts in that era.¹¹¹

A Virginia firm, Brown, Page & Co., sought to build a powder mill in Richmond. Eager to learn the secret of Du Pont's success, they sent an agent, Charles Munns, to Wilmington in the autumn of 1808 to recruit powdermen from Du Pont's Brandywine mills. Munns set himself up at The Buck, a local tavern, where he entertained Du Pont employees. He offered to pay them wages far more generous than Du Pont paid if they would agree to go to Richmond to work for Brown, Page.¹¹² He inquired about the machines that Du Pont used in the different parts of the powder mills, and asked Du Pont powdermen to make or steal drawings of the machinery. Munns was especially keen to get a brass pounder and some parchment sieves that were used to mix powder. He asked an assistant millwright, Joseph Baughman, to make a copy of the pounder but Baughman was

111. See PRUDE, *supra* note 98, at xiv.

112. Letter from Raphael Duplanty, E.I. du Pont de Nemours & Co., to James Rogers (Feb. 7, 1809) (on file with the Hagley Museum & Library, Wilmington, Delaware, Longwood Manuscripts, Du Pont Archive, Group 5, Series C, Box 48); Letter from Peter Bauduy to Daniel Call (1809) (on file with the Hagley Museum & Library, Wilmington, Delaware, Longwood Manuscripts, Du Pont Archive, Group 5, Series C, Box 48); Charge to the Jury in *Munns v. Du Pont*, 17 F. CAS. 993 (D. PA 1811) (NO. 9926) (on file with Hagley Museum & Library, Wilmington, Delaware, Longwood Manuscripts, Du Pont Archive, Group 5, Series C, Box 48).

afraid to do so in the Du Pont blacksmith's shop so he took one instead.¹¹³ Munns also obtained a number of the parchment sieves from the mill.¹¹⁴ Munns arranged to meet the workmen at The Buck to sign contracts with them, boasting that he would "destroy" the Du Pont firm.¹¹⁵

Du Pont and his partner, Peter Bauduy, learned of the meeting and went to the tavern determined to break it up. They beat Munns severely and ordered him to leave the neighborhood.¹¹⁶ Du Pont and Bauduy were later indicted for assault and battery and fined \$15 each. Munns and two Du Pont workmen went to Richmond. When du Pont discovered that the brass pounder was missing, he tracked Munns and Baughman down in Richmond and had them arrested and returned to Delaware for trial on the theft charges.¹¹⁷ The alderman who searched Munns at the time of his arrest found parchment sieves, a detailed description of the brass pounder, and the letters between Munns and Brown, Page describing Munns' escape from Wilmington after the altercation with du Pont and Bauduy.¹¹⁸

The letters formed the basis of Du Pont's unsuccessful legal proceedings against Munns. They also reveal something of Brown, Page's attitude toward Du Pont's works. In the first place, the correspondence leaves no doubt that Brown, Page's goal in sending Munns to Wilmington was to get information about Du Pont's processes. Munns promised that he could deliver, boasting that "we shall be upon a par with the Brandywine mills."¹¹⁹ Brown, Page urged both Munns and Du Pont's erstwhile powder mixer, Hans Peebles, to

113. Letter from Raphael Duplanty to James Rogers, *supra* note 112.

114. Charge to the Jury in *Munns v. Du Pont*, *supra* note 112.

115. *Id.* ("C. Munns knew it perfectly well, we can prove his having bragged of *having broke us up* to make use of his own expressions, by having procured our hands and machinery: he was also aware that what he was doing was not right.")

116. Letter from Brown, Page & Co. to Charles Munns (Dec. 18, 1808) (on file with the Hagley Museum & Library, Wilmington, Delaware, Longwood Manuscripts, Du Pont Archive, Group 5, Series C, Box 48); Charge to the Jury in *Munns v. Du Pont*, *supra* note 112.

117. Letter from Peter Bauduy to Daniel Call, *supra* note 112; Letter from Peter Bauduy to James Hudson (1809) (on file with the Hagley Museum & Library, Wilmington, Delaware, Longwood Manuscripts, Du Pont Archive, Group 5, Series C, Box 48).

118. Charge to the Jury in *Munns v. Du Pont*, *supra* note 112.

119. Letter from Charles Munns to Brown Page & Co. (Dec. 23, 1808) (on file with Hagley Museum & Library, Wilmington, Delaware, Longwood Manuscripts, Du Pont Archive, Group 5, Series C, Box 48).

get to Richmond as soon as possible so they could complete their own mill.¹²⁰

Brown, Page argued to Du Pont that the millwright whom Munns had contacted “like any other mere mechanician . . . was perfectly at liberty to dispose of his own time & [sic] services as his interests might suggest.”¹²¹ Yet their correspondence with Munns suggests that they knew their efforts were questionable, at least as a matter of custom or morals if not as a matter of law. Brown, Page told Munns:

[T]he severe drubbing inflicted on you by Mr. Du Pont & his associates [was excusable]. . . . Mr. D has no doubt acted very rashly & improperly, but taking all circumstances into consideration, we think it will be prudent to take no notice of what is past—He certainly had cause to irritate him, in as much as you were endeavoring to obtain secrets appertaining to *his* business from his men *employed by him*.¹²²

The tone of the letter suggests both a desire to insulate the firm from responsibility for whatever injury Munns had suffered in the course of his employment and, perhaps, annoyance at Munns’ complaining about the injuries.

The Du Pont partner’s outrage at the efforts to entice away their workers was hardly noteworthy, as the law prohibited enticement.¹²³ What was significant was the special concern du Pont and Bauduy exhibited about the theft or copying of their technology and their dismay to learn that the law offered no remedy. They advised Brown, Page by letter that they would institute litigation “under the impression that laws are intended to protect laborious innocence against the machinations of envious malevolence.”¹²⁴

Privately, however, du Pont doubted whether that law did, in fact, protect “laborious innocence.” In a letter to the firm’s lawyer, a Du Pont partner wondered whether Munns could be guilty of

120. Letter from Raphael Duplanty, E.I. du Pont de Nemours & Co., to Daniel Call (1809) (on file with Hagley Museum & Library, Wilmington, Delaware, Longwood Manuscripts, Du Pont Archive, Group 5, Series C, Box 48); Letter from Brown, Page & Co. to Charles Munns, *supra* note 116.

121. Letter from Brown, Page & Co. to E.I. du Pont de Nemours & Co. (Jan. 7, 1809) (on file with the Hagley Museum & Library, Wilmington, Delaware, Longwood Manuscripts, Du Pont Archive, Group 5, Series C, Box 48).

122. Letter from Brown, Page & Co. to Charles Munns, *supra* note 116.

123. See Nockleby, *supra* note 19, at 1514-15.

124. Letter from Du Pont to Brown, Page & Co. (Jan. 21, 1809) (on file with Hagley Museum & Library, Wilmington, Delaware, Longwood Manuscripts, Du Pont Archive, Group 5, Series C, Box 48).

enticement.¹²⁵ Du Pont hoped that even if there was “a defect in the tenor of the law” through which this conduct might slip, “we presume the Judge has it left to his discretion to extend the said law in some measure when convinced that the injury done is extremely prejudicial to the party injured, and aware that the case had not been foreseen at the time the laws were enacted.”¹²⁶

Du Pont inquired of a Richmond lawyer, Daniel Call, whether the company could sue Brown, Page, and was disappointed with the answer. Du Pont could maintain an action, Call said, against any of the partners of Brown, Page who “were privy to the enticing away of your workmen.”¹²⁷ But, since they had no patent right to the design of the mills or to the machinery taken or copied, “I rather think no action can be sustained for taking the copies, it being what the law calls ‘damnum absque injuria.’”¹²⁸

Learning that the law offered no protection for the information itself was an important lesson for du Pont and his partners. For some years thereafter, the firm chose to rely heavily on informal sanctions and public opinion, rather than on legal remedies, to protect the secrecy of its technology. As du Pont complained about Brown, Page:

[W]e will at least satisfy our selves by publishing their transaction with their own letters and exposing to light their infamous conduct. We hope that publication will be sufficient to prove [sic] every man of honor that they do not deserve the appellation of *Gentlemen* by which they have hitherto been qualified.¹²⁹

That du Pont and his partners did not share the modern sensibility about the harm of employee mobility is obvious from how they conceptualized the injury the company suffered from the Munns affair. Du Pont seemed especially alarmed that the prospect of high wages the firm’s competitors offered to get those secrets would make the workman “unruly.” Raising their expectations, du Pont lamented, would leave “no possibility for us to maintain under the same severe regulations persons persuaded that other people will treat them better than we do.”¹³⁰ The danger of powdermen becoming resentful

125. It is unclear why Munns and Brown, Page & Co. would not be liable for enticement, inasmuch as Baughman and Hans Peebles, a refiner, had left du Pont’s employ.

126. Letter from Raphael Duplanty to James Rogers, *supra* note 112.

127. Letter from Daniel Call to E.I. du Pont de Nemours & Co.? (Jan. 21, 1809) (on file with Hagley Museum & Library, Wilmington, Delaware, Longwood Manuscripts, Du Pont Archive, Group 5, Series C, Box 48).

128. *Id.*

129. Letter from Raphael Duplanty to Daniel Call, *supra* note 120.

130. *Id.*

seemed especially great because powder mills were hazardous, and du Pont feared that discontented workmen were likely to be careless. He observed, "The safety of our family, the safety of the families in our employ, the safety of the farmers who live in our neighborhood has imposed upon us the absolute duty of making choice of steady, sober men and of establishing the most rigid discipline among our workmen."¹³¹ Time and again, du Pont described his competitors' overtures to his employees not only as dishonorable but also as likely to promote unjustified unrest among workers who should otherwise be satisfied with their position at the Brandywine mills.

By the spring of 1810, Munns had landed on his feet. He was the superintendent of a powder mill at Frankford, near Philadelphia. Not content to let success in business be his revenge, he sued du Pont and his partners for malicious prosecution, claiming \$100,000 in damages.¹³² The suit alleged that du Pont and Bauduy lacked probable cause to have Munns arrested in Virginia and to institute the criminal charges in Delaware. United States Supreme Court Justice Bushrod Washington, riding circuit, presided. Munns brought the suit at least in part to recoup the funds he had spent in his defense against du Pont's civil and criminal proceedings against him, as he still owed his lawyers fees for the defense.¹³³

Munns suffered a nonsuit. Justice Washington's charge to the jury exhaustively summarized the evidence and suggested that du Pont had sufficient proof that Munns was involved in the effort to steal the brass pounder and the sieves. The judge also noted the care that du Pont had taken to preserve the secrecy of his powder mills.¹³⁴ The issues he posed for the jury were (1) whether du Pont had probable cause to have Munns criminally prosecuted for arranging the theft of his equipment and copying his machines and (2) whether du Pont lacked malicious intent in pressing the charges.

131. *Id.*

132. Letter from C.J. Ingersoll to E.I. Du Pont de Nemours & Co. (Dec. 18, 1810) (on file with Hagley Museum & Library, Wilmington, Delaware, Longwood Manuscripts, Du Pont Archive, Group 5, Series C, Box 48).

133. Letter from Charles Munns to William Clarke Frazer (Dec. 14, 1810) (on file with the Hagley Museum & Library, Wilmington, Delaware, Longwood Manuscripts, Du Pont Archive, Group 5, Series C, Box 48).

134. Case of Malicious Prosecution, *Munns v. Du Pont*, 17 F. Cas. 993 (D. Pa. 1811) (on file with the Hagley Museum & Library, Wilmington, Delaware, Longwood Manuscripts, Du Pont Archive, Group 5, Series C, Box 48, File: Special, Munns Lawsuit (documents)).

In nonsuited Munns, the jury—composed of grocers and other merchants of Wilmington¹³⁵—must have determined both that du Pont had probable cause and that he lacked malicious intent. The evidence as the judge presented it to the jury was undisputed; their only task was to apply the law to it. If the law were clear that Munns had done no wrong, the jury could not have returned the verdict that du Pont had probable cause to have him arrested and, probably, would not have concluded that du Pont lacked malice. Conversely, if the law were clear that Munns was not entitled to learn Du Pont technology by the means that he chose, one would think that du Pont's action against him would have been successful.¹³⁶ The various pieces of litigation involving du Pont and Munns thus reveal the ambivalence of the law—at least as represented by a few courts at that time in Wilmington—toward du Pont's right to restrict the dissemination of the company's secrets. If it were indeed undisputed, as a matter of fact, that Du Pont employees took the pounder and sieves with them when they departed for new employment, either du Pont had cause to seek criminal prosecution for their theft, or the employees were entitled to take them.

The Du Pont company's difficulties with competitors trying to learn its methods by recruiting away its employees may have prompted it to take even more care to exclude strangers from its mills. In 1811, shortly after the Munns litigation drew to a close, the company posted a list of rules in the powder mills. The rules forbade "strangers of any description" to enter the powder yard and required the men to eject any strangers who entered.¹³⁷ The problem of employee mobility, however, remained.

The same year, Thomas Ewell, who owned considerable real estate in Georgetown and Washington, wanted to establish himself as

135. Jury in *Munns v. Du Pont*, 17 F. Cas. 993 (D. Pa. 1811) (on file with the Hagley Museum & Library, Wilmington, Delaware, Longwood Manuscripts, Du Pont Archive, Group 5, Series C, Box 48).

136. In Munns' malicious prosecution suit, the judge informed the jury that Munns had been acquitted of the criminal charges. However, the judge also stated that the prosecution had sought to require Munns to pay the costs of the prosecution pursuant to a Delaware law that evidently required the accused to pay the costs of a prosecution for which there was probably a cause. Munns agreed voluntarily to do so in order to forestall the court from making a formal finding that the prosecution had been supported by probable cause. Case of Malicious Prosecution, *Munns v. Du Pont*, *supra* note 134. No record remains in the Du Pont archive of the civil proceeding that du Pont instituted against Munns. Munns' malicious prosecution suit was based entirely on the criminal proceedings.

137. Factory Rules (on file with Hagley Museum & Library, Wilmington, Delaware, Eleuthera (Bradford) du Pont Collection, Accession 146, Box 3, Folder 30).

powder maker for the United States government. Du Pont jealously watched this potential competitor and, being unwilling to share his secrets, rejected Ewell's overtures to form a partnership of sorts, ostensibly because the market for gunpowder was already oversupplied.¹³⁸ He also rejected Ewell's request to borrow one of the superintendents from the Brandywine mills.¹³⁹ Du Pont sought to convince Ewell that he would learn nothing valuable by hiring away any of the Du Pont workers: "[O]ur manufactory is entirely superintended by our E.I. Du Pont and his brother and . . . the hands employed under them are nothing but common labourers who understand nothing of the principles and nature of the work they are set about."¹⁴⁰ As in the Brown, Page dispute, Du Pont was concerned about the possible loss of its secrets. However, Du Pont was also concerned that Ewell's "bribes" to the workers, "offering them two or three times as much wages as they [were] worth" to get Du Pont company secrets, would cause unrest.¹⁴¹

Ewell replied and protested his innocence of "brib[ing] your hands to desertion from you." He attempted again to persuade du Pont to join him in his new mill. Anticipating the rejection of that overture, Ewell offered to pay du Pont in cash to provide specified information and technical assistance. Interestingly, he sought the most basic of information about making gunpowder: "the rule for adding water to the composition—for pounding—the rule for judging when the composition is sufficiently mixed."¹⁴² He also wanted to hire one of du Pont's "hands acquainted with the mechanical part" along with "a complete set of punches for making holes in the various sifters for granulating the powder." Finally, he requested the opportunity "to attend a month at your mill for improvement in the mechanical operations."¹⁴³

While Ewell was trying to persuade du Pont to collaborate with him, he was, at the same time, trying surreptitiously to get

138. Letter from E.I. du Pont, E.I. du Pont de Nemours & Co., to Thomas Ewell (Dec. 14, 1811) (on file with Hagley Museum & Library, Wilmington, Delaware, Eleuthera (Bradford) du Pont Collection, Accession 146, Box 2, Folder 13.

139. Letter from Thomas Ewell to E.I. du Pont de Nemours & Co. (Dec. 8, 1811) (on file with Hagley Museum & Library, Wilmington, Delaware, Eleuthera (Bradford) du Pont Collection, Accession 146, Box 2, Folder 13.

140. Letter from E.I. du Pont to Thomas Ewell, *supra* note 138.

141. *Id.*

142. Letter from Thomas Ewell to E.I. du Pont de Nemours & Co., (Dec. 22, 1811) (on file with Hagley Museum & Library, Wilmington, Delaware, Eleuthera (Bradford) du Pont Collection, Accession 146, Box 2, Folder 13.

143. *Id.*

information about Du Pont methods. Ewell wrote to one of Du Pont's powdermen, professing that "Honor & gentlemanly feeling prohibit my holding out any inducements to you to quit those with whom you now are. And I am sure you wd. not yield—were I to wish you—to act contrary to engagements existing."¹⁴⁴ But, he added, "you possess information—and I want it immediately. There is no impropriety in yr. parting with this. It is your right—all men sell it—and the man must be a fool who will complain of your doing it."¹⁴⁵ It is interesting that Ewell thought (or at least claimed) that "honor & gentlemanly feeling" prohibited him from getting his competitor's knowledge by enticing away an employee but allowed him to buy the information from the employee outright. At the time, this was a correct statement of what the law permitted, whatever it reflects about prevailing notions of honor and "gentlemanly feeling."

Du Pont regarded Ewell's overtures to his powdermen as "villainy," and it led to a protracted dispute between them. In April of 1812, du Pont fired off an angry missive, complaining that Ewell's efforts to recruit away Du Pont employees were "raising the pretensions" of his workman.¹⁴⁶ He proclaimed, "More than twenty other hands who know very well that they possess as much information as the ones you wish to bribe must naturally suppose they ought to receive the same exorbitant wages."¹⁴⁷ As with Munns, du Pont feared the destructiveness of raising the pretensions and the price of manual labor. Here, however he asserted as well his property rights in his employees' knowledge:

[T]he proportion of skill and knowledge which we may have acquired by continual study and repeated experiments is a private property upon the possession of which depends our existence in the manufacturing line, and for the communication of which no pecuniary consideration, or *cash* as you called it, could be an adequate compensation.¹⁴⁸

He concluded by appealing to a distinction between honorable and despicable competition:

144. Letter from Thomas Ewell to Charles Munns (Nov. 24, 1811) (on file with Hagley Museum & Library, Wilmington, Delaware, Eleuthera (Bradford) du Pont Collection, Accession 146, Box 2, Folder 13).

145. *Id.*

146. Letter from E.I. du Pont, E.I. du Pont de Nemours & Co., to Thomas Ewell (Apr. 8, 1812) (on file with Hagley Museum & Library, Wilmington, Delaware, Longwood Manuscripts, Du Pont Archive, Group 5, Series C, Box 48).

147. *Id.*

148. *Id.*

[A] fair competition is certainly useful in every branch of Industry, it compels every one to improve: to such competition . . . we never will object, but to be stealing in the dark the improvements of others is a mean unworthy action which inevitably annihilates all kind of useful exertion.¹⁴⁹

The letter closed with a threat, not of litigation (perhaps the episode with Charles Munns and Brown, Page had convinced du Pont of the futility of resorting to the law) but of humiliation. If Ewell enticed away any Du Pont hands or, indeed, if he so much as employed any man who had ever worked for Du Pont, du Pont threatened to “expose” that conduct by publishing a letter Ewell had written to a Du Pont employee, Hugh Flannigan, attempting to entice him away.¹⁵⁰

Ewell’s response recast the claim of moral right in the dispute by suggesting that du Pont was a grasping foreigner who refused to contribute to the improvement of American manufactures or to reward the talent of American workmen. (Ewell’s claim to being the true American evidently was based on his having emigrated from England in 1794 and married a granddaughter of Martha Washington.¹⁵¹) He accused du Pont of exploiting his labor and protested his own innocence in driving up wages, as he said he would pay only “common wages” to all but the most skilled. Ewell also scoffed at du Pont’s claim to have a right to protect his secret knowledge:

There is no truth in your declaration that cash could not pay you for your property in the skill in making gun powder. It is for that article you have with peculiar caution erected a french manufactory at Brandywine not with the slightest claim to originality more than myself You display the falsehood of your estimation of your “common laborers” by complaining, as a great grievance, of their loss, from bribing and by the advance of wages Your men have a little knowledge of the practical part for which I would pay well, and it is infamous in you to keep them in slavery, and from the benefit you know their knowledge is worth to them, gained by experience in the greatest danger Any but a miserable, narrow

149. *Id.*

150. The letter that du Pont threatened to publish said “Mr. Mitchel your friend tells me you are an excellent hand at the manufacture of Gunpowder, and that you had expressed a willingness to engage with the powder makers at New York with Mr. Quigg.” Letter from Thomas Ewell to Hugh Flannigan, E.I. du Pont de Nemours & Co. (Mar. 27, 1812) (on file with Hagley Museum & Library, Wilmington, Delaware, Longwood Manuscripts, Du Pont Archive, Group 5, Series C, Box 48). Ewell offered \$800 per year and a wage increase after six months “if you manage well.” *Id.*

151. DU PONT, *supra* note 105, at 38 n.2.

minded and selfish wretch, would promote their success after faithful servitude¹⁵²

Ewell responded to du Pont's threat of humiliation by suggesting that, if du Pont would open his workmen's private letters, he was the sort of vile foreigner who would stop at nothing to injure his competitors:

You forget it was an American you were addressing. You fancied it was one of those animals, overbearing in prosperity, servile in adversity, commonly called frenchmen. Know then, if I ever hesitate to give employment to one of your men, it will not be from fear of you or of publicity to your wrath; because I prefer your open enmity to your friendship, as most sensible men do that of your nation¹⁵³

The tone of the correspondence, along with subsequent events, suggest that both du Pont and Ewell anticipated making their letters public. In this context, Ewell's invocation of American chauvinism was a clever rhetorical move. Ewell had emigrated to the United States from England only four years before du Pont arrived from France. He was hardly more "American" than was du Pont. In 1812, a low point in U.S.-British relations, an erstwhile Englishman who wanted to sell gunpowder to the United States no doubt needed every shred of patriotic legitimacy he could get if his competitor was to be a man who came from France. Ewell's insistence that he was the true American should be understood as an effort to prove his loyalty, which might have seemed particularly important as du Pont was about to embark on the project of manufacturing the gunpowder essential to a war against England.

Ewell fired the opening shot in the war for public opinion by publishing an advertisement in the Wilmington newspaper addressed "To Powder Makers" seeking "an able superintendent of character."¹⁵⁴ By promising "regular promotion in the establishment from the more laborious work and low wages to better situations; so that all will have the prospect of reward for faithful and diligent attention," Ewell undoubtedly meant to suggest that du Pont failed to give his own employees the chance to profit from their skill and

152. Letter from Thomas Ewell to E.I. du Pont, E.I. du Pont de Nemours & Co. (Apr. 12, 1812) (on file with Hagley Museum & Library, Wilmington, Delaware, Longwood Manuscripts, Du Pont Archive, Group 5, Series C, Box 48, File: Special, Ewell Corres. (out)).

153. *Id.*

154. Du Pont Advertisement, *To Powder Makers*, in THE WATCHMAN (Wilmington, Delaware) (April 14, 1812) (on file with the Hagley Museum & Library, Wilmington, Delaware, Longwood Manuscripts, Du Pont Archive, Group 5, Series C, Box 48).

ability.¹⁵⁵ Ewell had copies of the advertisement posted at the homes of powder workers in Wilmington and distributed to the workmen at Du Pont's mills.¹⁵⁶

Meanwhile, Ewell kept up his correspondence with Hugh Flannigan, offering a generous salary and asking him to bring more hands. Flannigan apparently wanted assurances that Ewell really would provide better conditions than he had at Du Pont's mill. Ewell reassured him both about working conditions and that Flannigan and Quigg would be paid well above the market. Ewell also sought to assure Flannigan that he and Quigg would be the only powdermen in the mill being so well paid, apparently because Flannigan was as concerned about his relative status as he was about his absolute compensation. Ewell impressed upon him the dire need he had for his "skills & management."¹⁵⁷

Not to be outdone in the public opinion battle, in June of 1812, du Pont wrote and published a pamphlet called "Villainy Detected." The pamphlet accused Ewell of incompetence in the manufacture of gunpowder and of "villainy" in his efforts to get Du Pont knowledge by offering "extravagant wages" to workmen.¹⁵⁸ The pamphlet announced du Pont's intention "to enter a suit at law against Dr. Ewell, in hopes of obtaining redress and in order to put a stop to such unjustifiable proceedings."¹⁵⁹ However, "in the mean time," the pamphlet continued, du Pont considered it "a duty towards the government who have been deceived & to themselves who have been injured" to reveal Ewell's perfidy in attempting to pass himself off as a competent powder maker only by enticing away someone else's workman.¹⁶⁰ And the pamphlet then published the letter Ewell wrote to Flannigan.

Interestingly, du Pont did not appear to make any effort to restrain an early non-family partner in the Du Pont firm, Peter Bauduy, from using the firm's techniques when he started a competing mill on his estate near Wilmington. This was not because

155. *Id.*

156. *Id.* The clipping has with it a handwritten note stating: "the following singular advertisement has been published in the Watchman of Wilmington Delaware, posted up at the workers home in Wilmington and distributed in hand bills to all the workmen of E.I. Du Pont & Co. Manufactory."

157. Letter from Thomas Ewell to Hugh Flannigan, E.I. du Pont de Nemours & Co. (May 3, 1812) (on file with the Hagley Museum & Library, Wilmington, Delaware, Longwood Manuscripts, Du Pont Archive, Group 5, Series C, Box 48).

158. E.I. DU PONT, VILLAINY DETECTED (1812).

159. *Id.*

160. *Id.*

Bauduy left the firm on good terms; the dissolution was acrimonious and led to protracted litigation. The extant correspondence about Bauduy's methods was from E.I. du Pont's father to a French partner, and confidently stated: "even though he has taken many of our workmen, though he uses almost the same machinery and methods of mixing—no powder compares with ours—all because of Irene's skill and his marvelous industry."¹⁶¹

The episodes involving Munns and Ewell reveal that du Pont understood the value of the secrecy of the firm's powder-making techniques and that the law offered inadequate protection for them. They also reveal an attitude about the social and economic costs of employee mobility that was steeped in moral notions of loyalty and duty. Enticing employees to get their knowledge was as dishonorable as it was unfair. It was destructive partly because it reduced the incentive to invest in research, but also because it made the powdermen dissatisfied with their position. The dissatisfaction might harm the firm because it would cause dangerous carelessness, but also because labor turnover would reduce production and disseminate information about Du Pont's technological advantages to other employers.

When du Pont learned in 1812 that he had little recourse for the theft of sketches of his unpatented powder mill and machinery, he was presumably not alone in thinking that the law should provide a remedy. However, the English and American law of trade secrets did not develop and restrictive covenants were not enforced against employees until after 1860.¹⁶² When du Pont's lawyer opined that Munns' and Peebles' misappropriation of powder manufacturing techniques was *damnum absque injuria*, Call revealed the limits of the law as much as the limits of his own imagination. It was only twenty years later that the earliest seeds of trade secret doctrine sprouted in the first edition of Joseph Story's treatise on equity, but none of the cases on which Story relied had been decided when Call wrote. No

161. Letter from E.I. du Pont de Nemours to Johanno (believed May 1817) (quoted and translated in DU PONT, *supra* note 105, at 51-52).

162. Although a twentieth-century enthusiast claimed ancient origins for the notion of employer property in ideas, see generally A. Arthur Schiller, *Trade Secrets and the Roman Law; The Actio Servi Corrupti*, 30 COLUM. L. REV. 837 (1930), English and American law did not recognize such a claim until the latter half of the nineteenth century. My focus is principally on American cases; however, because English cases were routinely cited in American treatises and cases until well into the twentieth century, I discuss the leading English cases when relevant. The English law of trade secrets is summarized in TREBILCOCK, *supra* note 5, and William B. Barton, *A Study in the Law of Trade Secrets*, 13 U. CIN. L. REV. 507, 508-11 (1939).

doubt, the need for such a doctrine was evident to many lawyers. How that doctrine could be stitched together from existing precedent was not.

II. The Development of Trade Secrets as an Obligation of Employment and the Use of Contracts to Control Knowledge, 1860-1890

There was no case until after the Civil War that recognized an obligation of employees to guard the secrets of the workplace. Neither was there any case enforcing a restrictive covenant ancillary to an employment agreement. The principal doctrinal development on these issues during the first two postbellum decades was to recognize both of these propositions. The import of the initial recognition, however, went unrealized in the courts and in company practices until the end of the century.

A. The Creation of Trade Secret Obligations of Employees and the Early Enforcement of Restrictive Covenants Ancillary to Employment

The duty of employees to protect trade secrets was first established in the United States in the influential 1868 Massachusetts case, *Peabody v. Norfolk*.¹⁶³ Neither the litigants nor the judge acknowledged the novelty of the claim or the ruling. The defendant machinist had been employed as an engineer in the plaintiff's factory, which manufactured gunny cloth from jute.¹⁶⁴ Norfolk had agreed in writing not to reveal information about machinery used there.¹⁶⁵ Upon allegations that Norfolk had quit Peabody's employment and aided others in constructing a factory with machines like Peabody's (and had provided them copies of the original drawings of Peabody's machines), the court enjoined Norfolk from revealing the secrets to those with whom he was involved in building the other factory.¹⁶⁶

The potential importance and evident novelty of the case was not even hinted at in the pleadings. Obviously, it was not in Peabody's interest to note that the relief sought was unprecedented, nor would a lawyer in that era likely think it his role to advocate major change. So, Peabody's lawyer employed the rhetorical strategy of making the claim seem so obvious as to be a matter of common sense. In the bill of complaint, he portrayed his client as a small-time entrepreneur-

163. 98 Mass. 452 (1868).

164. *Id.* at 453.

165. *Id.*

166. *Id.* at 460-61.

inventor who had begun by conducting “experiments” to develop the machinery on his farm and had employed Norfolk as a machinist to assist “in originating, inventing, adapting, and perfecting” the machinery.¹⁶⁷ When the trials of the machinery were successful, Peabody employed Norfolk to aid in the construction of a factory housing the equipment to manufacture gunny cloth on a larger scale.¹⁶⁸ Although the pleadings emphasized the misappropriation of the drawings themselves, Peabody sought and received an injunction requiring Norfolk to return the drawings and to refrain “from communicating . . . any knowledge of the said machinery or of the models and plans of the same,” from “building any such machinery for any other person or persons,” from “communicating said secret process of manufacturing Jute cloth from Jute butts as aforesaid,” and “from using said process in company with any other person or persons or by himself.”¹⁶⁹

Norfolk’s new employer, James Cook, demurred to the bill.¹⁷⁰ In his brief in support of the demurrer, Cook contended that the promise was void as a restraint of trade because it “restrains him from ever using during his life at any time or place the skill acquired in this employment.”¹⁷¹ He also argued that the machinery’s design and operations were not secret because all who worked in or visited the factory could observe the machinery in operation.¹⁷²

Given that Norfolk had copied drawings of the machines, *Peabody* cannot be read as stating a rule prohibiting employees from using general knowledge of machine design. Further, Justice Gray’s statement of the case emphasized that it was the plaintiff who designed the machinery, not Norfolk’s new employer, and thus the injunction was solidly in the tradition of patent law: to protect the

167. Bill of Complaint, *Peabody v. Norfolk*, 98 Mass. 452 (1868), (on file with the Hagley Museum & Library, Wilmington, Delaware, Accession 1305, Box 771).

168. *Peabody*, 98 Mass. at 459.

169. Bill of Complaint, *Peabody v. Norfolk*, 98 Mass. 452 (1868), (on file with the Hagley Museum & Library, Wilmington, Delaware, Accession 1305, Box 771). Du Pont’s lawyer in the *Masland* case made a copy of the *Peabody v. Norfolk* pleadings from the ones in the Social Law Library, Boston, Massachusetts.

170. Demurrer, *Peabody v. Norfolk*, 98 Mass. 452 (1868) (on file with the Hagley Museum & Library, Wilmington, Delaware, Accession 1305, Box 771).

171. Points for James P. Cook, *Peabody v. Norfolk* (on file with the Hagley Museum & Library, Wilmington, Delaware, Accession 1305, Box 771).

172. Points for James P. Cook, *Peabody v. Norfolk*, 98 Mass. 452 (1868) (on file with the Hagley Museum & Library, Wilmington, Delaware, Accession 1305, Box 771), and the court, 98 Mass. at 459, relied on the sixth edition of Story’s COMMENTARIES ON EQUITY JURISPRUDENCE. 1 JOSEPH STORY, COMMENTARIES ON EQUITY JURISPRUDENCE 319-21 (6th ed. 1853); see also STORY, *supra* note 62, at 261.

right of one who “invents or discovers, and keeps secret, a process of manufacture . . . against one who in violation of contract and breach of confidence undertakes to apply it to his own use, or to disclose it to third persons.”¹⁷³ Although Norfolk had agreed that he would “not give any parties information, directly or indirectly, in regard to the machinery, or any portions of it,”¹⁷⁴ later courts did not read the decision as allowing an employer to control all employee knowledge. Moreover, *Peabody* was read to establish a duty to guard trade secrets irrespective of whether the employee in question had expressly agreed to do so.

For at least two decades after *Peabody*, courts did not broadly construe the scope or duration of the duty to guard secrets. James High’s treatise on injunctions described *Peabody* in narrow terms that equity would protect the inventor or discoverer of a secret from revelation by “one who, in violation of his contract and in breach of confidence, undertakes to apply the process to his own use or that of third persons.”¹⁷⁵ High thus specifically mentioned the existence of the express contractual promise of secrecy that had been the foundation of the *Peabody* holding.

A New Jersey equity court in 1886 refused to conclude that an implied (or at least oral) employee agreement not to divulge the employer’s suppliers and customers extended beyond the term of the employment.¹⁷⁶ The court explained:

It may be regarded as an undertaking on the part of the employee not to injure his employer’s business in that way so long as he shall remain in his service. The employee, notwithstanding such agreement, might himself, after leaving the employment, use the knowledge he had obtained. He might sell to the customers of his late employer, and buy of those from whom the latter purchased, and do both in competition with him.¹⁷⁷

The court denied the plaintiff the opportunity even to show that the defendants had specifically agreed not to compete with him although it allowed him to prove that the defendants were obligated not to use the employer’s processes for tanning leather.¹⁷⁸ In his treatise on the law of master and servant, Horace Wood echoed this rule. Wood stated it was impermissible for an employee “while engaged in his

173. *Peabody*, 98 Mass. at 458.

174. *Id.* at 453.

175. JAMES L. HIGH, A TREATISE ON THE LAW OF INJUNCTIONS 408 (1873).

176. *Salomon v. Hertz*, 40 N.J. Eq. 400, 403 (1885).

177. *Id.*

178. *Id.* at 402-403.

master's service, to diminish his business or detract from his profits *during the term*, yet he may solicit trade from his master's customers for himself, when he shall set up in the same business for himself, after the term has expired."¹⁷⁹

Wood's statement of the law aptly summed up the development of trade secret law during the twenty-five years after the Civil War. Courts had recognized the important principle that some employees were obligated not to disclose secrets of the trade. What qualified as a protectable secret remained very limited. And the basis for confidentiality was still grounded fairly clearly in express contract; it was not regarded as inhering in all employment relations. High's treatise on injunctions grounded the obligation to guard secrets in the pre-existence of a confidential relationship, as with "attorneys, agents, or in other confidential relations."¹⁸⁰

During this era, covenants not to compete were first recognized to be a basis to protect employers' rights in knowledge and information possessed by former employees. One of the earliest published American cases involving a restrictive covenant ancillary to an employment contract was *Keeler v. Taylor*,¹⁸¹ an 1866 Pennsylvania Supreme Court decision. *Keeler* involved a "mechanic," who had agreed, in consideration for training in the manufacture of platform scales plus \$1, never to make platform scales for anyone else or to convey the information he learned to anyone else.¹⁸² The mechanic agreed that he would pay his former employer \$50 for any scales made in violation of the agreement.¹⁸³ He worked for the plaintiff for seven years and then set up for himself in the manufacture of scales.¹⁸⁴ Under the norms of the artisanal relationship, the mechanic would have been free to leave at the end of the customary seven-year apprenticeship, taking his knowledge and skill with him. The employer, however, chose to litigate to repudiate the old way of doing things.

Although later cases confronted with these facts would likely have enforced the contract on the ground that the plaintiff's manufacturing techniques were trade secrets, the Pennsylvania court did not. The court held the agreement unenforceable because it

179. HORACE GAY WOOD, A TREATISE ON THE LAW OF MASTER AND SERVANT 225 (2d ed. 1886).

180. HIGH, *supra* note 175, at 15.

181. 53 Pa. 467 (1866).

182. *Id.*

183. *Id.* at 468.

184. *Id.*

“restrained the industry of the defendant, not in a particular locality, but everywhere, not for a specified period, but for a lifetime”¹⁸⁵ The contract was also objectionable because it levied “a tax or duty” upon “the industry of all who may derive their information from” the employee.¹⁸⁶ The employer had no entitlement to monopolize the method because he was neither the inventor nor the patentee of the scales, but simply had taught his employee “his handicraft.”¹⁸⁷ Finally, the court concluded that an equity court should “regard the hardship of the bargain, and the prejudice to the public.”¹⁸⁸ Although the court did not press the point, the employee must have argued that the contract lacked consideration: Why would anyone regard training in the manufacture of platform scales as valuable if the knowledge could not be used elsewhere? Implicit in the court’s reasoning is that, in the absence of a patent, an employer could not restrain his employees’ subsequent use of the knowledge of the trade they had learned, just as master craftsmen could not restrain their apprentices from setting up for themselves once they had learned the trade and completed the requisite seven-year term of apprenticeship.

Most courts in this era appeared no more willing to allow commercial employers to restrain former employees from soliciting customers than they were to allow manufacturers to restrain the use of technology. Massachusetts was the only state to report a decision on a post-employment restraint on soliciting customers. Even that case, *Morse Twist Drill Co. v. Morse*,¹⁸⁹ did not squarely establish that such covenants would routinely be enforced, for the case was more akin to a sale of business than a simple employment relationship. The employee who was enjoined, Morse, had formed the plaintiff Morse Twist Drill company in order to manufacture and sell a twist drill that he had invented, the patent for which he had assigned to the firm.¹⁹⁰ When Morse sold the company, moved to another state, and began soliciting the customers of the firm he had founded, the court enjoined him on the ground that the competition effectively appropriated “a part of that which he has sold to the plaintiffs.”¹⁹¹

Both *Keeler* and *Morse Twist Drill* used the existence of a patent as marking out the boundaries of knowledge that employees could be

185. *Id.* at 470.

186. *Id.* at 468.

187. *Id.* at 470.

188. *Id.*

189. 103 Mass. 73 (1869).

190. *Id.* at 73.

191. *Id.* at 77.

enjoined from using. To the extent that Morse was enjoined from soliciting customers, it was because he was trying to sell the same thing to the same people after he'd sold his patent rights and business. Thus, the few trade secret and covenants cases before 1890 imposed only modest limits on the kinds of knowledge that employees could use and the circumstances in which they could use them. By and large, employees remained free to use all knowledge acquired during the course of their employment. Nevertheless, in recognizing new uses for covenants and a duty of some employees to guard some secrets, a couple of Massachusetts courts articulated a crucial new rule. The importance of these doctrinal developments was not immediately recognized by other courts or treatise-writers, as there was little development in the law for an entire generation afterward.

B. Workplace Practices

That possible uses of these new cases were not brought to the attention of firms is evident from Du Pont's records. There is no record that the Du Pont company tried to bind employees through restrictive covenants or nondisclosure agreements. If such efforts had been made in any systematic way, there would have been a record in Du Pont's voluminous files. Of course, cases like *Peabody* were few and none was decided in Delaware. Although later scholarship portrayed *Peabody* as a watershed, there is no evidence that it was so perceived in its day. Neither, given the difficulties of legal research and the sketchy treatment of it in treatises, would lawyers for other firms have run across it.

What one saw instead at Du Pont was rapid growth of a company that was keen to learn as much as possible about everyone else's methods while taking few legal steps to protect its own. The company wanted to avoid conflict over recruitment and, therefore, refused to hire employees from competitors as a matter of policy.¹⁹² Nevertheless, it eagerly acquired technology by whatever methods seemed least likely to provoke litigation – whether by buying up

192. Letter from A.V. du Pont to Frederick Wright (Nov. 2, 1847) (on file with the Hagley Museum & Library, Wilmington, Delaware, Longwood Manuscripts, Du Pont Archive, Group 5, Series A, Box 2) (rejecting application for employment and describing company's policy against hiring outsiders); Letter from unknown to Charles McKinney (Dec. 1843) (on file with the Hagley Museum & Library, Wilmington, Delaware, Du Pont archive, Longwood Manuscripts, Du Pont Archive, Group 5, Series A, Box 1) (declining application for employment and describing company's policy not to hire those who have worked at other powder factories).

competitors, purchasing patents,¹⁹³ or touring competing mills.¹⁹⁴ Du Pont did attempt, until the 1860s, to prevent the dissemination of knowledge (as well as to maintain quality control) by building only as many powder mills as members of the firm could personally supervise. Even that changed when Lammot du Pont developed a way to make powder from soda instead of saltpetre (soda was cheaper and easier to obtain). The increased demand for the new, improved Du Pont powder led the family to expand the business and to abandon the tight family-only supervision of the production process.¹⁹⁵

Du Pont may also have protected itself from the loss of employees by being somewhat benevolent (or at least paternalistic) toward its employees. Whereas early in the century E.I. du Pont seemed most concerned with the physical, social, and economic dangers of raising the pretensions of his powdermen, later du Ponts painted a more benevolent picture of du Pont sons and cousins, with their sleeves rolled up, working alongside their men.¹⁹⁶ These retrospective accounts of the family and the business emphasized respect for the workmen and that the company supported the widows and children of men who had died in powder mill explosions (and that a number of du Ponts died along with them).¹⁹⁷ While one may discount the self-congratulatory aspects of these du Pont histories, the relatively close community they describe has some basis in truth. The

193. During the last third of the nineteenth century, Du Pont purchased the patents of independent inventors and, in many cases, contracted with the inventors to provide their services in developing and improving the patent. HOUNSHELL & SMITH, *supra* note 105, at 38. The acquisition of patents from independent inventors rather than from persons employed by the firm was common among all companies in this era. Lamoreaux & Sokoloff, *supra* note 13; Naomi R. Lamoreaux & Kenneth L. Sokoloff, *Long-Term Change in the Organization of Inventive Activity*, 93 PROC. NAT'L ACAD. SCI. USA 12686, 12687-90 (1996).

194. Lammot du Pont made an extensive tour of European powder mills in 1858 for the sole purpose of learning the latest methods. Journal entry of Lammot du Pont (1858) (on file with the Hagley Museum & Library, Wilmington, Delaware, Longwood Manuscripts, Du Pont Archive, Group 5, Series A, Box 2); Letter from Lammot du Pont to Mother (Apr. 4, 1858) (on file with the Hagley Museum & Library, Wilmington, Delaware, Longwood Manuscripts, Du Pont Archive, Group 5, Series A, Box 2). Sixty years later, when Du Pont was considering diversifying into the manufacture of dyestuffs, the Development Department emphasized the need "to secure as soon as possible from the experienced chemists and workers in England, France, Italy or Switzerland, the information now existent in the art." *Quoted in* HOUNSHELL & SMITH, *supra* note 105, at 82.

195. DU PONT, *supra* note 105, at 80.

196. *See id.*

197. *See id.*; *see generally* DUTTON, *supra* note 105.

du Pont family house, along with housing for some powder mill workers, a school, and a church were all nestled along the bank of Brandywine River in the nearby area.

Du Pont's attention to the value of maintaining the secrecy of its methods is not typical of all nineteenth-century firms. I reviewed some of the archives of the Pennsylvania and Reading Railroads, the Lukens Steel Company, and a few mid-Atlantic textile mills and machine shops. Although most of them left records of sporadic efforts to obtain employee patents in particular cases, none showed an awareness of the value of protecting employee knowledge from their competitors and of the possible uses of the law in doing so. Attitudes about ownership or control of employee knowledge clearly varied among sectors of the nineteenth-century economy. The difference may be attributable to the fact that Du Pont's chemistry-based industry, as compared to an industry where employee skills are mechanical, used knowledge which was most easily characterized as secret information rather than as general skill or technique. The difference may also be attributed to the du Ponts' view that they were more likely to be innovators than imitators, and thus they were generally likely to be more at risk from others learning their methods than from being unable to learn methods of others. Whatever the reason, other sectors of the economy reveal a much more forthcoming group of manufacturers eager to share their recent developments with their customers and competitors.¹⁹⁸

The modest expansion of the doctrines of trade secrets and restrictive covenants in the 1860-1890 period was far outstripped by the development of a variety of institutions committed to the rapid diffusion of technology in many sectors of the economy. The comparative paucity of cases in the era, at least as compared to the sixty years preceding and the thirty that followed, may have something to do with the fact that, unlike Du Pont, many individuals and firms eagerly shared their knowledge and technology and tirelessly participated in networks of learning. Phillip Scranton's careful research has shown how certain sectors of the economy

198. See generally PHILLIP SCRANTON, *ENDLESS NOVELTY: SPECIALTY PRODUCTION AND AMERICAN INDUSTRIALIZATION, 1865-1925* (1997); Robert C. Allen, *Collective Invention*, J. ECON. BEHAV. & ORG. 1, 1-10 (Mar. 1983) (arguing that firms in the nineteenth-century British iron and steel industry shared, through informal disclosure and publication in the engineering literature, information about technical advances in furnace design and operation with other firms in the industry and with potential entrants).

functioned because employers and skilled craftsmen freely shared information about the latest techniques.¹⁹⁹

Entire publications were dedicated to the dissemination of technological advances. A review of several years' worth of issues of the magazines *Practical Machinist*, *American Machinist*, and *Scientific American* from the mid- to late-nineteenth century reveals a popular literature about the detailed workings of all the wonders of the industrial age. These magazines published detailed drawings and chemical formulae along with descriptions of machinery, factories, and processes. *Practical Machinist* ran regular columns on patent law and occasional columns on other relevant legal issues, like termination of employment contracts.²⁰⁰ Its editors aimed to inform the readership of the relevant law both with respect to work relations and with respect to protecting economically valuable technology. The focus was entirely on the termination of employment contracts on the one hand, and patent rights on the other. The connection between the emerging law of master and servant and the need to protect intellectual property was not discussed.

Skilled workers and practical men of learning also participated in societies like the American Society of Mechanical Engineers (ASME) that were important institutions in the dissemination of technical knowledge. The professionalization of engineering that occurred during this era was partly an effort by engineers to seek a certain independence from the strictures of the master-servant relationship. Then, as now, some firms considered it advantageous to have free access to the technical improvements devised by others, even at the expense of losing a monopoly on some of their own. Also, some firms

199. See generally SCRANTON, *supra* note 198; PHILIP SCRANTON, *FIGURED TAPESTRY: PRODUCTION, MARKETS, AND POWER IN PHILADELPHIA TEXTILES, 1885-1941* (1989).

200. A sample of several early issues of PRACTICAL MACHINIST in 1859 and 1860 included articles on the law of unjust dismissal of employees with stated term contracts, see PRACTICAL MACHINIST, Oct. 19, 1859, at 11 (on file with the Hagley Museum & Library, Wilmington, Delaware), enticement of employees with stated term contracts, see PRACTICAL MACHINIST, Nov. 2, 1859, at 30 (on file with the Hagley Museum & Library, Wilmington, Delaware), and a discussion of the developing law of patents when the patentee had employed "a servant" to assist in the development of the invention, see PRACTICAL MACHINIST, Jan. 4, 1860, at 98 (on file with the Hagley Museum & Library, Wilmington, Delaware). None of the issues I reviewed (which covered a two-year period from 1859-1860) mentioned trade secrets or the enforceability of restrictive covenants.

A sample of AMERICAN MACHINIST published between February 1880 and June 1882 (on file with the Los Angeles County Library, Downtown Branch, Los Angeles, California) revealed similar sorts of articles, focusing mainly on how to obtain a patent and the perils of the patent application process.

no doubt wanted to advertise to their customers their own technological superiority. The widespread practice of sharing technological advances documented in publications, in societies like the ASME, in trade schools, and in periodic expositions suggests that many companies preferred to publicize their technological advances (probably relying on patents to protect their monopoly) rather than to claim legal protection for them as secrets.²⁰¹

Although the employee's duty to guard trade secrets received its first recognition in 1868, the duty remained quite limited even by the last decade of the century. The duty was grounded in express contract or in a traditionally confidential relationship like that of attorney and client; it did not arise simply from the fact of employment. The information that the duty protected was mainly

201. One of the complexities of understanding the ways that firms handled economically valuable knowledge is in assessing when they sought to guard methods as secrets and when they sought to share them as advertisements. Scranton's work suggests that often firms considered it in their interest to share information, although he does not attempt to explain when they would have chosen openness rather than secrecy. Robert Allen argues that British iron firms considered it economically advantageous to share technological advances with their competitors. See Allen, *supra* note 198, at 17-20.

The archive of the Lukens Steel Company bears out Allen's thesis and suggests that the company did not appear to regard much of its process as secret. Lukens managers toured other firms to see how they operated and provided information about their operations to others. See, e.g., Letter from C. Ducas to C. Huston (Dec. 22, 1917) (on file with Hagley Museum & Library, Wilmington, Delaware, Lukens Steel Company archives, Accession 50, Box 1993, File 10) (reporting on visit to Bethlehem Steel Co. to learn about their wage payment system); Letter from A. Goodfellow to P. Baker (Jan. 21, 1921), (on file with Hagley Museum & Library, Wilmington, Delaware, Lukens Steel Company archives, Accession 50, Box 2001, Folder 22) (describing a visit to Harrisburg Pipe & Pipe Bending plant to see their continuous furnaces); Letter from C. Huston to A. Goodfellow (July 24, 1922) (on file with Hagley Museum & Library, Wilmington, Delaware, Lukens Steel Company archives, Accession 50, Box 2001, Folder 22) (asking for blue print of method of connecting sectional bottom plates to send to Midvale Steel & Ordnance Co.). This information, however, is anecdotal. I found nothing in the archive showing that no information was regarded as secret. I focused my study on the nineteenth-century history of the firm (the firm was founded in 1810 but the nineteenth-century records are incomplete), all files having to do with employment, and the files having to do with their involvement in a joint venture to manufacture the Jacobs-Shupert firebox, which was claimed to be explosion-proof. See CHRISTOPHER T. BAER, A GUIDE TO THE HISTORY AND RECORDS OF THE LUKENS STEEL CO. 2 (1994) (unpublished manuscript, on file with Hagley Museum & Library, Wilmington, Delaware). The only evidence I found that the firm regarded any information as being its intellectual property was evidence of some patents for particular inventions, such as for the Jacobs-Shupert firebox. See Agreement Between Lukens Co. and A. Baird Regarding Patents Related to Jacobs Firebox Patents (on file with Hagley Museum & Library, Wilmington, Delaware, Lukens Steel Company archives, Accession 50, Box 2058, Folder 13) (Baird was not a Lukens employee, he had been employed on the Santa Fe railroad); Agreement Between Lukens Co. and Jacobs Regarding Firebox Patents (on file with Hagley Museum & Library, Wilmington, Delaware, Lukens Steel Company archives, Accession 50, Box 2058, Folder 7).

discrete, tangible things like recipes or drawings. The use of contract to expand the duty beyond the limits of *Peabody* appeared nonexistent. Although Massachusetts courts would enforce restrictive covenants against employees, there was still plenty of room for employees to claim that economically valuable knowledge was part of the general knowledge of persons in their trade and that equity could not enjoin its use. It was not until the last decade of the nineteenth century that the trade secret rule expanded from its relatively limited beginnings as a way to protect rights to specific and discrete information such as recipes to a more general duty of an employee to refrain from revealing or using *any* information the employer considered secret.

In sum, by the 1870s, Du Pont could have obtained, but did not obtain, legal protection for the drawings of its powder mill machinery and particular chemical formulae if it had expressly contracted with its employees not to divulge specified information that the company regarded as secret. Not until the end of the century would the company likely have succeeded in protecting the full range of its employees' know-how about powder making, such as techniques for mixing powder so as to minimize the risk of explosions, the advantages of using one sort of mixing device as opposed to another, or the rules of thumb for preserving or mixing powder in different weather conditions.²⁰² Yet the company did not claim trade secret protection for any of these. There is no evidence that Du Pont could have obtained protection for its knowledge by restraining all competitive employment by its employees, as courts had not yet accepted the use of restrictive covenants to protect technology. The major expansion in the doctrine and the dramatic changes in company practice occurred in the years that followed.

III. The Expansion, 1890-1930

Profound doctrinal change occurred between approximately 1890 and 1910 as courts rapidly expanded the employee's obligation to guard trade secrets, changed the justification for it, and enthusiastically embraced restrictive covenants as a means to control the use of a broad range of workplace knowledge. Significant change

202. See, e.g., *Stone v. Goss*, 55 A. 736 (N.J. 1903) (affirming an injunction against a chemist and his new employer against using plaintiff's secret formula for a depilatory, against using a process for making the depilatory that the chemist had developed while in the employ of the plaintiff, and against using any information derived from the employee with reference to the secret process).

in company practices at Du Pont followed closely behind, as the company began in 1908 to insist that much of the chemical knowledge in their newly founded research laboratories were trade secrets and sued a former Du Pont research chemist in 1914 to enforce that claim. The doctrinal developments in this era were so radical and so significant that, for the first time, I will discuss trade secrets and restrictive covenants separately. As with Parts I and II, company practices are discussed in the final section.

A. Trade Secrets

Trade secret doctrine expanded and changed significantly between roughly 1890 and 1920. The changes can be grouped into four categories. First, the rhetorical underpinnings of the doctrine changed perceptibly. The early focus on breach of trust shifted to an increased emphasis on misappropriation of property. Second, the earlier reliance on express contracts as the basis of a duty to protect trade secrets shifted to an assertion that the duty was an implied term in *all* employment. Contract ceased being a description of the actual understanding of the parties and instead became prescriptive of the proper content of every employment relationship. Third, the types of knowledge that courts regarded as trade secrets expanded from discrete items to more inchoate know-how, and from the employer's own discoveries to improvements that had originated in the employee. Fourth, and finally, the available remedies for the loss of trade secrets grew more effective with the invention of the inevitable disclosure doctrine.

(1) *From Breach of Confidence to Property in Ideas*

As trade secret doctrine expanded, courts decided that employers owned not merely the drawings or objects but the ideas expressed in them. The basis for the employee's duty to protect secrets became the employer's property right in the ideas rather than the employee's breach of a particular confidence. The contrast between the old rationale and the new one is illustrated by a pair of cases from Ohio and Pennsylvania at the turn of the century.

The Ohio case involved the issue of whether an employer owned the design of a mill used in a tube factory or just the drawings and patterns for it.²⁰³ The plaintiff employed one Harry Nuttall in a factory in which it had a mill.²⁰⁴ The defendant, which was

203. *Nat'l Tube Co. v. E. Tube Co.*, 3 Ohio C.C. (n.s.) 459 (Cir. Ct. 1902).

204. *Id.* at 460.

constructing its own mill, employed Nuttall to get the plaintiff's patterns so that it could construct a mill identical to the plaintiff's.²⁰⁵ The court thought it obvious that Nuttall had breached a duty of loyalty in working for the competitor while also working for the plaintiff, and that the plaintiff owned the patterns themselves.²⁰⁶ Nevertheless, the court did not think that the defendant could be enjoined from constructing the mill or from using Nuttall's knowledge of the mill's design.²⁰⁷ The court particularly emphasized that Nuttall, not the plaintiff, had conceived the idea for the design: That the patterns themselves were trade secrets, the court said,

does not mean that, when I employ a man who has skill, knowledge, and experience in a particular line, ask him to furnish me the knowledge . . . and he then supplies me an article, . . . the idea or ideas he evolves become the property of the employer as a trade secret.²⁰⁸

Rather, the court thought that "the only property interest that the employer can claim is the product of his skill, the industry, and the intelligence of that workman, *i. e.* [sic], he owns the pattern, but he does not own the idea."²⁰⁹ The court reasoned that the narrow definition of a trade secret followed from what it termed the "natural rule of right":

That a man shall have the benefit of all his intelligent thought and enterprise, of all that he may discover by industry and ingenuity Therefore, if these mill owners desire to cripple a man's enterprise and his energy and intelligence, to hamper him in his future employment by requiring that he shall not give to that future employer the benefit of his skill or the things that he has developed for the former master, they must contract to that effect.²¹⁰

By contrast, the Pennsylvania case, decided only two years later, stated quite emphatically that the employer owned "property in the design, in the idea, and in the mental conception, as well as in the piece of paper on which it is expressed."²¹¹ Although the court ordered the defendant only to return the misappropriated blueprints, it obviously envisioned that the remedy would preclude the defendant from using the plaintiff's design.²¹² Interestingly, in response to the

205. *Id.* at 460-61.

206. *Id.* at 461.

207. *Id.* at 464-65.

208. *Id.* at 464.

209. *Id.* at 464-65.

210. *Id.* at 465.

211. *Pressed Steel Car Co. v. Standard Steel Car Co.*, 60 A. 4, 8 (Pa. 1904).

212. *See id.* at 8-9.

defendant's argument that he had breached no duty because it was the custom in the industry for draftsmen to make blueprints of their work and to retain them for their own use, the court said: "If there be such a practice, it is a reprehensible one."²¹³ The Pennsylvania Supreme Court maintained a staunch position that any trade customs by which skilled craftsmen owned their special knowledge or recipes were simply "contrary to law."²¹⁴ The corporate control of all aspects of the production process that Frederick Winslow Taylor trumpeted during this era—scientific management—manifested itself here in the assignment to the firm of the craft knowledge that formerly had been the attribute as well as the possession of the employee.

Yet, the issue of whether an employee breached the trade secret obligation only if he took written information with him was not resolved even when courts began to see that trade secrets could encompass ideas as well as things. Many courts persisted in holding that departing employees could use the knowledge in their head, and would enjoin only the use of information copied down before the employment terminated.²¹⁵ This came to be called the "memory rule."²¹⁶ Thus, in an 1892 English decision often cited by the

213. *Id.* at 8.

214. *Dempsey v. Dobson*, 39 A. 493, 493 (Pa. 1898) (in dispute between carpet manufacturer and dyer formerly employed by it, court refused to consider evidence of trade custom that dyers own yarn samples and recipes because such a custom would be "unreasonable" and "contrary to law"). I describe *Dempsey* and the background to it in detail elsewhere. See Fisk, *supra* note 3, at 1154-56.

215. On criticism of the memory rule, see Blake, *supra* note 5, at 655-56 (noting the criticism of the rule but suggesting that it may be "helpful to courts and probably approximates good sense in most cases" because it can serve as a proxy for those customer relationships that the employee played a significant personal role in creating or maintaining). Recent cases criticizing the memory rule include: *Stampede Tool Warehouse, Inc. v. May*, 651 N.E.2d 209 (Ill. App. 1995); *Ed Nowogroski Ins., Inc. v. Rucker*, 971 P.2d 936 (Wash. 1999). Cases protecting only written trade secrets include: *DeGiorgio v. Megabyte Int'l, Inc.*, 468 S.E.2d 367 (Ga. 1996), and *Pearce v. Austin*, 465 So.2d 868 (La. Ct. App. 1984). Of course, reducing something to writing (or otherwise affixing it) is not irrelevant in the legal system, nor in the law of intellectual property. After all, copyright depends on whether an idea has been somehow fixed.

216. The RESTATEMENT (SECOND) OF AGENCY § 396 (1958) articulated the memory rule for trade secret protection, with an ambiguous qualifier at the end. The agent cannot, after the termination of agency, use "trade secrets, written lists of names, or other similar confidential matters The agent is entitled to use general information concerning the method of business of his principal and the names of the customers retained in his memory, if not acquired in violation of his duty as agent." *Id.*; see also *Hamilton Mfg. Co. v. Tubbs Mfg. Co.*, 216 F. 401, 408 (C.C.W.D. Mich. 1908) (refusing to grant relief upon finding that employee, after resigning, "noted down such of the dimensions of that machine as he could recall, and that from such notes and his recollection, the blueprint was made"); *Fulton Grand Laundry Co. v. Johnson*, 117 A. 753 (Md. 1922) (customer list not a trade secret where employee did not surreptitiously copy the list and new employer

American courts, the court enjoined a former employee from using drawings of fire engines that he had copied before departing from the workplace, where he had been trained as an engineer and draftsman.²¹⁷ In response to the employee's argument that he was entitled to use the drawings because his former employers had been obligated to train him, the court said, "if he can carry them in his head, no one can prevent his doing that and making use of them."²¹⁸

Others rejected the written/unwritten distinction as artificial, pointing out that employees with good memories could pirate valuable secret information simply by memorizing it.²¹⁹ Critics of the memory rule were fond of pointing out that tort liability ought not turn on whether former employees have bad memories or excellent recall. Yet, the distinction between written and unwritten knowledge persisted. The persistence of the memory rule lay in the appeal of property concepts to define the scope of the employer's rights. It was a bright-line rule that loosely corresponded to the judges' intuitive sense of the difference between trade secrets and general

could have discerned the list simply by observing where the employee stopped on his weekly rounds); *Grand Union Tea Co. v. Dodds*, 128 N.W. 1090, 1091 (Mich. 1910) (affirming injunction against using list of customers but stating that employee cannot be restrained from selling commodities to any person "so long as he does not use any property belonging to the complainant, or copies thereof that were surreptitiously made"); *Boosing v. Dorman*, 103 N.E. 1121 (N.Y. 1913) (affirming denial of injunction against former employee using knowledge of customer identities and preferences acquired during employment with plaintiff); *S.W. Scott & Co. v. Scott*, 174 N.Y.S. 583, 586-87 (App. Div. 1919) (employee cannot copy list of customers with whom he has no dealings, nor use a list given to him, but he can use the knowledge he has acquired of customers' needs and practices); *Peerless Pattern Co. v. Pictorial Review Co.*, 132 N.Y.S. 37, 39 (App. Div. 1911) ("It is not charged that he made out or copied any lists of customers. All that clearly appears is that he undertook to use in his new employment the knowledge [of customers, their needs, and their contracts] he had acquired in the old. This, if it involves no breach of confidence, is not unlawful . . ."); *Stevens & Co. v. Stiles*, 71 A. 802, 802 (R.I. 1909) (trial court enjoined employee from using names and addresses he had surreptitiously copied, but stated (ambiguously) that "equity will not enjoin against an employee carrying away such skill and intelligence as he can carry in his head, other than trade secrets").

217. *Merryweather v. Moore*, 2 L.R.-Ch. 518 (Eng. 1892).

218. *Id.* at 524.

219. *Cf. Empire Steam Laundry v. Lozier*, 130 P. 1180, 1183 (Cal. 1913) (recognizing a customer list as a trade secret in absence of evidence that plaintiff had copied the list down); *Wireless Specialty Apparatus Co. v. Mica Condenser Co.*, 131 N.E. 307, 310 (Mass. 1921) (although not criticizing the memory rule, the court enjoined former employees from using plaintiff's trade secrets although finding no evidence of wrongful taking and disclosure of plans, records, and other tangible property); *Hackett v. A.L. & J.J. Reynolds Co.*, 62 N.Y.S. 1076, 1078 (App. Div. 1900) (knowledge of plaintiff's customers was "in the nature of a trade secret" and therefore an agreement not to solicit them for six months was reasonable).

knowledge.²²⁰ However, the memory rule, like the distinction between trade secrets and “general knowledge,” was a legal conclusion rather than an analytic tool. It marked a line between knowledge that an employer could own exclusively and that which the law would regard as the employee’s inalienable attribute, but it did not explain why the line was there.

(2) *From Honor to Contract*

The concept of an implied contract facilitated and legitimized the expansion of the trade secret doctrine, from a relatively limited obligation to guard a particular and highly confidential piece of information or to convey a secret recipe along with the sale of a business, into a general employee duty to protect all confidential employment information. The implied contract concept allowed courts to drastically revise traditional workplace norms while insisting that they were simply enforcing a bargain.

This process began in the frequently cited 1892 decision in *Merryweather v. Moore*,²²¹ the first English employment-related trade secret case in which the court invoked an implied contract. The defendant, a draftsman, had been an apprentice of the plaintiffs, who designed fire engines.²²² The defendant copied dimensions of plaintiffs’ designs shortly before leaving their employment, and the plaintiffs sought to enjoin him from using or revealing the information.²²³ The defendant argued that he was simply using the knowledge of fire engine design that he had legitimately acquired.²²⁴ The defendant further contended that his copying was not wrongful because the plaintiffs, as employers of an apprentice, had a duty to instruct him.²²⁵ Using contract principles, the court rejected the contention that copying the plaintiffs’ drawings was a legitimate way to gain knowledge. The court observed, “[It was] a matter bargain. I cannot imply from that relation any obligation on the part of the employer to instruct the clerk”²²⁶ The court also relied on a duty of confidence wholly apart from the bargain: “[I]s not this an abuse of the confidence necessarily existing between him and his employers

220. A somewhat similar move occurred in copyright law. See generally ROSE, *supra* note 3, at 2-3.

221. 2 L.R.-Ch. 518 (Eng. 1892).

222. *Id.* at 518.

223. *Id.* at 519.

224. *Id.*

225. *Id.* at 523.

226. *Id.*

a confidence arising merely out of the fact of his employment, the confidence being shortly this, that a servant should not use, except for the purposes of service, the opportunities which that service gives him of gaining information?"²²⁷

Merryweather signified the demise of the craft tradition and the rise of the employment contract. The move to the implied contract in determining all employment duties was evident. Three years later, in *Robb v. Green*,²²⁸ Lord Esher expressly stated that copying the employer's customer list "was a breach of the trust reposed in the defendant as the servant of the plaintiff in his business" and that such conduct is also a breach of contract. "I think that in a contract of service the Court must imply such a stipulation as I have mentioned, because it is a thing which must necessarily have been in view of both parties when they entered into the contract."²²⁹

The transition from express contract to implied contract occurred at roughly the same time in American cases. In a self-consciously path-breaking opinion, William Howard Taft, who was then serving as a superior court judge in Cincinnati, was one of the first judges to find that the obligation to guard secrets was implied in the employment relationship.²³⁰ He held that the technique for making bells could be a trade secret and that employees could be enjoined from using or disclosing it even in the absence of an express contract not to disclose or use the employer's secrets.²³¹ Dodds denied that he had been instructed to keep the process secret, and the evidence showed that his former employer had not "attempted to enjoin secrecy upon their many subordinate employes [sic], but preferred rather to rely upon the difficulty there would be in acquiring such a complete knowledge of the bell-making as to enable them to communicate it or use it if they wanted to."²³² Thus, there was no basis for finding him to have breached a trust in using his knowledge. Neither was there a basis for a finding that he breached an express contract. Nevertheless, Judge Taft concluded that, because Dodds had learned the technique in the course of his employment, "I am inclined to think that his obligation to preserve such secret as the

227. *Id.* at 524.

228. 2 Q.B. 315, 317 (Eng. Q.B. Div'l Ct. 1895).

229. *Id.*

230. *Cincinnati Bell Foundry Co. v. Dodds*, 10 Ohio Dec. Reprint 154 (Super. Ct. 1887).

231. *Id.*

232. *Id.* at 157.

property of his employer must be implied, even though nothing was said to him on the subject.”²³³

Implied contract fit easily with the courts’ new understanding that firms, not individuals, had now become pioneers of new technology and that firms hired employees precisely for their knowledge rather than just for what they could produce. Kodak was instrumental in propagating this view, as it was a leader in industrial research and development. *Eastman Co. v. Reichenbach*²³⁴ illustrates how implied contract could be woven seamlessly into a fabric combining the threads of the old notion of breach of confidence with the threads of a new concept of corporate development of ideas. In that case, the defendants had signed express contracts requiring them to assign inventions that they might make in the course of their employment to their employer.²³⁵ They started a competing business, using secret Kodak processes in the development of which they themselves had been involved.²³⁶

The company deemed this a misappropriation of its investment in research and development, and the court agreed.²³⁷ It was, said the court,

[Kodak’s] exercise of much skill and ingenuity [that built a business,] the capital of which consists largely in certain inventions and discoveries made by its officers, servants, and agents. The world at large knows nothing of these inventions and discoveries, because they are locked within the brains of those who conceived them.²³⁸

Based on “an express and implied contract to give the plaintiff the benefit of their inventive genius,” the defendant had “legal and moral obligations” to refrain from using the “inventions and discoveries” which they had developed in any way that would cause “plaintiff’s serious injury.”²³⁹ “This is not legitimate competition, which it is always the policy of the law to foster and encourage, but it is *contra bonos mores*, and constitutes a breach of trust, which a court of law, and much less a court of equity, should not tolerate.”²⁴⁰ This rhetoric about a need for the the law to protect the employer’s investments in

233. *Id.* at 158.

234. 20 N.Y.S. 110 (Sup. Ct. 1892).

235. *Id.* at 110.

236. *Id.*

237. *Id.*

238. *Id.* at 116.

239. *Id.*

240. *Id.*

process or product development combined with the loose treatment of contractual obligations were particularly useful to Du Pont's efforts in restraining their former chemist, Walter Masland, from using alleged company trade secrets for manufacturing artificial leather.²⁴¹

Implied contract rapidly colonized the entire field of trade secret litigation.²⁴² Characterizing the duty to guard employer secrets as an implied contract term had significant practical as well as rhetorical advantages for employers. One advantage was procedural. Until the merger of law and equity and the relaxation of traditional distinctions between legal and equitable remedies, conceiving of a duty to maintain secrets as a contract term potentially affected both the court in which a claim could be brought and the available claims and remedies.²⁴³ At the conceptual level, contract discourse legitimized the spread of a new and significant duty that employees owed to their employers. As the persuasive force of status-based obligations of confidentiality associated with the notion of honor and the traditional

241. Letter from Edwin Prindle to E.I. du Pont de Nemours Powder Co. Chemical Department (June 4, 1914) (on file with the Hagley Museum & Library, Wilmington, Delaware, Accession 1305, Box 772).

242. In *Little v. Gallus*, 38 N.Y.S. 487 (App. Div. 1896), the court enjoined a former factory superintendent and his assistant who had spent their entire working lives at a firm from using knowledge acquired there, notwithstanding the absence of express agreements to guard secrets and rejecting their contention that they would be unemployable because all of their working knowledge grew from this single firm. The court remarked "we do not see why the defendants . . . are not under just as strong an obligation to observe and keep sacred the trust reposed in them as they would be had they reduced the contract which the law implies to writing." *Id.* at 489-90; *see also* *Empire Steam Laundry v. Lozier*, 130 P. 1180, 1182 (Cal. 1913) ("equity will always protect against the unwarranted disclosure of trade secrets"); *Westervelt v. Nat'l Paper & Supply Co.*, 57 N.E. 552, 554 (Ind. 1900) (the employer's "machine was a secret, and, under the facts alleged, even if no agreement was made, one would be implied, that [the employee] was not to disclose the secret of the construction of the machine"); *Aronson v. Orlov*, 116 N.E. 951, 952 (Mass. 1917) (equity requires implied contract); *O. & W. Thum Co. v. Tloczynski*, 72 N.W. 140, 144 (Mich. 1897); *MacBeth-Evans Glass Co. v. Schnelbach*, 86 A. 688, 693 (Pa. 1913) (implied duty not to disclose); *Stevens & Co. v. Stiles*, 71 A. 802, 805 (R.I. 1909) (not necessary that there be an express contract).

243. Trade secret is traditionally described as an equitable doctrine, as is specific performance of post-employment restrictive covenants and of negative covenants in personal services contracts. *See, e.g.*, STORY, *supra* note 57, at 389 (on trade secret); F.W. MAITLAND, *EQUITY* 237-65 (1st ed. 1909) (on injunctive relief for breach of negative covenant in personal services contract); JOHN NORTON POMEROY, *A TREATISE ON EQUITY JURISPRUDENCE* (5th ed. 1941). Not all of the cases were brought in equity before the merger of law and equity, however, because in some cases—mainly but not exclusively those seeking to enforce a restrictive covenant—the employer was suing for damages for breach of a contract. There was no discernible pattern of difference between law and equity courts in the judicial attitude toward workplace knowledge.

incidents of service disappeared, contract law provided a much-needed alternative foundation for the employee's obligations. Contract rhetoric also suggested that employees voluntarily assumed and were compensated for whatever loss of mobility that was imposed by trade secret protection.

Of course, employment had always been contractual in some senses. Entry into the relationship was by contract, and some obligations, including those related to training and the use of secret knowledge, were at least partly determined by contract. Prior to the nineteenth century, however, many employment obligations were prescribed by the law and custom defining the status of master and servant or master, journeyman, and apprentice. What was new in the late nineteenth century was not that law prescribed certain obligations in the work relationship. Rather, the novelty was that law defined those obligations as contractual and that it, for the first time, imposed a new rule that certain workplace knowledge was the exclusive property of the employer.

Contract concepts were eagerly embraced by treatise-writers seeking to rationalize all employment obligations under the rubric of contract. Horace Wood's *Treatise on the Law of Master and Servant* described the employee's duty to maintain the employer's secrets as a species of express or implied contract even before that proposition was clear in the case law: As Wood saw it,

even in the absence of an express contract on the part of the servant, the [employment] relation will be deemed confidential, and the law will imply a promise to keep the master's secrets thus committed to him, and any attempt on his part to use the secret for his own interests against the master, or to communicate it to others, or to in any manner aid others in using it, will be a breach of his contract with the master, which will be enjoined by a court of equity, and which, if actual damages result from such breach, will render him liable therefor in a suit by the master in a court of law.²⁴⁴

Wood also listed the employee's failure to protect his employer's secrets as grounds for discharge because it was "a breach of an implied condition of the contract."²⁴⁵

In an era known for the reluctance of the courts to imply contract terms to protect one party against a perceived unfairness,²⁴⁶ the

244. HORACE GAY WOOD, A TREATISE ON THE LAW OF MASTER AND SERVANT 265 (2d ed. 1886).

245. *Id.*

courts' willingness to create implied contractual obligations to protect employer secrets might seem anomalous. The courts implied the additional term regardless of whether there was a written employment contract and when there was. Courts even added such a term in a contract for the sale of a business, in which the seller did not covenant not to compete.²⁴⁷

On reflection, however, the rapid spread of an implied contract basis for trade secrets should not be surprising. The law had always prescribed some terms of employment. The reconceptualization of employment from the artisanal to the factory model changed the terms that courts were inclined to imply, and the rise of contract discourse changed the asserted rationale for imposing them. As courts became aware of the value of employee knowledge to firms, they sought an expanded role for the law in facilitating economic development by allocating rights in that knowledge. Contract was rapidly becoming the dominant legal construct for analyzing the rights and obligations of all employment relations. At the same time, when the popularity of Frederick Winslow Taylor's scientific management made it seem imperative that firms rationalize and control every detail of employment and production, contract provided the most powerful legitimating discourse for the significant loss of workplace autonomy that Taylorism entailed.²⁴⁸

(3) *From Discrete Information to General Know-How*

The period between 1890 and 1930 witnessed an additional transformation of the trade secret concept, as the courts expanded the types of information that could be claimed as trade secrets, and the employers claimed as proprietary increasingly broad categories of knowledge. Courts understood throughout the nineteenth century that all sorts of craft knowledge was economically valuable. They realized, for example, that the precise recipe for gunpowder was valuable and so were the techniques for mixing, handling, and storing

246. See generally P.S. ATIYAH, *THE RISE AND FALL OF FREEDOM OF CONTRACT* (1979). This was, of course, the era in which Justice Cardozo caused a stir by recognizing an implied covenant of good faith in every contract. See *Wood v. Lucy, Lady Duff Gordon*, 118 N.E. 214 (N.Y. 1917).

247. *Pomeroy Ink Co. v. Pomeroy*, 78 A. 698, 700 (N.J. Eq. 1910). But see *Dare v. Foy*, 164 N.W. 179, 181 (Iowa 1917) (refusing to reform contract for sale of business and goodwill to include covenant that seller would not compete, even though seller may have led buyer to believe that he would not in the future engage in same business).

248. On the enormous popularity and widespread influence of Taylor's scientific management, see generally ROBERT KANIGEL, *THE ONE BEST WAY: FREDERICK WINSLOW TAYLOR AND THE ENIGMA OF EFFICIENCY* (1997).

it. They also recognized that firms would want the exact dimensions of a machine as well as rule-of-thumb knowledge about how to cast its metal components and keep it in working order. What changed over the century was not the judicial ability to imagine the economic value of all the knowledge and experience of a skilled workman or plant superintendent but the judicial ability to imagine such knowledge as the exclusive property of a firm.

Once the judicial imagination about corporate ownership of knowledge caught fire, the doctrinal consequences were significant. The focus shifted from the drawings of a machine to the design innovations contained in them;²⁴⁹ from the list of the customers to the knowledge of their identities, locations, needs and their goodwill;²⁵⁰ and from the precise written formula for a substance to the general knowledge of the process and techniques for making it.²⁵¹ Negative knowledge (i.e., what does not work to achieve a particular purpose) came to be recognized for the first time as a trade secret so that an employee could be restrained not only from using knowledge about what works to make a product, but also from using knowledge of what does not work. Compilations of publicly available facts gained protection.²⁵² As the category of trade secrets expanded, the category of general knowledge, or even specialized skill and experience, diminished. This was the period in which the definition of a trade secret became what it is today.

No process of common law change is perfectly orderly and linear. The expansion of the trade secret concept met resistance as many litigants and some courts remained anxious to protect the right of the employee to use "mechanical skill and experience."²⁵³ Thus, in one case, a manufacturer of slitter/rewinder machines sought to prevent a

249. *See, e.g.*, *Westervelt v. Nat'l Paper & Supply Co.*, 57 N.E. 552, 553 (Ind. 1900) (issuing an injunction against defendant's use of plaintiff's trade secret paper bag machine where defendant hired plaintiff's former employee to design a paper-bag folding machine similar to the one the employee had designed for the plaintiff); *Pressed Steel Car Co. v. Standard Steel Car Co.*, 60 A. 4, 10 (Pa. 1904).

250. *See, e.g.*, *Hackett v. A.L. & J.J. Reynolds Co.*, 62 N.Y.S. 1076, 1078 (App. Div. 1900); *Witkop & Holmes Co. v. Boyce*, 112 N.Y.S. 874, 878 (Sup. Ct. 1908).

251. *See, e.g.*, *Stone v. Goss*, 55 A. 736, 737 (N.J. 1903) ("The secret consisted in a knowledge of the proper method of mixing the ingredients . . .").

252. *Bd. Trade v. Christie Grain & Stock Co.*, 198 U.S. 236, 250 (1905); *F.W. Dodge Co. v. Constr. Info. Co.*, 66 N.E. 204, 205 (Mass. 1903).

253. *Herold v. Herold China & Pottery Co.*, 257 F. 911, 917 (6th Cir. 1919) (dissolving injunction against former employee using or disclosing alleged trade secret methods of making, glazing, and firing pottery because, since plaintiff had refused to disclose the secrets, the court could not determine how much the process involved "secret knowledge or information, as distinguished from mechanical skill and experience").

former employee, an engineer, from disclosing information about the features of its new machines.²⁵⁴ The court declined to grant relief on the ground that the allegedly secret features were well known.²⁵⁵ Other cases also insisted that general knowledge was not a trade secret.

As the courts saw increasingly diffuse forms of knowledge as trade secrets, their view of the employer's legitimate interest in enforcing a restrictive covenant broadened as well. This was the period in which courts first drew doctrinal and policy connections between trade secrets and restrictive covenants. Protection of trade secrets became the dominant justification for enforcement of post-employment covenants not to compete, which was a profound change in the law and vastly expanded the uses of such covenants against employees.

As the line between trade secrets and general knowledge moved to where it is today, the difficulty of drawing it grew. Sometimes, employers sought to avoid this problem, as they still do, by drafting broad noncompete agreements rather than by relying on the default rules of trade secret protection. If the validity of the covenant were challenged, however, the problem could not be avoided if the court were willing to enforce the covenant only to the extent that it protected trade secrets. Thus, even the discourse of free contract was not a refuge from the difficult task of assigning ownership of knowledge, and the assignment of such ownership rights still turned upon distinguishing protectable trade secrets from non-protectable general knowledge. The distinction between trade secrets and general knowledge has always depended on understanding complicated technology through the testimony of self-interested witnesses. Beyond that, it has been and remains a core normative judgment about the freedom and attributes of the creative employees. As difficult as it may be to marshal the facts, the task of making the normative judgment is harder. Then, as now, courts tended to hide,

254. *Cameron Mach. Co. v. Samuel M. Langston Co.*, 115 A. 212 (N.J. Eq. 1921).

255. *Id.* at 214. There the court stated:

It has been the practice of both companies and of other manufacturers of such machines to give publicity to every feature of their machines by circularizing the trade with advertising matter, illustrated by photographs or cuts, of the various types of the their machines, and the machines are so large and their construction and parts so open to inspection that it is conceded any one could easily copy every feature of them

Id. See also *Nat'l Tube Co. v. E. Tube Co.*, 3 Ohio C.C. (n.s.) 459 (1902) (discussed *supra* note 203).

perhaps from themselves, their normative judgments in their findings of fact.²⁵⁶

(4) *Injunctions Against Work and the Origins of the Inevitable Disclosure Rule*

A serious practical problem with trade secret law has always been the difficulty of proving that a former employee has used the secret knowledge. A firm often could not readily determine what processes its competitors were using or that the competitor derived them illicitly rather than independently. Apart from the problem of proof, employers have tended to think that even if the employee was enjoined from using the secrets, his knowledge of the secret inevitably would be useful as the competitor figured out other ways to manufacture a competing product. Knowing that certain combinations of ingredients do or do not produce a particular result, what certain customers need, or how a machine can be designed more efficiently inevitably helps the competitor, even if it does not copy the former employer's recipe, strategy, or machines directly. Employers, therefore, tend to think that only an injunction prohibiting the employee from working in certain positions for competitors will adequately ensure that the trade secrets would not be misappropriated. Today, the courts occasionally will grant such an injunction when convinced that any competitive employment will inevitably result in the disclosure of the trade secrets.²⁵⁷ This rule of

256. Recent examples of using findings of fact to make significant choices about the extent to which firms should be able to control employee mobility include: *Hoskins Mfg. Co. v. PMC Corp.*, 47 F. Supp. 2d 852 (E.D. Mich. 1999) (cable manufacturer failed to prove that former employees who worked for competing firm would inevitably disclose or use trade secrets rather than general knowledge); *Utah Med. Prods., Inc. v. Clinical Innovations Assocs. Inc.*, 79 F. Supp. 2d 1290 (D. Utah 1999) (medical device manufacturer failed to prove that former executives who started competing firm used trade secrets rather than general knowledge in designing and marketing a competing product); *Microbiological Research Corp. v. Muna*, 625 P.2d 690, 699 (Utah 1981).

257. *See, e.g., Pepsico, Inc. v. Redmond*, 54 F.3d 1262, 1269 (7th Cir. 1995) (enjoining Pepsi's former executive from assuming a position with a competitor in which he would perform functions that would inevitably require him to use trade secret knowledge about Pepsi's marketing plans); *Lumex, Inc. v. Highsmith*, 919 F. Supp. 624, 633-34 (E.D.N.Y. 1996); *Merck & Co. v. Lyon*, 941 F. Supp. 1443, 1458 (M.D.N.C. 1996); *Cardinal Freight Carriers, Inc. v. J.B. Hunt Transp. Servs., Inc.*, 987 S.W. 2d 642, 646-47 (Ark. 1999) (affirming injunction prohibiting former employees from conducting any business with four customers). *But see Earthweb, Inc. v. Schlack*, 71 F. Supp. 2d 299, 316 (S.D.N.Y. 1999) (rejecting arguments about likelihood of inevitable disclosure and therefore declining preliminary injunctive relief against former employee going to work for competitor); *Bayer Corp. v. Roche Molecular Sys., Inc.*, 72 F. Supp. 2d 1111, 1120-21 (N.D. Cal. 1999).

allowing broad injunctive relief has come to be known as the inevitable disclosure doctrine. This doctrine gives the former employer the benefit of a covenant not to compete without actually having entered into one.

The inevitable disclosure doctrine remains as controversial today as it was when it was first employed by a few courts in the late nineteenth century.²⁵⁸ Courts were sympathetic to the claims that an injunction would prevent the employee from using his hard-earned knowledge and experience for the benefit of himself and the public. As one court put it, "equity has no power to compel a man who changes employers to wipe clean the slate of his memory."²⁵⁹ Yet, courts also were receptive to arguments about the ease with which one company could benefit from its rival's expensive investment in research and development simply by recruiting its competitor's key employees. The trial court in *E.I. du Pont de Nemours Powder Co. v. Masland* (*Du Pont v. Masland*) framed it as an almost insoluble dilemma:

The iniquity of an employe [sic] who takes away with him the property of his employer, existing in the form of valuable processes, is as clear as if he asported any other form of property. The right of the employe to use his abilities, developed through his experiences, to the utmost of his capacity, is equally clear. This right of the employe to use his abilities, developed through his experiences, to the utmost of his capacity, . . . and his obligation to preserve to the full the property rights of his employer are shaded into each other by lines so fine that it is doubtful whether anything but a nice sense of honor can keep them distinguished.²⁶⁰

From the beginning, even the courts that enjoined an employee not to work recognized that remedies for threatened trade secret disclosure presented an unpleasant dilemma. In the earliest case to grant such an injunction, *O. & W. Thum Co. v. Tloczynski*,²⁶¹ the Michigan Supreme Court thought the restriction was necessary in the long run to secure employment in industries in which secret

258. See, e.g., D. Peter Harvey, "Inevitable" Trade Secret Misappropriation After Pepsico, Inc. v. Redmond, 531 PLI/PAT 199 (1998); Peter Huang, *Preventing Post-Pepsico Disaster: A Proposal for Refining the Inevitable Disclosure Doctrine*, 15 SANTA CLARA COMPUTER & HIGH TECH. L.J. 379 (1999); Susan Street Whaley, *The Inevitable Disaster of Inevitable Disclosure*, 67 U. CINN. L. REV. 809 (1999).

259. Peerless Pattern Co. v. Pictorial Review Co., 132 N.Y. S. 37, 39 (App. Div. 1911).

260. E.I. du Pont de Nemours Powder Co. v. Masland, 216 F. 271, 272 (E.D. Pa. 1914).

261. 72 N.W. 140 (Mich. 1897).

technology was important,²⁶² and that the public would benefit because “a larger output would be made of a useful article.”²⁶³ A New Jersey court emphasized the appropriateness of an injunction against competitive employment because simply enjoining the use of “complainant’s secret methods and processes, would afford it an easy opportunity to obtain from [the employee], in spite of the injunction against him, the knowledge which they seek, and which could be so used as to make discovery very difficult, if not impossible.”²⁶⁴ The broader injunction was necessary to prevent flouting of the narrower one.

As a significant investor in research, Kodak was an early advocate of the inevitable disclosure rule. In litigation against a former research chemist, who had left to work for a competing film products firm, Kodak convinced the court to enjoin the chemist from working in the film business.²⁶⁵ The court explained:

[I]f he is permitted to enter this employ, injunctive relief in form against the imparting of such special knowledge is more than likely to prove inefficient. The mere rendition of the service along the lines of his training would almost necessarily impart such knowledge to some degree. Warren cannot be loyal both to his promise to his former employer and to his new obligations to the defendant company.²⁶⁶

Other courts, however, thought a negative injunction weighed protection of knowledge too heavily as compared to freedom to work.²⁶⁷ “If the injunction issues,” one court suggested, “it means that hereafter no man can work for one and learn his business secrets,

262. Although the court indicated that the company sought an injunction restricting the employee from communicating secret processes and knowledge of secret machinery, the opinion seemed to suggest that the employee was enjoined from even working for competitor. *Id.* at 144.

263. *Id.*

264. *Taylor Iron & Steel Co. v. Nichols*, 65 A. 695, 702 (N.J. Ch. 1907), *rev'd*, 69 A. 186 (N.J. 1908). The appellate court reversed because Taylor Iron had not proved that all the knowledge in question was its trade secret. But the court did say that Nichols might be enjoined from working for a competitor during the term of his contract with Taylor Iron, simply because it was a contract for exclusive employment. *Taylor Iron & Steel Co. v. Nichols*, 69 A. 186, 188 (N.J. 1908).

265. *Eastman Kodak Co. v. Powers Film Prods, Inc.*, 179 N.Y.S. 325, 330 (App. Div. 1919).

266. *Id.*

267. For example, a Connecticut federal court in *H.B. Wiggins Sons' Co. v. Cott-A-Lap Co.*, 169 F. 150, 152 (D. Conn. 1909), declined to order a chemist not to disclose to his new employer the secret formula and processes for the backings for wallpaper. Although there was an express contract in which the chemist agreed not to disclose trade secrets, the court nevertheless declined to enforce the contract by injunction. *Id.* at 151.

and after leaving that employment engage himself to a rival in business, without carrying on his back into that business the injunctive mandate of a court of equity."²⁶⁸ The court thought the inevitable disclosure doctrine was premised on a jaundiced view of human nature:

There is nothing whatever in the facts of this case, except the opportunity to do wrong and a suspicion in the mind of the rival that wrong will be done. . . . The chancellor ought never to come into such a frame of mind that he assumes human nature to be essentially and inherently evil.²⁶⁹

There was legal precedent recognizing the power of equity courts to enjoin employees from working for competitors in an effort to protect the employer's exclusive right to the employee's talent. The most significant was the enticement case, *Lumley v. Wagner*,²⁷⁰ which held that an opera singer who had contracted to perform at one theater could be enjoined from performing elsewhere when she threatened to breach her contract.²⁷¹ The *Lumley* doctrine allowed an employer to enjoin an employee with unique talent from working for a competitor for the duration of a stated term contract because that was the only way for the employer to get the benefit of its contractual right to the defendant's exclusive services.²⁷² Because courts limited such injunctions mainly to performers and athletes, however, *Lumley* did not become a widely used restriction on employees.²⁷³ The case was, however, often cited in trade secret and restrictive covenant cases.

By the turn of the twentieth century, the foundations of the modern trade secret law were laid. A duty to guard trade secrets had become an implied term in every employment contract, and a wide range of workplace knowledge could be claimed as trade secrets. The

268. *Id.* at 152.

269. *Id.*

270. 42 Eng. Rep. 687 (Ch. 1852).

271. *Id.* at 693. See also *Lumley v. Gye*, 118 Eng. Rep. 749, 755 (Q.B. 1853) (enjoining a theatre manager from soliciting an opera singer to break her exclusive engagement).

272. *Lumley v. Wagner*, 42 Eng. Rep. at 688

273. For that reason, the *Lumley* doctrine is not discussed in this Article. In addition, the development of the doctrine is described with admirable thoroughness and insight in Lea S. VanderVelde, *The Gendered Origins of the Lumley Doctrine: Binding Men's Consciences and Women's Fidelity*, 101 YALE L.J. 775 (1992). Enticement was a related cause of action that allowed employers to control dissemination of employee knowledge or skill indirectly by preventing others from hiring away their employees. See generally MARC LINDER, *THE EMPLOYMENT RELATION IN ANGLO-AMERICAN LAW: A HISTORICAL PERSPECTIVE* 70-74 (1989); Nockleby, *supra* note 19. Like *Lumley*, enticement and cognate causes of action are beyond the scope of this Article.

doctrinal development over the next two or three decades, and certainly in the decades since, consisted in applying the trade secret concept to increasingly diffuse forms of knowledge. The growth of trade secret law in practice was in the awareness and the willingness of employers to invoke the trade secret concept to protect a wide variety of knowledge.

B. The Use of Restrictive Covenants to Protect Knowledge

As suggested above and explained below, the expanding definition of trade secrets increased the possible uses of restrictive covenants. Courts extending the horizon of contractual restrictions on employment faced rhetorical challenges that both resembled and differed from those of the trade secret cases. The effort to articulate the employer's legitimate interest in restricting competition from former employees was complicated by the challenge of fitting the rules into the liberty-of-contract jurisprudence. A covenant not to compete is both a contract in its own right and a restriction on future freedom to contract. Not surprisingly, the laissez-faire jurisprudence of the Gilded Age made interesting appearances on both sides of the courtroom debates, as courts would cite liberty of contract and property rights in labor as the basis for both granting and declining injunctive relief to employers.²⁷⁴ The malleability of the freedom of contract concept in this context, however, made it an unreliable rhetorical move for the courts and the litigants.

Given the increased uses of restrictive covenants and the difficulty of justifying their enforcement simply by reference to liberty of contract, courts sought a new rationale. One of the most persuasive was that the contract was necessary to prevent an employee's "abuse of confidence."²⁷⁵ As the trade secret concept

274. Compare *New Method Laundry Co. v. MacCann*, 161 P. 990, 992 (Cal. 1916) (the court refused to enjoin employee from collecting laundry for a company that competes with his former employer because an injunction would interfere with employee's liberty: "The laborer has the same right to sell his labor, and to contract with reference thereto, as any other property owner . . ."), with *Kellogg v. Larkin*, 3 Pin. 123, 139 (Wis. 1851) ("[W]hile the avenues to enterprise are so multiplied, so tempting and so remunerative, giving to labor the greatest freedom for competition with capital, perhaps, that it has yet enjoyed, I question if we have much to fear from attempts to secure exclusive advantages in trade, or to reduce it to few hands"; the court upheld a covenant restricting plaintiff from purchasing wheat except under the direction of the defendant because the covenant was supported by consideration and not in contravention of public policy); see also *Beal v. Chase*, 31 Mich. 490, 530 (1875).

275. John H. Hannigan, *The Implied Obligation of an Employee*, 77 U. PA. L. REV. 970, 978 (1929) (lamented that the courts' emphasis on whether the knowledge constituted a trade secret "mislead[s] courts to adopt an inadequate test The essential question is: Has there

became a settled part of the late nineteenth-century tort doctrine, the courts could justify restrictive covenants as an unobjectionable contractual expression of the obligations that tort law imposed already. Ironically, just as contract discourse was on an ascending arc in trade secret cases, tort concepts popped up in cases involving contracts not to compete. This whole body of law resembled an amalgam of tort and contract, “contort,” long before Grant Gilmore coined that term.²⁷⁶

A large category of early cases enforcing covenants to protect trade secrets were those involving recipes for patent medicine.²⁷⁷ Related, although more sophisticated, forms of knowledge, such as chemical processes, also were deemed trade secrets that could be protected by a restrictive covenant.²⁷⁸ In 1894, the Pennsylvania Supreme Court made it obvious that the courts should protect a wider range of confidential information than had hitherto been considered as legitimate basis for a restrictive covenant.²⁷⁹ In *Fralich v. Despar*, an assistant in the manufacture of lubricating grease and oil had contracted that he would never use or divulge the knowledge he acquired about the manufacture of grease and oil.²⁸⁰ After several years, Despar began making grease for another firm. In enjoining him, the court all but overruled an earlier case, *Keeler v. Taylor*,²⁸¹ which had held unenforceable a contract by which an employee

been an abuse of confidence? If there has been, it is not necessary that the secret be a business secret.”).

276. GRANT GILMORE, *THE DEATH OF CONTRACT* 98 (1974). Of course, as Professor Gilmore elegantly explained, the distinction between “contract” and “tort” was itself a product of the latter half of the nineteenth century. *Id.* at 6. Inasmuch as the distinction was never as sharp nor as firm as the Langellian imagination suggested, it should come as no surprise that the concepts blurred in the area of trade secrets and restrictive covenants.

277. *See e.g.*, *C.F. Simmons Med. Co. v. Simmons*, 81 F. 163, 173 (E.D. Ark. 1897) (holding that recipe for patent medicine is a trade secret; enjoining former employee from using recipe or from using packaging that would confuse the public as to whether they were purchasing former employer’s medicine; noting that the existence of a covenant prohibiting use of recipe adds nothing to the protection that trade secret doctrine would otherwise give plaintiffs).

278. *See e.g.*, *Harrison v. Glucose Sugar Ref. Co.*, 116 F. 304, 311 (7th Cir. 1902) (holding that processes for manufacturing glucose and corn syrup from corn are trade secrets that justify an injunction where an employee, plant superintendent, promised during term of employment not to reveal trade secrets or to work for competitor and superintendent quit and began working for competitor); *see also e.g.*, *Tode v. Gross*, 28 N.E. 469, 470 (N.Y. 1891) (enforcing restrictive covenant ancillary to sale of cheese-making business and secret recipe for cheese).

279. *Fralich v. Despar*, 30 A. 521 (Pa. 1894).

280. *Id.*

281. 53 Pa. 467, 470 (1866).

promised not to reveal knowledge he had acquired about the manufacture of scales.²⁸²

Early twentieth-century advances in corporate research and development enabled employers to argue more convincingly that enforcement of restrictive covenants was essential to protect their investment in a wide variety of secret knowledge. Kodak was, not surprisingly, a particularly zealous litigant on this theory.²⁸³ In *Eastman Kodak Co. v. Powers Film Products, Inc.*,²⁸⁴ Kodak obtained enforcement of a two-year restrictive covenant against a former Kodak chemist. After describing Kodak's extensive research into film manufacturing and the defendant employee's long tenure with the company as a research chemist, the court explained the wide array of knowledge that Kodak could legitimately protect:

[T]he value of Warren's services to the defendant company arises from his experience while in the plaintiff's employ, growing out of the practical application of these trade secrets, and not otherwise. It is because of his special training and special knowledge that the defendant company must necessarily involve his bringing to their aid such knowledge as he has, and which is entirely developed in connection with these secret processes.²⁸⁵

Thus, the expansion of the trade secret concept fueled a corresponding growth in the possible uses of restrictive covenants.

By the end of the nineteenth century, courts began to regard knowledge of customer identities and needs to be a trade secret, easing the way to broader enforcement of covenants against former employees. Most restrictive covenant cases involved traveling salesmen or deliverymen, especially those assigned to routes to sell or deliver things such as ice, laundry, or milk.²⁸⁶ A 1901 case enforcing a

282. *Fralich*, 30 A. at 521.

283. *See, e.g.*, *Eastman Co. v. Reichenbach*, 20 N.Y.S. 110 (Sup. Ct. 1892).

284. 179 N.Y.S. 325 (App. Div. 1919).

285. *Id.* at 330.

286. *See, e.g.*, *Cahill v. Madison*, 94 Ill. App. 216 (1900); *Davies v. Racer*, 25 N.Y.S. 293, 294 (Gen. Term 1893) (enforcing a covenant against a former clerk for a firm of forwarding agents and customhouse brokers upon evidence that defendant had gone to work for a competing firm, had solicited the plaintiff's customers, and some had switched to the defendant's new firm). The *Davies* court determined that the employment was sufficient consideration inasmuch as it enabled the defendant to become familiar with the customers and trade of the plaintiffs. 25 N.Y.S. at 294.

English courts also allowed covenants for such purposes, although they cautioned that the covenant could not be broader than the area in which the salesman actually solicited. Refusing to enforce or to narrow a covenant that barred a collector from working within twenty-five miles of London, where the defendant had worked only in one small area of London, the House of Lords said:

It must be remembered that the real sanction at the back of these covenants is

one-year covenant barring the delivery of milk in the city of Erie, Pennsylvania, determined that a covenant could legitimately be used to prevent the milkman from using what he had learned about the “by-ways” of the city of Erie and about operating a milk delivery business.²⁸⁷ Two dissenting judges believed an injunction was inappropriate because the milkman did not possess the goodwill of the business, the employer had not shown any loss, and the knowledge of how to run a milk delivery business was not a legitimate reason for a covenant.²⁸⁸ On this reasoning, some courts would decline to enforce the covenant in the absence of evidence that the former employee did indeed have the ability to persuade customers to switch to the rival employer.²⁸⁹ Thus, a New York appellate court dissolved an injunction against a salesman of butchers’ supplies who left his employment and started a small business on the ground that the employer had adduced no evidence that the defendant possessed any trade secret knowledge of the plaintiff or that he had diverted the trade of any of the plaintiff’s customers.²⁹⁰ Four years later, however,

the terror and expense of litigation, in which the servant is usually at a great disadvantage, in view of the longer purse of his master . . . [T]he hardship imposed by the exaction of unreasonable covenants by employers would be greatly increased if they could continue the practice with the expectation that, having exposed the servant to the anxiety and expense of litigation, the Court would in the end enable them to obtain everything which they could have obtained by acting reasonably.

Mason v. Provident Clothing & Supply Co., Ltd., A.C. 724, 745-46 (Eng. 1913).

287. Erie County Milk Ass’n v. Ripley, 18 Pa. Super. 28, 30, 37 (Super. Ct. 1901).

288. *Id.* at 39.

289. New Jersey equity judges were skeptical of covenants even in the types of cases in which injunctive relief was most commonly granted. In *Sternberg v. O’Brien*, see 22 A. 348 (N.J. Ch. 1891), the court refused injunctive relief to a clothing sales business against a former collector who had gone to work for a rival firm. See *id.* at 351. The court doubted that the former collector had any influence over the customers of the complainant and thus that he could cause them to switch their trade to a rival firm. See *id.* As a collector, not a salesman, the court said, “[h]is intercourse with them was of a kind which was much more likely to excite dislike and create antagonism than to inspire confidence.” *Id.* Moreover, his employment with the complainant lasted only five weeks, which was too short to form relationships that would enable him to do any harm to the complainant’s business. *Id.*

Similarly, in a case involving a former soliciting and selling driver, the New Jersey high court determined that a covenant prohibiting him from working for others was too broad and that, in any event, since the former employer had gone out of business, the covenant was unenforceable. *Steinmeyer v. Phenix Cheese Co.*, 102 A. 150, 150 (N.J. 1917). New Jersey equity courts did, however, grant injunctions in some cases. See e.g., *Owl Laundry Co. v. Banks*, 89 A. 1055 (N.J. Ch. 1914) (enforcing covenant against laundry deliveryman); *Am. Ice Co. v. Lynch*, 70 A. 138 (N.J. Ch. 1908) (enforcing covenant against ice deliveryman).

290. *Oppenheimer v. Hirsch*, 38 N.Y.S. 311, 313-14 (App. Div. 1896).

another New York decision found that a traveling wholesale grocery salesman's knowledge of customers was a trade secret and therefore enforced a restrictive covenant.²⁹¹

Some courts insisted that customer relations were protectable by covenant only if they involved nonobvious knowledge. In 1923, the New York high court declared that a salesperson's relationship with customers was not *per se* a protectable employer interest and that post-employment restrictive covenants were enforceable only to protect such relationships if they were based on secret information.²⁹² The court failed to see that the salesperson's knowledge was either secret or uniquely valuable. "There was apparently no customer in Rochester using wrapping paper who was not known to be a possible customer to every one of plaintiff's competitors."²⁹³ The court further observed

[t]hat the defendant has profited by the experience which he obtained in the plaintiff's service [and that the experience made

291. *Hackett v. A.L. & J.J. Reynolds Co.*, 62 N.Y.S. 1076, 1078 (App. Term 1900). In this case, the court was not asked to grant injunctive relief, but merely to enforce the covenant's stipulated damages clause. Moreover, the covenant barred the competing employment for a shorter time than in *Oppenheimer* and within a smaller area. Further, there was evidence that the former employee had succeeded in diverting his former employer's customers to his new firm, which, not incidentally, had been founded by employees of the former employer. Nevertheless, this case seems noteworthy as it is the earliest New York case recognizing that knowledge of the identity and location of customers is "in the nature of a trade secret." *Id.* at 1078. In an extended discussion, the court in *Witkop & Holmes Co. v. Boyce*, 112 N.Y.S. 874, 878 (Sup. Ct. 1908), recognized that a list of customers is a trade secret that can be protected by use of a restrictive covenant prohibiting salesmen from post-employment competition.

The names of customers of a business concern whose trade and patronage have been secured by years of business effort and advertising, and the expenditure of time and money, constituting a part of the good will of a business which enterprise and foresight have built up, should be deemed just as sacred and entitled to the same protection as a secret of compounding some article of manufacture and commerce.

Id.

Shortly after that, another New York court determined that knowledge of the names and needs of the customers of a metal manufacturing concern, as well as knowledge of the terms of their contracts, was "confidential information" that an employer could use a restrictive covenant to protect. *Magnolia Metal Co. v. Price*, 72 N.Y.S. 792, 795 (App. Div. 1901). The defendant "entered the plaintiff's employ with no knowledge of the business conducted by it" and shortly obtained "a complete knowledge of all its customers, and analyses of the various metals that were used in the composition of the metal manufactured by the plaintiff, copies of contracts with large customers of the plaintiff, and a list of those in the trade who used what was known as 'Babbitt metal.'" *Id.* at 795. The former salesman induced the New England representative of the plaintiff and one of its largest customers to form a new corporation and became the president of it. *Id.*

292. *Kaumagraph Co. v. Stampagraph Co., Inc.*, 138 N.E. 485, 488 (N.Y. 1923).

293. *Clark Paper & Mfg. Co. v. Stenacher*, 140 N.E. 708, 710 (N.Y. 1923).

him a more formidable competitor was] no legal wrong. Experience, competency, and efficiency in selling goods are qualifications which can hardly be so rare as to require the aid of equity to prevent an irreparable loss to an employer who finds himself compelled to substitute one salesman for another.²⁹⁴

Even those courts that accepted the proposition that most customer relations could be protected by restrictive covenants sometimes tried to ensure that *only* the customer relations were protected and that the employee remained free to use his talent or knowledge of the business in competitive employment. Thus, courts sometimes found prohibitions on *all* employment with competitors within an area to be overbroad if the only interest was protecting customer relations.²⁹⁵

294. *Id.* at 711. English courts reached a similar conclusion at the same time. Following the House of Lords' 1916 decision in *Herbert Morris, Ltd. v. Saxelby*, 1 A.C. 688 (Eng. 1916), courts were reluctant to find that customer relations justified the enforcement of a restrictive covenant in the absence of evidence that something other than the employee's own talents would enable him to lure his former employer's trade to a competitor. In *Herbert Morris*, the Lords had emphasized that covenants ancillary to employment should be judged under a more rigorous standard than those ancillary to the sale of a business and decided that only customer relations and trade secrets would support the enforcement of a covenant against an employee. *Id.* at 701 (opinion of Lord Atkinson); *id.* at 709 (opinion of Lord Parker of Waddington); *id.* at 714 (opinion of Lord Shaw of Dunfermline). A few years later, relying on that decision, the court of appeal denied relief in a case against a tailor who had covenanted not to work within ten miles of the shop where he had been employed. *Attwood v. Lamont*, 3 K.B. 571 (Eng. K.B. Div'l Ct. 1920). The court declined to enforce the covenant on the ground that

it is the appellant's known personal skill as a cutter which attracts to him the customers to whom he attended when with the respondent, and except that they made his acquaintance when he was in the respondent's service, it was not his position there, but it is his own skill which leads them to desire to have the continued benefit of his services.

Id. at 592.

295. The Connecticut high court, for instance, determined in 1919 that a covenant barring the former branch manager of a chain of retail clothing stores from working for a competitor for five years was unenforceable. *Samuel Stores, Inc. v. Abrams*, 108 A. 541, 544 (Conn. 1919). Although acknowledging that the employee could be enjoined from soliciting the plaintiff's customers, the covenant barred all competitive employment in any city in which plaintiff had a store and was thus overbroad. *Id.* In a similar vein is *Herreshoff v. Boutineau*, 19 A. 712, 713-14 (R.I. 1890), which declined to enforce, as overbroad, a covenant prohibiting a teacher from teaching French or German in the entire state of Rhode Island because the only legitimate interest the plaintiff language school had was prohibiting the teacher from enticing away the plaintiff's students. *Id.*

In an earlier Connecticut case, a flatware and hollow-ware manufacturer sought to enjoin a former employee (who was in sales or perhaps management) from associating with their competitor during the term of his twenty-five-year employment contract. *Wm. Rogers Mfg. Co. v. Rogers*, 20 A. 467, 467 (Conn. 1890). In support of their claim, they asserted that the competitors sought to use the defendant's name as a stamp on their wares. *Id.* at 468. The court declined an injunction on the ground that there was no

California courts paid particular attention to distinguishing customer relationships that were business goodwill or trade secrets from those that were not. Beginning in 1872, California prohibited restrictive covenants except in connection with the sale of the goodwill of a business or dissolution of a partnership.²⁹⁶ The only basis for restricting subsequent competition from an employee was if the employee sought to use trade secrets.²⁹⁷ In a number of cases in which someone associated with a firm attempted to leave the business, the parties arranged for the employee to sell his stock in the business and entered into a restrictive covenant ancillary to that sale.

evidence that the plaintiffs were entitled to use his name, that they did use it, or that there was an particular value to either the plaintiffs or the defendant in the use of it. *Id.* at 468-69.

296. CAL. CIV. CODE § 1673 (1872) (repealed 1942) (“Every Contract by which anyone is restrained from exercising a lawful trade or business of any kind, otherwise than as provided by the next two sections, is to that extent void”); CAL. CIV. CODE § 1674 (1872) (repealed 1941) (“One who sells the good will of a business may agree with the buyer to refrain from carrying on a similar business within a specified county, so long as the buyer, or any person deriving title to the good will through him, carries on a like business”); CAL. CIV. CODE § 1675 (1872) (current version at CAL. BUS. & PROF. CODE § 16602 (West 2000)) (“Partners may, upon or in anticipation of a dissolution of a partnership, agree that none of them will carry on a similar business within the same city or town where the partnership business has been transacted or within a specified part thereof”).

The reasons why California broadly prohibited restrictive covenants against employees are unclear. California’s 1872 code provisions on restrictive covenants were adopted unchanged from Field’s proposed New York code, which allowed covenants only in connection with the sale of a business or dissolution of a partnership. Neither Field’s reasons for including the broad ban on restrictive covenants in employment nor California’s for adopting it are recorded. On the legislative history of California’s statute on restrictive covenants, see Gilson, *supra* note 16 at 614-619. According to Gilson, Field’s commentary to his Code did not explain the inclusion of the provisions, and the California commission responsible for the adoption of the Code did not either. The ban on restrictive covenants evidently was not in the draft of the Code that Field had circulated to judges and lawyers in 1862. *Id.* at 618 (citing [N.Y. CIV. CODE § 833 (1865) and [N.Y. CIV. CODE (draft 1862)).

297. Michigan enacted a similar statute in 1905. MICH. COMP. LAWS § 445.761 (1905) (repealed 1984). The Michigan statute invalidated all restrictive covenants, whether “reasonable or unreasonable, partial or general, limited or unlimited.” *Id.* There were two exceptions. A noncompetition agreement could protect an employer for ninety days from competition by a former employee who had been given a “list of customers or patrons, commonly called a route list, within a certain territory.” MICH. COMP. LAWS § 445.766 (1905) (repealed 1984). In *Grand Union Tea Co. v. Lewitsky*, 116 N.W. 1090 (Mich. 1908), the Michigan Supreme Court, applying the statute, refused to enforce a one-year covenant against a traveling tea and coffee salesman. Michigan repealed the statute in 1984. 1984 Mich. Pub. Laws 274, § 17 (and enacting MICH. COMP. LAWS § 445.787 (effective March 29, 1985)). Michigan now allows post-employment restrictive covenants if they are reasonable in duration, geographical scope, and in the types of occupations covered. MICH. COMP. LAWS § 445.774a (1987).

The California courts invalidated such covenants on the ground that the sale of stock was not a sale of goodwill and that the covenant was, therefore, void.²⁹⁸ However, after the state supreme court held in *Empire Steam Laundry v. Lozier* that knowledge of the customers' identities and locations was a trade secret justifying injunctive relief irrespective of the validity of a restrictive covenant,²⁹⁹ several cases attempted to define when customer relations constituted a trade secret.³⁰⁰ The employees lost many of the cases while the California Supreme Court persistently refused to define what made customer relations a trade secret. In 1916, the California high court abandoned that effort and compounded the confusion by holding that a laundry route driver could not be enjoined from "receiving" laundry from former customers, but could be enjoined only from "soliciting" them.³⁰¹ Notwithstanding the difficulty of distinguishing "receiving" business from "soliciting" it, the prohibition against soliciting held firm.

In 1935, the California Supreme Court apparently rejected that approach in favor of one that characterized post-employment competition as wrongful irrespective of the enforceability of the restrictive covenant or the existence of trade secrets. The court upheld an injunction against a seller of wholesale milk who went to work for a competing wholesaler.³⁰² The evidence suggested that the customers whom the defendant had solicited were retailers who could be readily identified by going down the public streets.³⁰³ The trial court had justified the injunction on the ground that the employee had "a regular job, and a permanent job" which he gave up "in order

298. *Merchants' Ad-Sign Co. v. Sterling*, 57 P. 468, 469-70 (Cal. 1899); *Chamberlain v. Augustine*, 156 P. 479, 480 (Cal. 1916).

299. 130 P. 1180, 1183 (Cal. 1913).

300. *Davis v. Jointless Fire Brick Co.*, 300 F. 1, 4 (9th Cir. 1924) (denying enforcement to a covenant purporting to restrict a former salesperson from selling a competing product for two years, but granting an injunction preventing the former employee from disclosing or using lists of former customers or conducting business of the competitor in a way that might deceive the public as to whose products he sold); *Dairy Dale Co. v. Azevedo*, 295 P. 10, 10 (Cal. 1931); *Pasadena Ice Co. v. Reeder*, 275 P. 944, 947 (Cal. 1929).

301. *New Method Laundry Co. v. MacCann*, 161 P. 990, 993 (Cal. 1916). The court described the "right of a citizen to pursue any calling, business, or profession he may choose" as "a property right to be guarded by equity as zealously as any other form of property," and protested that "[l]abor is property." *Id.* at 991-92. The court also noted that the injunction would deprive laundry patrons of the freedom to select their tradesmen, which it characterized as one of the "constitutional guaranties of liberty." *Id.* at 992.

302. *Gloria Ice Cream & Milk Co. v. Cowan*, 41 P.2d 340, 342 (Cal. 1935).

303. *Id.* at 341-42.

to hurt these people, the plaintiffs in the case.”³⁰⁴ The Supreme Court assumed that the names of the customers along the milk route were publicly available and thus not trade secrets.³⁰⁵ Yet, the court deemed it wrongful that, wholly apart from the use of the customer list, the defendant “deliberately left the employ of plaintiff and as deliberately went about using whatever information he had acquired as its agent during years of service for the purpose of, and with intent of, injuring plaintiff’s business.”³⁰⁶

Distinguishing business goodwill from the personality and skill of an employee was especially difficult in professional employment in medicine and dentistry.³⁰⁷ The relationship between a physician and a patient seemed to the courts to be particularly a product of the doctor’s skill and personality. Yet, the goodwill of a professional partnership lay almost entirely in the patients’ confidence in the doctors’ abilities. Finding patient confidence to be too closely connected with the doctor’s very self, New Jersey refused to enforce a covenant attempting to restrict a physician’s assistant from the practice of medicine within the city of Newark “at any time” after the termination of his employment.³⁰⁸ The senior physician had no legitimate interest in preventing his patients from seeking treatment from his former assistant.³⁰⁹ A lifetime restriction on the practice of a “professional gentleman” also caused the court pause.³¹⁰ Yet, the court expressed a much broader hostility to post-employment restraints:

[I]f this covenant is valid and enforceable in equity, then it is competent for every merchant and trader, when he employs a clerk or shop-girl, to require them, although the compensation he agrees

304. *Id.* at 341.

305. *See id.* at 342.

306. *Id.*

307. *See generally* Edwin Merrick Dodd, *Contracts Not to Practice Medicine*, 23 B.U. L. REV. 305 (1943).

308. *Mandeville v. Harman*, 42 N.J. Eq. 185, 185, 194 (Ch. 1886).

309. *Id.* at 193-94.

310. *Id.* at 194. Another case expressing concern about the public interest against enforcing restrictive covenants against practice of a profession declined to enforce a five-and-a-half year ban on practicing dentistry within twenty-five miles of Springfield, Illinois, on the ground that the employer was not a licensed dentist and thus could not practice in the place of the employee if he were barred from doing so and a covenant is unenforceable if it is not shown that someone else will practice the profession of the one enjoined. *Tarr v. Stearman*, 105 N.E. 957, 961 (Ill. 1914); *see also* *Osius v. Hinchman*, 114 N.W. 402, 404 (Mich. 1908) (declining to enforce a restrictive covenant against a dentist on the ground that there had been no sale of goodwill and defendant learned no trade secrets during his employment with the plaintiff).

to pay is no greater than that which is customarily paid for such service, to enter into a covenant that on quitting his service they will not, at any time afterwards, accept like employment from any other merchant or trader in the same town or city.³¹¹

On the other hand, some courts emphasized that young doctors had the opportunity to gain credibility only because of the willingness of established physicians to vouch for them. On that reasoning, Massachusetts restricted post-employment competition in a 1907 case involving the dissolution of a partnership of dentists.³¹² The dentists had not agreed to a restrictive covenant, but the departing dentist, the defendant in that case, had sold the goodwill of the partnership to his partner, one of the plaintiffs.³¹³ When, three years later, he opened another dental office and sent letters to former patients announcing his new office, the court implied a covenant not to compete from the sale of the goodwill.³¹⁴ The court suggested that the covenant was necessary to effectuate the sale of the goodwill of a professional business even more than in "a mercantile partnership."³¹⁵ In the latter, the goodwill depends largely on the locality, but in the former "the personal qualities of integrity, professional skill, and ability attach to, and follow the person, not the place."³¹⁶ The only way to sell the goodwill of a professional partnership was to restrain the departing partner from practicing.³¹⁷ In sum, the medical and dental partnership cases generally agreed that business goodwill grew mainly from the intelligence and personality of the practitioners. Where the

311. *Mandeville*, 42 N.J. Eq. at 195.

312. *Foss v. Roby*, 81 N.E. 199, 200 (Mass. 1907).

313. *Id.* at 199.

314. *Id.* at 199-200.

315. *See id.* at 200.

316. *Id.*

317. *Id.* The court did not prohibit the defendant from practicing entirely; it found that the plaintiffs were sufficiently protected if the prohibition was limited to practicing in the city of Boston. *Id.* at 200.

Likewise, an early New York case upheld a covenant ancillary to the sale of a medical practice barring the defendant from practicing medicine in Oswego County. *See Holbrook v. Waters*, 9 How. Pr. 335 (N.Y. Sup. Ct. 1854). The court did not discuss the legitimate interest that supported the restraint, finding only that the covenant was supported by adequate consideration (the plaintiff had paid \$500 for the furniture and goodwill of the practice and \$1000 for the house and lot) and that the restraint was not unreasonable in geographic scope. *See also Ryan v. Hamilton*, 68 N.E. 781, 786 (Ill. 1903) (enforcing covenant signed by physician in connection with sale of his medical practice).

There are very few cases involving lawyers, *see Blake, supra* note 5, at 662 n.112, probably because it was considered unethical for lawyers to attempt to restrict a client's choice of lawyer by restricting a lawyer from representing particular clients.

courts disagreed was in whether to enforce express or implied contracts alienating those qualities from individuals to the firms.

Until the 1930s, trade secrets and business goodwill were the only forms of knowledge that courts consistently regarded as legitimate bases for restrictive covenants. Contemporary scholars and courts show considerable interest in justifying enforcement of restrictive covenants on the ground that employers need them to recoup training costs.³¹⁸ The modern argument is that during a period of specialized training, the employee's compensation is greater than the current value of his or services. Furthermore, "unless some enforceable commitment or effective deterrent is possible, employers will not be justified in making the optimum outlay on employee-training programs; even an employee eager for training will be unable to commit himself firmly enough to warrant the undertaking."³¹⁹ Thus, because personal services contracts are not specifically enforceable, the employer cannot be sure that the employee will stay long enough for the employer to recoup its investment in training.

That an employer might have a legitimate interest in restricting competition from former employees in order to recoup training costs is a development in the law that most clearly represents a rejection of the norms of the artisanal workplace. After all, the traditional justification for apprenticeships was to ensure quality production by adequate training, and the common law hostility to a master's efforts to restrict competition from a former apprentice represented a legal judgment that the master received adequate recompense in the form of the apprentice's low-cost labor during the term of the apprenticeship. English regulation of apprenticeship and the guilds revealed considerable concern about masters or guilds restraining trade by restricting competition from former apprentices.³²⁰ By the nineteenth century, with the artisanal tradition becoming a relic of the past, the English and the American courts reconsidered whether to justify restrictive covenants on the ground that they facilitate the recoupment of training costs.

318. See generally STEVEN L. WILLBORN ET AL., *EMPLOYMENT LAW: CASES AND MATERIALS* 381-89 (2d ed. 1998); Gillian Lester, *The Future of Restrictive Covenants: Regulating Opportunism or Restricting Opportunities?*, 76 *IND. L.J.* (forthcoming 2001); Philip D. Levin, *Non-Competition Covenants in New England*, 39 *B.U. L. REV.* 482, 488 (1959); Paul H. Rubin & Peter Shedd, *Human Capital and Covenants Not to Compete*, 10 *J. LEG. STUD.* 93 (1981); Carrol R. Wetzel, *Employment Contracts and Noncompetition Agreements*, 1969 *U. ILL. L. F.* 61, 64-66.

319. Blake, *supra* note 5, at 652.

320. See *supra* text accompanying note 36.

England accepted the training cost justification in 1843 but then rejected it in the early twentieth century. The 1843 English decision justified the use of covenants to recoup training costs on the ground that “the public derives an advantage in the unrestrained choice which such stipulation gives to the employer of able assistants, and the security it affords that the master will not withhold from the servant instruction in the secrets of his trade, and the communication of his own skill and experience.”³²¹ The early twentieth-century cases rejecting that position emphasized that the skill and experience acquired through work are integral to an employee’s personality.³²² In *Herbert Morris, Ltd. v. Saxelby*, the Lords emphasized that the plaintiff had employed the defendant as a draftsman when he left school at the age of fifteen and that the defendant had risen through the ranks.³²³ The court observed that the employee could not “get rid of the impressions left upon his mind by his experience on the appellants’ works; they are part of himself.”³²⁴ Thus, the court concluded, to the extent that the employee might use that knowledge and experience, and “raise the character of the output of those rivals, improve their methods, and thereby make them more formidable competitors,” the covenant could not be used to prevent such competition.³²⁵ The plaintiff’s counsel had argued that trade secret protection ought to be extended to the whole of the business’ method of operations, including its “system of standardizing mechanical apparatus capable of being used in more than one class of machine.”³²⁶ The Lords allowed that sheets and cards containing formulae for particular materials were protectable under the

321. *Mallan v. May*, 152 Eng. Rep. 967, 972 (Ex. D. 1843). It is unclear to what extent courts prior to the nineteenth century accepted the need to recoup training costs as a justification for enforcement of post-employment restraints. Cf. *Handler & Lazaroff*, *supra* note 5, at 728 (asserting that courts sustained such restraints during the eighteenth and nineteenth centuries but ceased to do so in the late nineteenth century, but the support for this proposition is not detailed).

322. In *Sir W.C. Leng & Co. v. Andrews*, 1 Ch. 763, 773 (Eng. 1909), Lord Justice Farwell said:

The rule allowing reasonable restraint of trade does not mean that an employer can prevent his employee from using the skill and knowledge in his trade or profession which he has learned in the course of his employment by means of directions or instructions from the employer. That information and the additional skill he is entitled to use for the benefit of himself and the benefit of the public who gain the advantage of his having had such admirable instruction.

Id.

323. 1 A.C. 688, 703-05 (Eng. 1916).

324. *Id.* at 703.

325. *Id.* at 704.

326. *Id.*

covenant, but that the “organization and general method of the business” were not.³²⁷ General business methods could not be regarded as trade secrets for they were not the sort of discrete information, like formulae or secret compilations of information, that the trade secret concept encompassed.³²⁸

Without the legacy of guilds and with a weaker artisanal tradition, American courts justified their own refusal to enforce covenants for recouping training costs differently. Although some early twentieth-century commentators urged that covenants could be used to recoup training costs,³²⁹ the courts did not widely agree. Most courts treated training costs simply as a variation on the issue of whether covenants could restrict the use of general knowledge as opposed to trade secrets.³³⁰ They concluded that, absent trade secrets or customer goodwill, an employer could not use a covenant to protect general knowledge about the business, even when the employer trained the employee. For example, in a case in which the employer—a seller of aluminum cooking equipment—had alleged that it gave its sales staff extensive training in hygenics, food preparation, and sales techniques, the Massachusetts Supreme Judicial Court said as follows:

Knowledge confidentially gained in the course of employment may be made the subject of restrictive agreement and acts in derogation of such a contract will be restrained. But an employer cannot by contract prevent his employee from using the skill and intelligence acquired or increased and improved through experience or through instruction received in the course of the employment.³³¹

In the period between 1800 and 1930, the courts invented and developed the doctrine of trade secrets that allowed employers to enjoin employees not to disclose economically valuable knowledge learned at work and, in some cases, not to work for competitors at all. During the same period, the courts expanded the enforcement of

327. *Id.*

328. *Id.* at 712.

329. Albert M. Kales, *Contracts to Refrain from Doing Business or from Entering or Carrying on an Occupation*, 31 HARV. L. REV. 193, 195 (1917).

330. See Handler & Lazaroff, *supra* note 5, at 728.

331. *Club Alum. Co. v. Young*, 160 N.E. 804, 806 (Mass. 1928). The tendency to treat cases involving training costs as involving nothing other than general knowledge persisted throughout the twentieth century. Blake’s three-paragraph discussion of training costs (which cites only four cases), simply asserted that courts would not enforce covenants to protect training costs. He noted, however, that the general rule of unenforceability of covenants for that purpose was clouded by the fact that training in trade secret knowledge can be a legitimate interest because trade secrets are protectable through covenants. Blake, *supra* note 5, at 652-53.

post-employment covenants not to compete by recognizing their usefulness in protecting an ever-widening range of knowledge. With some exceptions—notably the refusal to protect training costs and some reluctance on the part of courts to designate particular information as protectable either as a trade secret or through contractual agreement—the law on the books in 1930 resembles the law on the books today. Yet, company practice did not immediately reflect the new law.

C. Technology and Legal Doctrine in the Early 20th Century: The Laboratories and Law Offices at Du Pont

In the hundred years after Du Pont's difficulties with Charles Munns and Thomas Ewell, a great deal of legal change enabled Du Pont finally to assert ownership of its employees' knowledge. And the law had become much more accessible to the company, partly because of improvements in law publishing, and partly because Du Pont was a very different sort of enterprise. Du Pont—now a very large company, well on its way to becoming a diversified conglomerate—was probably just as anxious to prevent employees from departing with company secrets as it had been in 1814. Du Pont employed dozens of research chemists working on an array of projects in several locations by 1911.³³² The research stations were guarded, and the research notes were kept under lock and key.³³³ These precautions differed little from the restrictions on entry into the powder yards that the company had posted in 1811.³³⁴ It is quite striking that Du Pont did not use the full arsenal of legal weapons available to it until its trade secret litigation against Walter Masland alerted company officials to the deficiencies of their extant practices and the possibility of more aggressively protecting the company's intellectual property through employment contracts.

The dialectic between doctrinal and social change is nowhere better illustrated than in Du Pont's practices in the first two decades of the twentieth century. Although the company instituted a famous trade secret case and gained something of a reputation among industrialists for its aggressive efforts to protect its intellectual

332. HOUNSHELL & SMITH, *supra* note 105, at 49.

333. Affidavit of Charles Reese, *E.I. du Pont de Nemours Powder Co. v. Masland*, 216 F. 271 (E.D. Pa. 1914) (on file with the Hagley Museum & Library, Wilmington, Delaware, Accession 1305, Box 773); Affidavit of Fin Sparre, *E.I. du Pont de Nemours Powder Co. v. Masland*, 216 F. 271 (E.D. Pa. 1914) (on file with the Hagley Museum & Library, Wilmington, Delaware, Accession 1305, Box 773).

334. *See supra* note 137.

property from departing employees, in crucial respects the company followed rather than led the wave of legal change. Most significantly, its contracts did not restrict employees' use of trade secrets or impose restrictive covenants.

In 1904, two years after Du Pont founded its first organized research and development laboratory that later came to be known as the Experimental Station, the company required all research lab employees doing experimental work to sign form contracts.³³⁵ The contracts, which were supported by one dollar in consideration, provided that Du Pont owned, and required the employee to assign to Du Pont, all patents for, "any inventions, improvements, or useful processes relating to explosives, their ingredients, manufacture or use, or to the appliances or machinery connected therewith, or to the treatment of byproducts thereof, which may be made or perfected, wholly or in part, by the [employee], while in the employment aforesaid."³³⁶ Significantly, the contracts did not require employees to refrain from disclosing the company's secrets, even though such contracts would have been enforceable. Interestingly, Du Pont also did not try to elicit agreements not to engage in post-employment work in related research or industry.

Du Pont dealt with trade secrets by policy rather than by express contract. In 1908, the company sent a notice to all the employees in the smokeless powder plants and posted the same notice in the research laboratories³³⁷ and the dynamite plants.³³⁸ The notice advised employees that Du Pont "owns and possesses the right to use . . . secret processes . . . in connection with the manufacture of explosives and the appliances, packages, material, machinery and other things relating to said business and used in connection therewith." It warned employees that

[it is] illegal for you during your employment or after its termination to reveal to any person, other than those in the employ of the company whose business it is to know . . . any information or matter whatsoever relating to the said secret processes, compositions, reagents, apparatus and machines. It is also illegal during your employment, or after its termination, to use or employ

335. Letter from R. Mudge to Edwin Prindle (June 22, 1914) (on file with the Hagley Museum & Library, Wilmington, Delaware, Accession 1305, Box 680). Other administrative issues associated with the coordination, staffing, and funding of the research labs were also worked out during this period; these are described in HOUNSHELL & SMITH, *supra* note 105, at 27-39.

336. Affidavit of Charles Reese, *supra* note 333, at Exhibits A & D.

337. Affidavit of Charles Reese, *supra* note 333.

338. *Id.*

any of said processes, alone or in connection with others, except for the Company while in its employment.³³⁹

The notice concluded plaintively: “The Company appreciates the high degree of loyalty and sense of right that has maintained with its employees during the many years it has been engaged in business, and feels that calling attention in this way to the legal status of secret processes is all that is necessary.”³⁴⁰ (No such letters or notices were disseminated at the black powder plants, apparently because company officials believed that there was nothing secret about the manufacture of black powder, which was an older and well-known technology.³⁴¹)

Du Pont’s major internal and legal struggle to define the boundary between its intellectual property and its employees’ knowledge led to a famous trade secret case, *E.I. du Pont de Nemours Powder Co. v. Masland*,³⁴² that was litigated all the way up to the U.S. Supreme Court. The case was a catalyst of corporate soul-searching about the efficiency and limits of company efforts to restrict access to its secrets. That the litigation reached an inconclusive end may also have led some businesses to doubt the usefulness of litigation in protecting trade secrets.

The events leading up to the litigation were a typical tale of a frustrated entrepreneur working for a large corporation. In 1914, Du Pont learned that the research chemist in charge of its artificial leather work, Walter Masland, was considering leaving the company to go into business with his brothers making artificial leather. Masland had gone to work for Du Pont in 1904, after studying chemistry at the University of Pennsylvania.³⁴³ By all accounts, Masland was a gifted chemist. He had received numerous patents which he had dutifully assigned to Du Pont.³⁴⁴ By 1914, the artificial leather research had progressed to the point that the company was

339. Affidavit of Charles Reese, *supra* note 333, at Exhibit B.

340. *Id.*

341. Evidently, Du Pont did not resist the efforts of former employees to go into business for themselves when they did so with technology that the company did not consider secret. In 1902, when Du Pont was significantly reorganized, Robert S. Waddell, who had been the general sales agent for the company, resigned in order to set up his own Buckeye Powder Company to produce black powder for Illinois coal mines. CHANDLER, JR., *supra* note 105, at 73. I found no records of company efforts to prevent his using their black powder technology.

342. 216 F. 271, 272 (E.D. Pa. 1914).

343. Answer of Walter Masland, *E.I. du Pont de Nemours Powder Co. v. Masland*, 216 F. 271 (E.D. Pa. 1914) (on file with the Hagley Museum & Library, Wilmington, Delaware, Accession 1305, Box 773).

344. Affidavit of Fin Sparre, *supra* note 333.

planning to build a plant to manufacture it for commercial sale.³⁴⁵ Du Pont acquired a New York-based artificial leather maker, the Fabrikoid Company, apparently to eliminate competition as well as to acquire technology and a trademark brand.

Masland's reasons for leaving Du Pont were not unusual. Masland's family had owned and operated a carpet manufacturing business in Philadelphia since 1886³⁴⁶ and his brothers, who had made money in business for themselves, urged him to join them.³⁴⁷ Masland complained to Charles Reese, the head of Du Pont's Chemical Department and chair of its Experimental Board, that Du Pont often passed over for promotion men with talent in favor of men with family connections.³⁴⁸ As a consequence, he complained, men at the Experimental Station had few prospects for promotion.³⁴⁹ Masland was particularly disappointed that, when Du Pont took over the Fabrikoid Company and Fabrikoid's assistant superintendent-chief chemist quit, Masland was not promoted to his job or given a raise but was expected to pick up all of the departing chemist's work.³⁵⁰ Masland was not the only Du Pont chemist who felt underappreciated. Some of the younger chemists complained that Reese patented his subordinates' work in his own name and chafed at his "intolerance and haughtiness of manner."³⁵¹

Reese tried to persuade Masland that Masland's "moral obligations" prohibited him from using his knowledge of artificial leather in competition with Du Pont. According to Reese, Masland replied that "he had given the matter of his moral obligations a great deal of thought; that he did not believe he had a moral right to sell or

345. Bill of Complaint, *E.I. du Pont de Nemours Powder Co. v. Masland*, 216 F. 271 (E.D. Pa. 1914) (on file with the Hagley Museum & Library, Wilmington, Delaware, Accession 1305, Box 773).

346. Bradstreet Report, in Letter from William Whitten to Prindle, Wright & Small (on file with the Hagley Museum & Library, Wilmington, Delaware, Accession 1305, Box 680).

347. Affidavit of Fin Sparre, *supra* note 333.

348. (Second) Affidavit of Walter Masland, *E.I. du Pont de Nemours Powder Co. v. Masland*, 216 F. 271 (E.D. Pa. 1914) (on file with the Hagley Museum & Library, Wilmington, Delaware, Accession 1305, Box 773).

349. Letter from Charles Reese to William Whitten (on file with the Hagley Museum & Library, Wilmington, Delaware, Accession 1305, Box 680). Masland repeated these complaints in his Affidavit filed in the litigation. Affidavit of Walter Masland, *E.I. du Pont de Nemours Powder Co. v. Masland*, 216 F. 271 (E.D. Pa. 1914) (on file with the Hagley Museum & Library, Wilmington, Delaware, Accession 1305, Box 773).

350. Affidavit of Walter Masland, *supra* note 349.

351. HOUNSHELL & SMITH, *supra* note 105, at 26 (quoting an article on Reese published in the *Dictionary of American Biography*, written by Du Pont's prominent dye chemist, Herbert A. Lubs).

give this confidential information to competitors, or to other parties.”³⁵² Significantly, however, Masland did believe (at least according to Reese) “that he had the right to use personally any information, confidential or otherwise, which he had obtained either through his own efforts or efforts of others during his employment with the company.”³⁵³ Masland’s belief that he had a right to use knowledge that Du Pont might regard as confidential, provided that he had participated in its development,³⁵⁴ reflected an issue that had vexed trade secret law for the past thirty years: Masland’s own work and intelligence had produced the advances in the chemistry of artificial leather; yet, because he had been paid to do that work and Du Pont wanted to keep the results of the research for itself, he had no right to use the knowledge he had developed even though it had never been patented. The perspective that Reese attributed to Masland on the inalienability of the chemical knowledge that he had gained through employment was the position that courts had moved away from in the twenty years before.³⁵⁵

Du Pont lawyers and chemists corresponded and met frequently to discuss the issues and plan strategy for the litigation. After Masland had announced his intentions, but before he even left the company, the lawyers and the company officials met and agreed among themselves that “the moral questions involved group themselves under two heads.”³⁵⁶ First, there was “an implied contract between the Company and Mr. Masland that he would not make use in any way of any confidential matters concerning the Company and its work.”³⁵⁷ Second, Masland’s

proposed line of conduct places the Company under an unfair handicap in competing with him. The Company has spent large sums of money in perfecting the process under consideration. When its good are placed on the market, therefore, it will have to charge enough for its product to cover the cost of its investigations. As Mr. Masland has borne none of this cost, he can sell at a lower price than the company, and destroy its market. If he thinks this is

352. Letter from Charles Reese to William Whitten, *supra* note 349.

353. *Id.*

354. Affidavit of Fin Sparre, *supra* note 333; *see also* Affidavit of Charles Reese, *supra* note 333; Letter from Charles Reese to William Whitten, *supra* note 349.

355. This was exactly the same conflict between competing moral pictures that existed in the law of patent ownership for employee inventors during that era. Fisk, *supra* note 3, at 1170-79.

356. Letter from Edwin Prindle to Charles Reese (June 4, 1914) (Accession 1405, Box 772) (on file with Hagley Museum & Library, Wilmington, Delaware).

357. *Id.*

fair, his moral judgment is either very much atrophied or greatly warped.³⁵⁸

Thus, the company sought to translate a new legal concept—an implied contract to keep trade secrets—and a relatively new economic notion about a firm's entitlement to a fair return on its investment in R & D into the terms of moral judgment that were much older in trade secret law.

Masland saw things differently. In his view, all the processes for making artificial leather that he planned to use were common knowledge among chemists familiar with cellulose and artificial leather.³⁵⁹ Masland himself never claimed in the litigation the view that Reese had attributed to him, that he had a right to use the trade secrets so long as he had invented them. We cannot know whether this was because Masland never made such a statement, or because his lawyer had coached him that the position Reese attributed to him no longer found support in the cases. For whatever reason, Masland's position in the litigation was that there were no trade secrets involved.³⁶⁰ Furthermore, Masland claimed that he had signed the contract requiring him to assign his inventions under protest and only after Fin Sparre, who was then the chief chemist at the Experimental Station, assured him that Sparre's own lawyer had advised that the contract would be unenforceable.³⁶¹ Furthermore, Masland asserted that two employees had left Du Pont's artificial leather work and had gone to work for competitors.³⁶² He thus sought to establish that Du Pont itself had not previously tried to claim the chemistry of artificial leather as a trade secret.

The principal issue at the start of the Du Pont-Masland litigation was whether Masland was using Du Pont's trade secrets in manufacturing artificial leather, or whether he was using methods that were common knowledge among chemists in that line of business. The district court initially denied a preliminary injunction because Masland insisted that he was not using Du Pont trade secrets.³⁶³ During the litigation, Masland proposed to get expert testimony to establish that the processes that Du Pont claimed as trade secrets were in fact common knowledge among chemists

358. Letter from Edwin Prindle to E.I. du Pont de Nemours Powder Co. Chemical Department, *supra* note 241.

359. Affidavit of Walter Masland, *supra* note 349.

360. *Id.*

361. *Id.*

362. *Id.*

363. E.I. du Pont de Nemours Powder Co. v. Masland, 216 F. 271 (E.D. Pa. 1914).

working on artificial leather. A dispute about Masland's proposal for expert testimony led the litigation to digress to that issue, and it never did return to the merits.

Fearing that litigation would reveal their secrets to their competitors, Du Pont wanted to prevent Masland from drawing his experts from the ranks of their competitors, preferring that he serve as his own expert or that he use experts drawn from the Government or academia. Masland contended that all the experts whom Du Pont suggested either consulted for Du Pont, in the case of academics, or relied on Du Pont for business, in the case of government.³⁶⁴

Du Pont eventually got the district court to enjoin Masland from revealing the company's alleged trade secrets to experts.³⁶⁵ Significantly, the court did not enjoin him from manufacturing artificial leather because Du Pont had not asked for that remedy; Du Pont asked only that he be enjoined from revealing its trade secrets to expert witnesses.³⁶⁶ This was the order that was appealed up through the Third Circuit and was left standing by the Supreme Court in a unanimous opinion written by Oliver Wendell Holmes.³⁶⁷ Holmes' opinion is only three paragraphs long. It states essentially that the trial judge had discretion to determine whether disclosure of secrets to experts was necessary to Masland's defense or whether it would suffice that he could disclose "whatever public facts were nearest to the alleged secrets."³⁶⁸

After Du Pont sued Masland, company officials began to examine more closely their practices with respect to employee ideas. They realized, to their chagrin, that the form contract that Masland

364. (Second) Affidavit of Walter Masland, *supra* note 348.

365. E.I. du Pont de Nemours Powder Co. v. Masland, 222 F. 340, 341 (E.D. Pa. 1915).

366. *Id.*

367. E.I. du Pont de Nemours Powder Co. v. Masland, 244 U.S. 100, 103 (1917).

368. *Id.* The *Masland* opinion is often cited to demonstrate the ambiguity as to whether trade secrets are a form of property or are, instead, the product of a duty of confidentiality. Du Pont's lawyers had argued that if Masland were allowed to reveal the secrets to his expert, litigation to protect trade secrets would deprive a trade secret owner of property without due process. *Id.* at 102. Masland argued that the right to choose his own experts was also essential to due process. *Id.* Justice Holmes avoided both due process arguments by characterizing the trade secret obligation as a duty of confidentiality:

[T]he starting point for the present matter is not property or due process of law, but that the defendant stood in confidential relations with the plaintiffs, or one of them. These have given place to hostility, and the first thing to be made sure of is that the defendant shall not fraudulently abuse the trust reposed in him. It is the usual incident of confidential relations. If there is any disadvantage in the fact that he knew the plaintiffs' secrets, he must take the burden with the good.

Id. at 102.

and the other Experimental Station employees had signed in 1905 covered only patents and inventions related to explosives, not to the newer lines of business such as artificial leather.³⁶⁹ The contract also did not explicitly protect trade secrets. Du Pont's in-house counsel became anxious that the litigation might publicize these deficiencies in the contract, and might also alert employees to the fact that the company had insisted that Masland (and others, presumably) assign patents that plainly were not covered by the contract: "This, of course, would be very suggestive to certain other employees in the laboratory," he worried, adding that widespread knowledge of it "is apt to be demoralizing" to "certain classes of employees of the company."³⁷⁰ In the years of the *Masland* suit, 1914-1917, the company tried to get all employees working in its labs—not only chemists and engineers, but also clerical employees—to sign contracts not to disclose company secrets.³⁷¹

Although Du Pont got an injunction against Masland, the company officials and its lawyers remained anxious, from the time they brought suit until early 1918, that Masland was continuing to manufacture artificial leather using Du Pont trade secrets. Du Pont's lawyer, Edwin Prindle, employed a private detective agency for all sorts of cloak-and-dagger snooping around the Masland factory over the years. On one occasion, a detective snuck through a hole in the fence around the Masland factory when the factory was closed. Another time, a detective obtained a meeting with Masland by pretending to be interested in purchasing artificial leather for export.³⁷² On a visit in early 1918, a detective applied for a job at the Masland factory as a workman. He was not hired. He then approached the Philadelphia Electric Company, seeking to pose as an electric company employee. That tactic failed as well: The company "was advised by counsel for the Philadelphia Electric Company that it would be contrary to the policy of the central station, they having had unpleasant experiences in similar matters before."³⁷³ Some Du Pont

369. Affidavit of Walter Masland, *supra* note 349.

370. Letter from R. Mudge to Edwin Prindle, *supra* note 335.

371. Irene du Pont Papers, (on file with the Hagley Museum & Library, Wilmington, Delaware, Accession 228, Series H, Box 40, Files F-ID-42) (carbon copies of transmittal letters asking that the contract be signed for the company; the contracts themselves are not in the file. Many of the contracts were for chemists and engineers, but a couple appeared to be for clerical employees working in the labs.).

372. Letter from Irving Klein to Edwin Hammer (on file with the Hagley Museum & Library, Wilmington, Delaware, Accession 1305, Box 679).

373. Letter from Irving Klein to Edwin Prindle (on file with the Hagley Museum & Library, Wilmington, Delaware, Accession 1305, Box 679).

officials thought these tactics were unworthy of the company, which suggests a continuing tension between aggressive protection of trade secrets recommended by the lawyers and some officials' desire not to alienate employees or to be perceived as overreaching.³⁷⁴

Although Du Pont officers wanted to know what Masland was doing, they wanted to find out at no risk to themselves. One of Masland's employees applied to Du Pont-Fabrikoid for a job in February 1918, claiming to know Masland's methods for making artificial leather. Du Pont wrote a prickly letter in reply, stating "We are not inclined to take on employees of competitors in order to obtain possession of formulae."³⁷⁵ On the one hand, this might be regarded as a continuation of the company's longstanding policy not to hire their competitors' employees.³⁷⁶ On the other hand, given the absence of evidence as to whether this policy was invariably followed³⁷⁷ and the obvious possibility that Masland might consider a countersuit if they hired his employees, one cannot be sure whether Du Pont was merely following company policy as opposed to responding to a particular situation.

When Du Pont's detective finally determined in March of 1918 that Masland was not manufacturing artificial leather,³⁷⁸ the company settled its accounts with its lawyers and regarded the case as closed.³⁷⁹ The litigation thus reached an inconclusive end. The company never proved that Masland used its trade secrets, and it is unclear whether he ever actually did. Du Pont research on artificial leather produced average profits of 15% for the company in the period between 1911 and 1919, although the shoes made from Fabrikoid—which Du Pont had had tested by forty Wilmington mail carriers and a local shoe store—were of only middling quality.³⁸⁰

The Masland litigation occurred at a point in the company's history when it was changing from a family-controlled explosives firm

374. Hamilton Barksdale was among those who were reluctant to resort to this sort of cloak and dagger tactic. Letter from R. Mudge to J. Laffey (on file with the Hagley Museum & Library, Wilmington, Delaware, Accession 1305, Box 679).

375. Letter from F. Kniffen to Louis Ruskey (on file with the Hagley Museum & Library, Wilmington, Delaware, Accession 1305, Box 679).

376. *See supra* note 192.

377. *See infra* text accompanying notes 382-383.

378. Letter from E.R. Hughes to Edwin Hammer (on file with the Hagley Museum & Library, Wilmington, Delaware, Accession 1305, Box 679).

379. Letter from J. Laffey to Prindle, Wright & Small (on file with the Hagley Museum & Library, Wilmington, Delaware, Accession 1305, Box 679). All told, they paid their outside counsel, Prindle, Wright & Small, nearly \$12,000 for their work on the case. *Id.*

380. HOUNSHELL & SMITH, *supra* note 105, at 88.

that happened to do enough chemical research to keep up with technological developments in the industry to a firm that invested substantial resources in applied chemical research so as to develop a wide variety of new products. The more Du Pont began to emphasize research, and the more that it depended on chemists who were not family members, the more the company struggled to balance its desire to control all the products of its research with the need to provide incentives for its employees. While aggressively guarding its secrets and requiring employees to assign patents to the company, Du Pont also adopted a plan of paying bonuses in the form of company stock. Some employees (including Masland) considered the bonus plan unsatisfactory because the recipients of stock were restricted from selling the stock; they received only the dividends on it.³⁸¹

Du Pont's failure to make full use of the legal doctrines that were available in 1914 to protect what the company regarded as its intellectual property, and the mixed success when it eventually did so, is revealing on many levels. First, to the extent that some legal histories focus on the development of doctrine, one must be quite careful in assuming that doctrinal change necessarily percolated down to the practices of clients. Even large firms like Du Pont did not have lawyers routinely advise them on how changes in the law should be incorporated into the administration of their employment relations. When they did, the lawyers may have missed certain issues or have made recommendations that were never implemented. Du Pont evidently made calculations about the harm to productivity associated with poor morale, balanced against the likelihood of losing valuable intellectual property rights, and concluded that certain measures were not worth antagonizing employees. Finally, there must have been some concern about whether instituting legal proceedings to protect intellectual property rights was worth the expense. The outside counsel for Du Pont in the *Masland* suit might have regarded the litigation as a big success (for him it was a personal accomplishment that he touted often), but it is unclear how much benefit the company actually received from it.

The irony, from the historian's perspective, of the story behind *Du Pont v. Masland* is that it simultaneously confirms and undermines the thesis that legal change tends to lag behind social and economic change. Additionally, the episode is doubly ironic because the *Masland* suit effected important change itself. On the one hand, Du Pont was a leader. It was conscious of the value of its employees'

381. Affidavit of Walter Masland, *supra* note 349.

creative product and sought to claim it as its intellectual property long before many manufacturing companies did. Furthermore, the company's definition of what constituted a trade secret pushed the envelope of what courts would recognize in 1916. On the other hand, until the company filed suit, it had focused its bureaucratic personnel practices retrospectively on the quintessential nineteenth-century form of intellectual property (patents) and neglected the legal protections available to it through nondisclosure agreements and restrictive covenants. When it did aggressively try to invoke the new trade secret doctrine, the litigation wound up side-tracked on a procedural issue, and the company never did assure itself that its litigation accomplished the goal of preventing Walter Masland from using his knowledge (or the company's trade secrets) about the chemistry of artificial leather.

One cannot generalize too much from the one dispute with Masland. At the same time that Du Pont was more or less strenuously asserting its trade secret rights against its own employees, it was naively, or disingenuously, asserting the rights of employees to take trade secrets with them to new employment. Du Pont during World War I zealously tried to acquire Germany's traditionally superior dye chemistry by hiring German dye chemists. One may justly conclude that when Du Pont was a consumer of intellectual property, rather than a producer, the company's attitudes toward employees' rights to take papers and drawings were quite different from the position they asserted in the *Masland* suit.

The story of the American efforts to capture the dye stuffs business that German firms had dominated prior to the World War I trade embargo is fascinating in itself. After the United States confiscated German patents for dyes during the First World War, a number of firms, including Du Pont, sought to enter the dye business. They needed more than the confiscated patents, however; they needed the chemists' know-how. To get it, Du Pont aggressively recruited some German chemists familiar with dye techniques.³⁸² Some chemists' former employer, the leading German firm Bayer, arranged to have the chemists, who had departed Germany with suitcases of papers and drawings, arrested at the Dutch border or in New York. Critics in both the United States and Germany attacked Du Pont for its efforts to recruit German chemists. The company president, Irene du Pont, responded to the criticism in terms that

382. For an account of this episode of Du Pont's adventures in the dyestuffs business during the First World War, see HOUNSHELL & SMITH, *supra* note 105, at 76-97.

amusingly echoed the complaints of Thomas Ewell and Brown, Page from more than a century earlier:

[W]e felt that many needless experiments could be avoided if there were available in this country men who had practical experience in the dye industry. . . . Neither Germany nor the United States has a monopoly in brains, but there is a grave economic waste, both in money and time, in slowly and laboriously performing over again experiments which have already been made.³⁸³

Indeed, as with Thomas Ewell and the competition over the rights to make gunpowder for the United States to use in the War of 1812, notions of patriotism no doubt played a role in Du Pont's thinking about who was entitled to benefit from whose knowledge. This may underscore the extent to which one should be cautious in inferring too much about Du Pont's overall attitude toward employee intellectual property from any particular incident. Nevertheless, it is quite clear that there was an enormous change between 1814 and 1914 in the knowledge that could be claimed to be legally protectable. Du Pont and companies like it played a part in bringing about that change, but they also responded to changes that originated in the legal categories that they had no part in creating or even developing for their use.

Conclusion

During the nineteenth century, trade secret doctrine was invented and the law of restrictive covenants was adapted to prevent employees from using workplace knowledge in ways that would have been unimaginable to E.I. du Pont in 1810. These doctrines played a significant role in enabling the rise of the corporate management of intellectual property, although the Du Pont experience with Walter Masland suggests that the potential of these doctrines was not fully realized until later in the twentieth century. Courts were compelled to reconcile the perceived demands of industrialization with the ideology of freedom of contract and the realities of factory work, and the corporate control of ideas with the ideology of free labor.³⁸⁴ The

383. Letter from Irene du Pont to Eysten Berg (on file with the Hagley Museum & Library, Wilmington, Delaware, Accession 1662, Box 35) (quoted in HOUNSHELL & SMITH, *supra* note 105, at 94).

384. On aspects of the development of contract doctrine against the ideological background of free labor and the ugly reality of slavery and factory wage labor, see generally AMY DRU STANLEY, *FROM BONDAGE TO CONTRACT: WAGE LABOR, MARRIAGE, AND THE MARKET IN THE AGE OF SLAVE EMANCIPATION* (1998).

difficulty of reconciling these conflicts was manifested in the tortuous development of the doctrine.

Trade secrets and restrictive covenants have had an ambiguous relationship to each other and to the employment relations that they regulate. Then and now, the protection of trade secrets was the most widely accepted justification for enforcing restrictive covenants. But, the definition of a trade secret has always been too slippery to give the courts much clarity in analysis or intellectual cover for the value judgments they have made in deciding when an employer can lawfully restrict an employee's future freedom to work. Trade secrets are that which is learned "in confidence," the use of which outside of that employment relationship would be "unfair." These terms are both hopelessly vague and inescapably normative. To the extent that they offered judges any fig leaf of objectivity, they seemed to rest on the actual practices, norms, and expectations of the workplace. Yet the Du Pont experience suggests the difficulty that lawyers and judges faced in discovering and interpreting those practices and expectations.

Both the doctrine and the practice reflected the contestability during the nineteenth century of the inalienable attributes of self that lay at the foundation of the discourse of free labor. The doctrine also reflected the growing conflict between the free labor ideology and the demands of industrialization which increasingly called for the corporate control of every tangible and intangible product of work. The century was dominated by an epic struggle over the meaning of free labor and, yet, witnessed in its last days unprecedented formalization of corporate power over all aspects of employment and production. Drawing the line between what knowledge the firm could own and that which remained the possession of every free person was, in that context, an extraordinarily difficult task.

Given what was at stake, it is perhaps not surprising that cases reached inconsistent results and that courts were vague about what standards applied. Scholars today lament the absence of a coherent justification and clear rules in trade secret and restrictive covenant doctrine. The persistence of the multifaceted, fact-based reasonableness inquiry for restrictive covenants and of standardless, factual tests for the existence and the remedying of the misappropriation of trade secrets may be evidence that the value choices at the heart of these legal issues remain as wrenching today as they were when courts first created the doctrines that set employee freedom to switch jobs on a collision course with the corporate control of intellectual property.
