



Digital Commons@

Loyola Marymount University
LMU Loyola Law School

Loyola of Los Angeles Law Review

Volume 38

Number 1 *Symposium—Intellectual Property at
a Crossroads: The Use of the Past in Intellectual
Property Jurisprudence*

Article 6

9-1-2004

Intellectual Property and Public Policy in Historical Perspective: Contestation and Settlement

Susan Sell

Follow this and additional works at: <https://digitalcommons.lmu.edu/llr>



Part of the [Law Commons](#)

Recommended Citation

Susan Sell, *Intellectual Property and Public Policy in Historical Perspective: Contestation and Settlement*, 38 Loy. L.A. L. Rev. 267 (2004).

Available at: <https://digitalcommons.lmu.edu/llr/vol38/iss1/6>

This Symposium is brought to you for free and open access by the Law Reviews at Digital Commons @ Loyola Marymount University and Loyola Law School. It has been accepted for inclusion in Loyola of Los Angeles Law Review by an authorized administrator of Digital Commons@Loyola Marymount University and Loyola Law School. For more information, please contact digitalcommons@lmu.edu.

INTELLECTUAL PROPERTY AND PUBLIC POLICY IN HISTORICAL PERSPECTIVE: CONTESTATION AND SETTLEMENT

*Susan Sell**

The history of intellectual property protection reveals a complex yet identifiable relationship between three major factors. First, it reveals shifting conceptions of ownership, authorship, and invention. These ideas denote what “counts” as property, and who shall lay claim to it. Second, this history reflects changes in the organization of innovation and the production and distribution of technology. Third, it reflects institutional change with these shifting ideational and material forces.

Legal institutionalization of these changes in law alters power relationships and inevitably privileges some at the expense of others. Property rights both are situated within broader historical structures of global capitalism and serve to either reproduce or transform these structures. Particular historical structures privilege some agents over others, and these agents can appeal to institutions to increase their power.

Depending on the world in which one lives, piracy may be construed as theft or as an important tool of public policy. Whether one is talking about books or drugs, movies or software, the definition of what constitutes property depends upon time, place,

* Associate Professor of Political Science and International Affairs, George Washington University. Professor Sell is author of *PRIVATE POWER, PUBLIC LAW: THE GLOBALIZATION OF INTELLECTUAL PROPERTY RIGHTS* (2003) and *POWER AND IDEAS: NORTH-SOUTH POLITICS OF INTELLECTUAL PROPERTY AND ANTITRUST* (1998) as well as numerous articles and book chapters on the politics of intellectual property. Thanks to Peter Yu for organizing this symposium and Christopher May for inspiration and materials from our joint project on the history of intellectual property, *CHRISTOPHER MAY & SUSAN SELL, INTELLECTUAL PROPERTY RIGHTS: A CRITICAL HISTORY* (forthcoming 2005) (manuscript at 40, on file with Loyola of Los Angeles Law Review). Kazuhiro Obayashi provided helpful research assistance.

geography, constellation of interests, degree of competition present, stage of economic development, and power. Insofar as intellectual property is an instrument of public policy, all of these factors are relevant.

Historical change is not linear. It is contingent, rife with unintended consequences, path dependence, and awkward patches in which institutions no longer serve their original aims. Essentially, the history of intellectual property rights is a history of contestation. The inherent tensions in the idea of intellectual property recurrently resurface under philosophical, technological, or institutional pressure. This Article highlights several key moments in the development of intellectual property law when particular ideas and economic circumstances converged to privilege particular agents and alter institutions. It offers a critical history of intellectual property rights and suggests that the contemporary arrangements of very high standards of intellectual property protection are neither the most desirable nor the only possible arrangements.

The Article first presents ideas about property to highlight the inherent tensions between romantic and utilitarian justifications of property rights. It goes on to identify and discuss key moments of contestation and settlement in the evolution of intellectual property policy. Beginning with late eighteenth century Britain, the story of Richard Arkwright highlights contestation between patentees and users of patented technologies.¹ In this instance, users prevailed over patentees.²

The Article goes on to describe the diversity of intellectual property law in the nineteenth century, demonstrating the many ways in which different countries used intellectual property policies to encourage economic development. Next, the Article highlights a key settlement in the history of intellectual property law and international trade: the resolution of the patent controversy of 1870–1875 in favor of intellectual property rights. The next section discusses the multilateral institutionalization of this resolution in the Paris and Berne Conventions. The following section discusses Thomas Edison and his use of patents as a business strategy. Next the Article examines the ascendance of the German chemical industry through

1. See BARRINGTON MOORE, JR., *MORAL ASPECTS OF ECONOMIC GROWTH, AND OTHER ESSAYS* 19–20 (1998).

2. See *id.*

employment of a new business model, and the rise of patent cartels. The subsequent section explores twentieth century American ambivalence and the evolution of the American position from skepticism about intellectual property protection and monopoly power to vigorous advocacy for dramatically expanded global property rights. The final section briefly discusses the recent multilateral intellectual property settlement in the World Trade Organization and the emerging contestation in its wake.

I. IDEAS ABOUT PROPERTY

Competing perspectives on balancing private and public goods inform the notion of intellectual property. While there are numerous justifications for intellectual property,³ a central tension is the one between romantic notions of authorship and invention⁴ on the one hand, and utilitarian conceptions of incentives for creation and diffusion on the other.⁵ Romantic notions endorse the doctrine of natural rights in one's own creation as private, subjective, expressive, and perpetual, while utilitarian theory promotes dissemination to the public, the objective nature of knowledge, competition, and limits on rights.⁶ As Professor Carla Hesse points out, these two ideas emerged most prominently in Europe during the eighteenth century as

[i]ncreasing literacy and the emergence of a large middle-class readership throughout Europe in the first half of the eighteenth century put unprecedented strains upon a system of publication that had been predicated on the notion that

3. See generally PETER DRAHOS, *A PHILOSOPHY OF INTELLECTUAL PROPERTY* (1996) (addressing the justifications for intellectual property law found in common law judicial decisions); CHRISTOPHER MAY, *A GLOBAL ECONOMY OF INTELLECTUAL PROPERTY RIGHTS: THE NEW ENCLOSURES?* (2000) (arguing that there are three groups of justifications, called "justificatory schemata," used to support the institution of intellectual property).

4. The inventor image is more rationalist than romantic, but both notions elevate the stature of the "creator." For more on the heroic image of the inventor, see Keith Aoki, *Authors, Inventors and Trademark Owners: Private Intellectual Property and the Public Domain*, 18 COLUM.-VLA J.L. & ARTS 191, 215-16 (1994).

5. Carla Hesse, *The Rise of Intellectual Property: 700 B.C.-A.D. 2000: An Idea in the Balance*, DAEDALUS, Spring 2002, at 26, 36-37.

6. *Id.* at 34-36.

there was a fixed amount of divine or ancient knowledge to be known, transmitted, and interpreted.⁷

The huge demand for literature prompted many people to earn their living as writers.⁸ To do so, however, writers needed to obtain adequate remuneration for their products.⁹ The demand for books also prompted printers to produce cheap reprints, or “pirate editions.” These individuals promoted themselves as “champions of the ‘public interest’ against the monopolistic members of book guilds.”¹⁰

In 1710 Daniel Defoe expressed a romantic notion of authorship by writing, “‘A Book is the Author’s Property, ‘tis the Child of his Inventions, the Brat of his Brain’”¹¹ Later in the century, British, French, and German commentators on the literary enterprise further developed the notion of an author’s works as “unique, perpetual, and inviolable property.”¹² Influenced by John Locke’s “sweat of the brow” “labor-desert” theory of property, British poet Edward Young offered a secularized theory of knowledge.¹³ In his 1759 treatise, *Conjectures on Original Composition*, Young wrote that “[t]he individual personality supplanted God as the divine font of knowledge.”¹⁴

Due to its wide circulation, Young’s book became highly influential in continental Europe.¹⁵ While Young argued that products of the mind deserved greater protection than mechanical inventions, the French encyclopedist Denis Diderot argued in 1763 that literary property is even more uniquely the property of its creator than land acquired through cultivation.¹⁶ The German Enlightenment writer Gotthold Lessing, in his 1772 essay, *Live and Let Live*, “challenged directly the traditional ban on profits received from writing,” causing subsequent German writers to seek

7. *Id.* at 31–32.

8. *Id.* at 32.

9. *See id.*

10. *Id.*

11. *Id.* (quoting Daniel Defoe).

12. *Id.* at 34.

13. *See id.* at 33. For more on Locke’s “sweat of the brow” and “labor desert” theories, see also Richard A. Spinello, *Web Site Linking: Right or Privilege* § 5 (June 4–5, 1999), available at <http://www.linksandlaw.com/legalresources-publicationsenglish.htm>.

14. Hesse, *supra* note 5, at 33–34.

15. *Id.*

16. *Id.*

recognition for “their claims upon their writings as a form of unique, perpetual, and inviolable property.”¹⁷

A generation later, philosopher Johann Gottlieb Fichte grappled with the nature of immaterial property and concluded that what gave such goods the imprimatur of “property” was not the ideas themselves, but rather the distinguishing quality of the “unique ‘form’ in which an author chose to express these ideas.”¹⁸ Thus the ideas/expression dichotomy that has anchored copyright was born. “Fichte’s distinctions . . . were to be critical in establishing a new theory of copyright based on the natural right to property in the unique expression of ideas, rather than in the ideas themselves.”¹⁹

Some analysts rejected the effort to secure authors’ copyrights as nothing more than an attempt to preserve the book publishers’ monopolies.²⁰ In 1776, responding to Diderot’s *Letter on the Book Trade*, French mathematician and philosopher Marie Jean Condorcet rejected the notion of literary property as a right, and instead argued that it was a privilege.²¹ Condorcet argued that ideas are not produced by individuals alone, but “are intrinsically social: . . . the fruit of a collective process of experience.”²²

Sir Isaac Newton’s famous quote captures this idea: “‘If I have seen far, it is by standing on the shoulders of giants.’”²³ Condorcet also argued that granting exclusive property rights over literary property would have pernicious effects.²⁴ He wrote, “[p]rivileges of this sort, like all others, are inconveniences that diminish activity by concentrating it in a small number of hands They are neither necessary nor useful, and . . . they are unjust.”²⁵ Condorcet developed a doctrine rooted in social utility, in which “knowledge was objective and thus fundamentally social in character, belonging to all.”²⁶

17. *Id.*

18. *Id.* at 35.

19. *Id.*

20. *Id.*

21. *Id.* at 36.

22. *Id.*

23. Suzanne Scotchmer, *Standing on the Shoulders of Giants: Cumulative Research and the Patent Law*, J. ECON. PERSP., Winter 1991, at 29.

24. See Hesse, *supra* note 5, at 36.

25. *Id.*

26. *Id.*

Social utilitarianism became a competing legal doctrine to the subjectivist notions of universal natural rights in one's intellectual creations.²⁷ These competing doctrines embody the tensions inherent in intellectual property rights. As a matter of public policy, utilitarian notions are designed to reward creation and diffusion.²⁸ Natural rights or romantic notions privilege the goal of stewardship, or the right to "manage" one's property after it is created.²⁹

Professor Mark Lemley usefully contrasts these conceptions as "ex ante" in the case of the utilitarian/public goods or incentive/public goods justification, and "ex post" in the romantic/private reward justification.³⁰ Under the incentive/public goods justification, "like other 'monopolies,' patents and copyrights were dangerous devices that should be deployed only when absolutely necessary to advance some clear public interest."³¹ Advocates of the romantic/private reward justification argue that "extended intellectual property rights were necessary to give existing copyright owners an incentive to preserve [the works] they had already . . . created."³² Under this view "the optimal right would appear to be perpetual: if only ownership gives efficient incentives to use, the right of stewardship of a film or an invention should never end."³³ These apparent philosophical differences have obvious and sharp policy ramifications. Professor Lemley identifies the ex post justifications as being profoundly anti-market.³⁴

Intellectual property protection always has been a form of public policy. Since the fourteenth and fifteenth centuries, this policy often focused on technology transfer and diffusion.³⁵ States have relied on three primary methods for accomplishing this goal: incentives,

27. *Id.*

28. *Id.*

29. *See id.* at 36–37.

30. *See* Mark A. Lemley, *Ex Ante Versus Ex Post Justifications for Intellectual Property*, 71 U. CHI. L. REV. 129, 129 (2004).

31. William W. Fisher III, *The Growth of Intellectual Property: A History of the Ownership of Ideas in the United States* 20 (1999), at <http://cyber.law.harvard.edu/people/ffisher/iphistory.pdf>.

32. Lemley, *supra* note 30, at 134.

33. *Id.* at 135.

34. *See id.* at 148–49.

35. P.J. Federico, *The Origin of Patents*, 11 J. PAT. OFF. SOC'Y 292, 293 (1929).

working requirements and compulsory licensing.³⁶ In the fourteenth and fifteenth centuries, patents were grants of privilege awarded to those who brought new techniques into a sovereign's territory.³⁷ For example, British kings awarded letters of protection to the Flemish weavers, and in 1440, to John Shiedame, for introducing a salt-making process.³⁸ Inspired by the mercantilist goals of limiting imports and promoting exports, rulers sought to attract and retain talented artisans in their territory.³⁹ Working requirements, which require patentees to work the invention or process in the territory granting the patent, are provisions designed to promote technology transfer and the diffusion of innovation.⁴⁰ Another mechanism established to promote technology transfer is compulsory licensing, which permits the government to seize a patentee's product or process.⁴¹ The diversity of intellectual property policies between countries is partly a function of their different stages of development. All other things being equal (which they never are), a technological leader will prefer strong protection of its innovations, whereas a follower will favor access over protection.⁴²

The development of intellectual property legislation, first at the national and then at the international level, has been subject to the continued mobilization of interests to establish and reinforce positions of economic advantage.⁴³ The historical picture reveals a recurrent tension that has not always been resolved in favor of property holders. Even in the United States, the most aggressive contemporary champion of expanded intellectual property rights, the

36. *See id.*

37. *Id.*

38. *Id.*

39. *See* Frank D. Prager, *A History of Intellectual Property from 1545 to 1787*, 26 J. PAT. OFF. SOC'Y 711, 721-23 (1944).

40. Biswajit Dhar, *The Convention on Biological Diversity and the TRIPS Agreement: Compatibility or Conflict?*, in *TRADING IN KNOWLEDGE: DEVELOPMENT PERSPECTIVES ON TRIPS, TRADE AND SUSTAINABILITY* 77, 84 (Christophe Bellmann et al. eds., 2003).

41. *Id.*

42. Hesse, *supra* note 5, at 40 (discussing copyright); MICHAEL J. TREBILCOCK & ROBERT HOWSE, *THE REGULATION OF INTERNATIONAL TRADE* 309-10 (2d ed. 2001) (discussing patents).

43. Susan K. Sell & Christopher May, *Moments in Law: Contestation and Settlement in the History of Intellectual Property*, 8 REV. INT'L POL. ECON. 467, 470 (2001).

“public-regarding” conception prevailed for much of the twentieth century.⁴⁴ Examining a number of “swings of the pendulum” between public-regarding approaches and private protection reveals the fundamentally political nature of intellectual property regulation and provides an historical basis for alternative possibilities in the future.

Given the distributional consequences of the ability to own and control technological innovations, intellectual property frequently has served as an instrument of power and, once captured, the basis for further accumulation of power.⁴⁵ Unlike power that comes from controlling scarce material resources, however, intellectual property holders have had to construct the scarcity of property through legal instruments.⁴⁶ The very process of defining what constitutes intellectual property effectively reinforces “particular perspectives that may benefit some at the expense of others,”⁴⁷ rendering some creations “property” and others “freely” available.⁴⁸ Indeed, asymmetrical economic power goes a long way toward explaining why semiconductor chips are identified as intellectual property whereas indigenous folklore is not.⁴⁹

This Article offers a critical history of intellectual property as an alternative to both realist and functionalist analyses.⁵⁰ Realism

44. CHRISTOPHER MAY & SUSAN SELL, *INTELLECTUAL PROPERTY RIGHTS: A CRITICAL HISTORY* (forthcoming 2005) (manuscript at 40, on file with Loyola of Los Angeles Law Review).

45. *Cf.* Sell & May, *supra* note 43, at 469–73 (explaining that a critical approach to intellectual property acknowledges the power of private actors, and recognizes that the interests of the powerful are often enhanced at the expense of others).

46. *See* Christopher May, *Thinking, Buying, Selling: Intellectual Property Rights in Political Economy*, 3 *NEW POL. ECON.* 59, 69–70 (1998).

47. A. Claire Cutler et al., *The Contours and Significance of Private Authority in International Affairs*, in *PRIVATE AUTHORITY AND INTERNATIONAL AFFAIRS* 347 (A. Clair Cutler et al. eds., 1999).

48. *See* Peter Drahos, *Indigenous Knowledge and the Duties of Intellectual Property Owners*, 11 *INTELL. PROP. J.* 179, 194–98 (1997).

49. *See id.*

50. Here, “realist” refers to international political economy theories and not to Legal Realism. *See generally* STEPHEN KRASNER, *STRUCTURAL CONFLICT: THE THIRD WORLD AGAINST GLOBAL LIBERALISM* (1985) (arguing, from a modified realist approach, that conflicts between developed and third world countries result from an asymmetrical balance of political power); JOHN MEARSHEIMER, *THE TRAGEDY OF GREAT POWER POLITICS* (2003) (offering “offensive realism” as an approach to understanding the history of

emphasizes state power and its distribution across the international system as primary explanatory variables.⁵¹ Realism takes power seriously but suffers from its statist orientation, treating the state as a unitary actor with well-defined interests.⁵² Realism, therefore, focuses too narrowly on the state as legislator. As a result, realism provides limited leverage in the intellectual property context because private actors, rather than states, have frequently prompted changes in intellectual property protection.⁵³ Both realism and functionalism provide undifferentiated macro level accounts that obscure significant variation; their explanations are indeterminate regarding *particular* settlements.⁵⁴ Unlike realism, the perspective of this Article is agnostic about the primary actors and suggests links between the macro and micro levels.

Functionalist theories provide a completely different perspective on the emergence and design of property rights.

Functionalist histories of property suggest that property rights are established to promote efficiency in socio-economic relations. Many functional histories are based on the supposition that the institution of property emerged to respond to the need for clear signaling in market relations. Thus, as conflicts arose over scarce resources, the costs of such conflicts outweighed the costs of establishing (and policing) some sort of property regime. With shared rules of property, social actors may dispense with the duplication of effort required to constantly re-negotiate bilateral coordination. In such accounts, therefore, the emergence of

international politics, how great international powers interact with one another, and what lies ahead in great-power politics); KENNETH WALTZ, *THEORY OF INTERNATIONAL POLITICS* (1979) (examining various theories of international politics).

51. Stephen Krasner, *Global Communications and National Power: Life on the Pareto Frontier*, in 43 *WORLD POL.* 336, 336–66 (1991).

52. See generally SUSAN STRANGE, *THE RETREAT OF THE STATE: THE DIFFUSION OF POWER IN THE WORLD ECONOMY* (1996) (arguing that the state-market balance of power has shifted toward a market based on private global integration rather than unitary state action).

53. See Tony Porter, *Hegemony and the Private Governance of International Industries*, in *PRIVATE AUTHORITY AND INTERNATIONAL AFFAIRS*, *supra* note 47, at 257, 258–59.

54. Sell & May, *supra* note 43, at 470.

property serves a particular function: the efficient coordination of economic activities.⁵⁵

Functionalism assumes that the forces and interests that have played out in the contest over intellectual property have produced a series of rational settlements, or improvements, that reflect the political-economic context of the time or fulfill the needs of a particular stage of industrial development.⁵⁶ As Professor William Fisher suggests:

Viewed from this angle, law seems to be superstructural—its development driven by changes in the underlying mode of production and associated relations of production. But this is not the end of the story. To account fully for the development of intellectual property law, one must also take into account some cultural and ideological factors.⁵⁷

Indeed, while at first glance functionalism offers a plausible approach to the evolution of intellectual property, “functionalist theories beg the question of what constitutes efficiency and ignores the issue of who defines it—efficiency for what, and for whom?”⁵⁸

Functionalist theories attempt to explain efficiency in socio-economic terms. A central issue for property rights is the distribution of costs and benefits.⁵⁹ Functional approaches address the issues of internalization of external costs and benefits.⁶⁰ Property owners seek to secure the benefits of the property while externalizing the costs.⁶¹ The shifting balance of borne costs between property holders and property users ultimately is a political question. Although “[s]ocial efficiency might be best served by costs accruing to the property that delivers the benefit[,] . . . for individual owners it is more ‘efficient’ to have the costs met by others.”⁶² The particular definition of efficiency that guides policy depends upon the distribution of political and economic power between owners and

55. *Id.* at 471.

56. *Id.*

57. Fisher, *supra* note 31, at 12 (internal citations omitted).

58. Sell & May, *supra* note 43, at 471.

59. *Id.*

60. *Id.*; Harold Demsetz, *Toward a Theory of Property Rights*, AM. ECON. REV., May 1967, at 347, 350.

61. Sell & May, *supra* note 43, at 471.

62. *Id.*

users.⁶³ For example, is it the book “pirate” who promotes the efficient distribution of printed matter, or is it the well-protected romantic author or “Yankee genius” for whom the promise of the security of her endeavor provides incentives to create and/or preserve?

As demonstrated by the historical analysis that follows, the answers to this question have varied over time depending upon the particular constellations of state and market forces in championing one conception of efficiency over another. At different historical moments, particular state and market actors have defined social efficiency as the public-regarding policy of dissemination and competition.⁶⁴ At others, different constellations of state and market actors have defined it as protection and exclusion to encourage innovation.⁶⁵ Theoretically, we can understand property rights in terms of gains from coordination. Historically, however, “particular property institutions emerged from far more diverse circumstances, including the exercise of economic power, the impact of technological change, and shifts in ideas about ownership.”⁶⁶

When the resources required for social existence are scarce, the distribution of property rights (essentially the right to use scarce resources) becomes a central issue of political economy.⁶⁷ “However, for intellectual property such scarcity is neither uncontested nor self-evident: the role of intellectual property is to construct such scarcity in the realm of knowledge and to make it legitimate.”⁶⁸ The power of constructed scarcity lies in the power to withhold property. However, this power can have negative social consequences. History has shown that restricting access to innovation can inhibit other inventors from improving existing technology, thereby depriving society of the benefits of swift technological advancement.

63. *Id.*

64. *See id.*

65. *See id.* at 471, 475–76.

66. *Id.* at 472.

67. *Cf.* KURT BURCH, “PROPERTY” AND THE MAKING OF THE INTERNATIONAL SYSTEM 1 (R.B.J. Walker ed., 1998) (noting that, in the Seventeenth Century, property rights provided the “means and medium” to legitimize a framework of distinct social realms, in which “[s]overeignty was initially a property right of rulers”).

68. Sell & May, *supra* note 43, at 472.

For example, the history of steam-driven industrialization might have been very different without Britain's eighteenth century, incentive-based intellectual property policies. In 1789, the British government awarded James Watt a patent for inventing the separate condenser, a device that significantly improved the steam engine.⁶⁹ However, the patent discouraged the invention's widespread and immediate dissemination.⁷⁰ Further, Watt refused to license his invention during both the original and renewal terms of his patents.⁷¹ By doing so, he may have "held back the development of the metalworking industry for over a generation. Had his monopoly expired in 1783, England may have had railways much sooner."⁷² The imposed scarcity of this particular innovation halted its dissemination and ossified its development until others could build upon Watt's original insights. The public may still have benefited from the patent by "encouraging" Watt's innovation in the first place, but it is difficult to argue that Watt would not have invented the separate condenser had he been unable to patent it.⁷³ Certainly however, society did not enjoy the benefit of swift use and deployment of this innovation.⁷⁴

69. See Christine MacLeod, *Would There Have Been No Industrial Revolution Without Patents?* ESRC Research Seminar Series: Intellectual Property Rights, Economic Development and Social Welfare: What Does History Tell Us? 5 (April 26, 2004) (unpublished manuscript, on file with Loyola of Los Angeles Law Review).

70. Sell & May, *supra* note 43, at 472.

71. Six years after granting Watt's patent, the British Parliament renewed it for an additional twenty-five years. *Id.*

72. AUGUSTIN-CHARLES RENOARD, *TRAITÉ DES BREVETS D'INVENTION* (1844).

73. Barrington Moore's analysis of "tinkers and inventors" such as James Watt and Richard Arkwright counters Marxist and Weberian interpretations of these men as greedy capitalists, arguing that they were motivated "to make [their inventions] more reliable and efficient." MOORE, *supra* note 1, at 22-23. Arkwright's fear of imitators led him to provide inadequate specifications in filing his patent applications, thereby retarding the dissemination of patented technology. *Id.* at 20. One of Arkwright's infringement suits resulted in the cancellation of one of his patents, however, due to its alleged ambiguity. *Id.* This in turn deterred Watt from pursuing infringement cases for fear of losing his patents for being inadequately specified. See MacLeod, *supra* note 69, at 9.

74. This perspective is at odds with economist Douglass North's argument that sustained innovation only began in earnest after the establishment of intellectual property rights to raise the private return for innovation. See DOUGLASS G. NORTH, *STRUCTURE AND CHANGE IN ECONOMIC HISTORY* 164-

Restricted access to technological advancements in the cotton industry similarly delayed development and dissemination of industrial technology. During the ascendance of the British cotton industry in the eighteenth century,

[t]he flow of technology within and among British firms was primarily managed by informal private arrangements and not the patent system [I]n the eighteenth century only 44 percent of 174 key inventions in the textile industry were patented. Indeed a key upsurge in innovation occurred after the patents of the most famous innovator, Arkwright, were broken.⁷⁵

These examples underscore the danger that “exclusive control of intellectual property rights grant[ed] to pioneers may stifle the invention of improvers.”⁷⁶

II. KEY MOMENTS OF CONTESTATION AND SETTLEMENT

A. Arkwright and the Spinners

The story of Richard Arkwright, a developer of commercially successful textile machinery and water-powered spinning technology,⁷⁷ highlights the tension within intellectual property between private reward and the public good. His story also demonstrates how property rights create winners and losers and reveals significant political and economic battle lines over what is at stake. At the time Arkwright sought patents for his inventions, British patent law did not provide for stringent patent examinations. Patents were scrutinized only when infringement cases reached the courts.⁷⁸ Therefore, inventors concerned about infringement often drafted their patent specifications vaguely so that their inventions

66 (1981). He attributes the delay in the dissemination and further exploitation of Watt’s invention to the inadequate development of companion technologies, rather than to the power of withholding property and the social inefficiencies generated by such withholding. *Id.* at 162–64. However, the development of companion technologies was itself stifled by the relatively limited diffusion of engines utilizing Watt’s technology. MAY & SELL, *supra* note 44 (manuscript at 57).

75. Porter, *supra* note 53, at 266.

76. Lemley, *supra* note 30, at 131.

77. See MOORE, *supra* note 1, at 19–20.

78. MacLeod, *supra* note 69, at 9.

would be impossible to duplicate.⁷⁹ As Professor Christine MacLeod states, “[p]atentees tried to steer a course between the Scylla of exactness that risked allowing pirates to escape prosecution through a minor variation and the Charybdis of too general a claim that would lead to the patent’s invalidation.”⁸⁰

Because Arkwright was concerned with patent infringement, he too filed vague patent specifications.⁸¹ However, when he pursued his first infringement case in 1781, the court found his patent invalid because, rather than disclosing his invention, he “did all he could to hide and secrete it.”⁸²

Arkwright pursued another patent infringement suit in 1785 against his neighbor, Peter Nightingale.⁸³ Nightingale’s defense again focused on whether a competent person could build the machine based upon the patent specifications.⁸⁴ This time, the court ruled in Arkwright’s favor.⁸⁵ This victory actually made Arkwright’s situation worse, however, because it caused the Lancashire spinners⁸⁶ to fear the prospect of paying Arkwright licensing fees to use his equipment.⁸⁷ That same year, the spinners sought to annul the verdict.⁸⁸ According to Professor Barrington Moore:

The legal representative of the Lancashire spinners took the high moral ground of public and national interest. Arkwright’s patent represented a monopoly. Legal recognition of the patent would enable Arkwright, already a rich man, to choke off the livelihood of thousands of hard-working people. Moreover, it would in time destroy the flourishing British textile industry in which England already led the world.⁸⁹

79. *See id.*

80. *Id.* at 7.

81. MOORE, *supra* note 1, at 20.

82. *Id.*

83. *Id.*

84. *Id.*

85. *Id.*

86. The Lancashire spinners were workers who lived in Lancashire England and earned their living spinning cotton into cloth.

87. Moore, *supra* note 1, at 20.

88. *Id.*

89. *Id.* at 21.

The court found that the right to labor and continued economic hegemony outweighed the right to monopoly, and the spinners ultimately prevailed. In the end, Arkwright lost both of his patents due to ambiguous specifications and spent 1,119 pounds⁹⁰ in litigation fees.⁹¹

Arkwright's story demonstrates that property holders did not automatically win, and that courts tried to balance diverse public goals. Historically, intellectual property rights were considered grants of privilege and were explicitly recognized as exceptions to the rules against monopolies.⁹² Recognizing these rights as privileges underscores their temporary and unstable nature: what may be granted may be taken away when such grants conflict with other important social goals. By pitting the right to labor and continued British hegemony against the right to monopoly, the case of the Lancashire spinners illustrates how a shift in public policy can affect the distribution of property rights.⁹³

The outcome of this case also set into motion another political dynamic that energized the activities of patentees. Significantly, Arkwright's losses in court mobilized a broad quest for stronger patent rights.⁹⁴ In 1785, after the court cancelled Arkwright's second patent, a number of patentees and a "putative Patentees' Association [met and resolved] to unite in defense of their respective rights and to agree upon a mode of application to Parliament for the better security of their inventions."⁹⁵ Manufacturers were most concerned with protecting their escalating investments in factory production. Professor MacLeod maintains that:

90. In modern U.S. Dollars this sum equals approximately \$124,000. See www.eh.net/hmit/exchangerates/ (In 1800, £.22 (British) equivalent to \$1 (United States). Thus, £1,119 (British) equaled approximately \$8,686.); http://oregonstate.edu/dept/pol_sci/fac/sahr/sahr.htm (conversion chart to modern U.S. Dollars).

91. See David Jeremy, *Patents and Technology Transfer Between Nations: 1790–1851: Help, Hindrance, or Irrelevance: Lessons from History*, ESRC Research Seminar Series: Intellectual Property Rights, Economic Development and Social Welfare: What Does History Tell Us? 6 (April 26, 2004) (unpublished manuscript, on file with Loyola of Los Angeles Law Review).

92. Sell & May, *supra* note 43, at 478–79.

93. See MOORE, *supra* note 1, at 20–21.

94. See MacLeod, *supra* note 69, at 18.

95. *Id.* (internal quotation marks omitted).

[T]heir interests . . . shaped the patent system . . . in the two centuries before 1852 and arguably beyond. . . . Top of their agenda was the security of their intellectual property and the development of institutions that would decrease the risk and uncertainty of managing it—primarily a cheap and fast way to settle disputes over the ownership and infringement of patents.⁹⁶

B. The Nineteenth Century: Diversity in Law

The nineteenth century witnessed considerable fomentation and controversy concerning copyright, and particularly patent protection.⁹⁷ The intellectual property landscape of the nineteenth century was a patchwork of diverse national laws and approaches to intellectual property regulation.⁹⁸ As a matter of public policy, most states had adopted intellectual property policies to encourage the migration of useful inventions to their territory and to facilitate the reading public's access to an extensive range of published materials.⁹⁹ These policies included introductory patents, compulsory licensing, working requirements, differential treatment for citizens versus foreigners, and by contemporary standards, weak or lax intellectual property protection.¹⁰⁰

For instance, the British designed their early patent system to introduce foreign technologies to the kingdom. Therefore, they granted monopoly privileges not to inventors, but to those who brought inventions into public knowledge.¹⁰¹ By contrast, the Americans established their patent system to provide incentives for domestic innovation while denying protection to foreign technology.¹⁰² American policymakers also designed their copyright

96. *Id.*

97. See Fritz Machlup & Edith Penrose, *The Patent Controversy in the Nineteenth Century*, 10 J. ECON. HIST. 1, 1 (1950) (patent); JOHN BRAITHWAITE & PETER DRAHOS, *GLOBAL BUSINESS REGULATION* 58–59 (2000) (copyright).

98. Machlup & Penrose, *supra* note 97, at 2–3.

99. Edward Beatty, *Patents and Technological Change in Late Industrialization: Nineteenth-Century Mexico in Comparative Context*, 24 HIST. TECH. 121, 123–32 (2002) (providing comparative analysis of patent law in the nineteenth century).

100. *See id.*

101. Jeremy, *supra* note 91, at 6.

102. *See id.*; Beatty, *supra* note 99, at 126–27.

policy to promote learning, public access, and protection of the public domain.¹⁰³ In general, innovators tended to seek higher levels of intellectual property protection while imitators and technological “latecomers” sought maximum access to intellectual property at minimal or no cost.¹⁰⁴

The British dominated the first industrial revolution, roughly the 1780s–1840s, with their mining and steam engine technology and with the mechanization of the textile industry.¹⁰⁵ Patents did not play a major role in the emergence of the cotton industry, however, partly due to the sector’s initial organization.¹⁰⁶ As Professor MacLeod points out:

[T]he diffusion of a manufacture over a wide area, . . . often in remote cottages, made enforcement very difficult [After 1770] the removal of cotton and worsted spinning into the factories prompted an upsurge in patents in those sectors. Not only was a patent easier to police in a factory-based industry, but it was also potentially more valuable as these industries grew exponentially.¹⁰⁷

Also, until 1852, British administration of patent law discouraged patent application. Patentees faced a cumbersome bureaucratic maze, high costs of securing and defending patents, and deep

103. Ray Patterson & Craig Joyce, *Copyright in 1791: An Essay Concerning the Founders’ View of the Copyright Power Granted to Congress in Article I, Section 8, Clause 8 of the U.S. Constitution*, 52 EMORY L.J. 909, 918 (2003).

104. This was not the case in every instance. As Professor MacLeod writes:

In the wake of bitter resentment against Watt’s patent for the separate condenser, Cornish engineers turned their back on the patent system: Cornwall’s share of patents for steam-related inventions fell to under one percent of the national total in the period 1813–52. The start of this period saw Richard Trevithick and Arthur Woolf erecting (unpatented) high-pressure steam-engines in Cornish tin and copper mines, where high coal prices made thermodynamic efficiency of particular concern. It also witnessed the launch of a monthly journal, *Lean’s Engine Reporter*, by a group of mine managers with the intention of discovering and disseminating best practice techniques. This publication was fundamental to the practice of collective invention in the Cornish mining industry, which approximately doubled the ‘duty’ of high-pressure engines in a quarter of a century.

MacLeod, *supra* note 69, at 16.

105. *See id.* at 4–5.

106. *See id.* at 13.

107. *Id.* at 13.

uncertainty that deterred many from pursuing infringement lawsuits.¹⁰⁸

In contrast, France had a well-developed patent system.¹⁰⁹ The French system, established in 1791, included patents of introduction, prohibited French patentees from patenting abroad, and included a two-year working requirement.¹¹⁰ During the Napoleonic invasion in 1811, the French imposed their patent system on Spain.¹¹¹ Spanish rulers modified it slightly in 1820 and 1826, but the basic contours remained the same.¹¹² Thus Spain's system resembled "the first French tradition and, in general of follower and latecomer countries whose governments attempted to develop processes of innovation, modernization and economic growth over and above intellectual property rights."¹¹³

In the mid-1830s, and between 1849 and 1878, the Spanish government actively blocked numerous invention and introduction patents that failed to meet the working requirement.¹¹⁴ As a result, between 1826 and 1907, "seventy-five percent of registered inventions lost their monopoly rights within three years [of the grant date], transferring that technical information to the public domain."¹¹⁵ Thus, Spain balanced intellectual property protection with an express commitment to public access.

Unlike its European counterparts, the Netherlands rebelled against protecting intellectual property rights.¹¹⁶ The majority of citizens simply did not view granting such rights to foreigners as beneficial public policy.¹¹⁷ Initially, the Netherlands did grant patents to foreign investors. Between 1860 and 1865, the lion's

108. *Id.* at 10.

109. *See* Beatty, *supra* note 99, at 127.

110. *Id.*

111. J. Patricio Saiz Gonzalez, *The Spanish Patent System (1770–1907)*, 24 *HIST. TECH.* 45, 48.

112. *Id.* at 49.

113. *Id.* at 50.

114. *Id.* at 67.

115. *Id.* at 70.

116. *See* Roger Cullis, *Fiat Lex: The Role of the Law in the Early Development of the Electric Light Industry*, ESRC Research Seminar Series: Intellectual Property Rights, Economic Development and Social Welfare: What Does History Tell Us? 41 (Apr. 26, 2004) (unpublished manuscript, on file with Loyola of Los Angeles Law Review).

117. *See id.*

share of these patents covered inventions made abroad (at least 124 out of 140 per year).¹¹⁸ However, in 1867, a Dutch pressure group representing small and medium-sized enterprises successfully lobbied for the abolition of the Patent Act as an “obstacle to the growth of industry and prejudicial to the national prosperity.”¹¹⁹ The Dutch abolished their patent system two years later.¹²⁰

The Dutch were followers in economic and technical fields. “[T]he absence of patent legislation gave small companies and those which were just starting up, protection from the disruption and expense of litigation and thus improved their chances of survival.”¹²¹ Without having to pay royalties, the Dutch could produce goods equal in quality to foreign goods at much lower costs.¹²² Therefore, they did not reinstate their patent system until 1912.¹²³ Likewise, the Swiss had virtually no patent law between 1850 and 1907.¹²⁴ During this time they freely imitated, copied, or modified others’ inventions.¹²⁵

The U.S. patent laws of 1790 and 1793 offered strong rights to citizen inventors.¹²⁶ Only inventors, not “introducers,” could obtain patents, and using the system was inexpensive in order to encourage broad participation.¹²⁷ Until 1908, U.S. law also included working requirements.¹²⁸ “Foreigners and foreign inventions were ineligible for US patents until 1836 and were burdened thereafter by higher patenting fees. The system sought explicitly to induce domestic invention.”¹²⁹

118. *Id.*

119. *Id.*

120. *Id.*

121. *Id.*

122. *Id.*

123. See ERIC SCHIFF, *INDUSTRIALIZATION WITHOUT NATIONAL PATENTS: THE NETHERLANDS, 1869–1912; SWITZERLAND, 1850–1907*, at 77–81 (1971).

124. Switzerland enacted its first national patent law in 1888. However, the law’s many limitations led to its modification in 1907. For a more detailed explanation of the history of Swiss patent law, see Dominique Ritter, *Switzerland’s Patent Law History*, 14 *FORDHAM INTELL. PROP. MEDIA & ENT. L.J.* 463, 464 nn.6–7, 470–79 (2004).

125. *Id.* at 465.

126. Beatty, *supra* note 99, at 126.

127. *Id.*

128. Robert Merges, *One Hundred Years of Solicitude: Intellectual Property Law, 1900–2000*, 88 *CAL. L. REV.* 2187, 2221 (2000).

129. Beatty, *supra* note 99, at 126–27.

Discrimination against foreigners was a common policy because it served the public interest by encouraging technology transfer.¹³⁰ As Professor David Jeremy notes, “if both citizens and aliens were denied the possibility of a patent for introducing a foreign invention, foreign inventions could be introduced to America without the additional cost of the inventor’s monopoly rights. The USA therefore had access to the world’s technology at a lower cost than other nations.”¹³¹ The asymmetry between British and American patent laws favored “inventors in the developing, follower, economy of the USA, rather than the more industrialised, leading economy of Britain.”¹³²

Britain and the United States experienced considerable friction over copyright policy as well. British authors and publishers complained of widespread “piracy” of British books abroad.¹³³ Reprinting foreign books was perfectly legal in many countries. In fact, reprinting texts by popular British authors was a thriving industry in America.¹³⁴ For example, in 1843 an American copy of Dickens’ novel *A Christmas Carol* cost six cents, whereas a British edition cost the equivalent of two dollars and fifty cents.¹³⁵ The British book trade recognized that piracy reduced potential profits and eliminated major export markets for legitimate British editions.¹³⁶ In the 1830s, British and American authors unsuccessfully lobbied the U.S. government to establish American recognition of foreign copyright claims.¹³⁷ American authors wanted this recognition due to U.S. publishers’ predilection for publishing uncopyrighted British works instead of protected American works.¹³⁸ American authors appealed to Congress “to encourage American letters by preventing cheap reprints of unauthorized British texts.”¹³⁹

130. *See id.* at 127.

131. Jeremy, *supra* note 91, at 6.

132. *Id.* at 7.

133. *See* JOHN FEATHER, PUBLISHING, PIRACY AND POLITICS: A HISTORICAL STUDY OF COPYRIGHT IN BRITAIN 154 (1994).

134. *See* Hesse, *supra* note 5, at 40–41.

135. *Id.* at 41.

136. FEATHER, *supra* note 133, at 154.

137. *See* Hesse, *supra* note 5, at 41.

138. Thomas B. Nachbar, *Constructing Copyright’s Mythology*, 6 GREEN BAG: AN ENTERTAINING J.L. 37, 45 (2002).

139. Hesse, *supra* note 5, at 41.

American publishers prevailed, however, and employed the discourse of the public interest in defense of their position.¹⁴⁰ A prominent Philadelphia publishing house sent the following appeal to Congress in 1842:

All the riches of English literature are ours. English authorship comes to us free as the vital air, untaxed, unhindered, even by the necessity of translation, into the country; and the question is, shall we tax it, and thus impose a barrier to the circulation of intellectual and moral light? Shall we build a dam to obstruct the flow of the rivers of knowledge?¹⁴¹

In short, U.S. policy reflected the utilitarian justification of the public interest. As a developing country and an importer of “literary and scientific creations,” the United States sought to retain the right to “appropriate the ideas, literary creations, and scientific inventions” of the leading countries.¹⁴² By contrast, net exporters such as France, England, and Germany invoked a “natural-rights doctrine as a universal moral and economic right enabling authors to exercise control over their creations and inventions and to receive remuneration.”¹⁴³ By the early eighteenth century, Europeans had negotiated an extensive network of bilateral copyright agreements which led to a growing demand for codification in an international treaty.¹⁴⁴ Americans were reluctant to participate in such an undertaking because they did not share the European perspective on copyright protection until the late 1880s.¹⁴⁵

C. 1850–1875: A Key Settlement of the Patent Controversy

Between 1850 and 1875, “a controversy raged between those seeking to defend the protection of innovation and invention through the patent system, and those contrasting this protection with the needs and demands of an international system of free trade.”¹⁴⁶ This controversy reflected the tension between free trade and intellectual

140. *Id.*

141. *Id.* (quoting AUBERT J. CLARK, *THE MOVEMENT FOR INTERNATIONAL COPYRIGHT IN NINETEENTH CENTURY AMERICA* 77 (1960)).

142. *Id.* at 40.

143. *Id.*

144. MAY & SELL, *supra* note 44 (manuscript at 178).

145. Hesse, *supra* note 5, at 40–42.

146. Sell & May, *supra* note 43, at 483–84.

property. It also reflected the inherent tension in intellectual property rights highlighted at the outset of this Article.

Free trade advocates criticized the monopoly aspect of intellectual property.¹⁴⁷ Those who sought to abolish the patent system tried to undermine it by characterizing invention as social, objective, and a product of technological change.¹⁴⁸ Using numerous examples of simultaneous inventions to buttress their case, they argued that “no one either merited the reward of a patent or needed the incentive of a patent to invent.”¹⁴⁹

Opposing groups and committees joined forces to protect the rights of inventors.¹⁵⁰ Patent lawyers, engineers, and large companies, who stood to gain from continued patent legislation, mobilized to support patent rights.¹⁵¹ Not all inventors and commercial interests supported patents, however, particularly those who had been disadvantaged by strong patent protection in the past.¹⁵² Thus, in marked contrast to many contemporary arguments, free trade advocates opposed intellectual property rights as protectionist devices associated with monopolies and tariffs that constrained free trade.¹⁵³ This political dispute was perhaps the last time free traders would undertake a concerted effort to suggest that intellectual property rights were illegitimate and fundamentally inconsistent with free trade.¹⁵⁴

Through extensive propaganda supporting the rights of the patent holder over the infringer and, more importantly, due to the decline of support for free trade itself, the champions of patent protection eventually prevailed.¹⁵⁵ The British resolved the “patent controversy” in 1883 by enacting reforms that increased access to the

147. Machlup & Penrose, *supra* note 97, at 9.

148. *See id.* at 24–25.

149. MacLeod, *supra* note 69, at 6–7 (internal citations omitted).

150. *See* Machlup & Penrose, *supra* note 97, at 5–6.

151. *See* Porter, *supra* note 53, at 264–66.

152. *Cf.* MacLeod, *supra* note 69, at 12 (describing correspondence of inventors that indicate they anxiously weighed the expense of patenting against the growing need to safeguard their rights).

153. Machlup & Penrose, *supra* note 97, at 9, 28–29.

154. For a contemporary statement of this position, see Jason Nisse, *WTO Turned by America into 'Mafia Racket'*, INDEP. ON SUNDAY (London), May 4, 2003, at Business 1, available at LEXIS, News Library, INDPNT File; *see also* JAGDISH BHAGWATI, A STREAM OF WINDOWS: UNSETTLING REFLECTIONS ON TRADE, IMMIGRATION, AND DEMOCRACY 78–80 (MIT Press eds., 1998).

155. Machlup & Penrose, *supra* note 97, at 4–6.

patent system.¹⁵⁶ Once society came to regard free trade as less of an overall benefit, opposition to patent protection lost its momentum.¹⁵⁷ “Intellectual property was still seen as a restriction of trade but such restrictions, provided they served the national interest, were no longer problematic.”¹⁵⁸

In the coming century, this frank recognition of potential conflicts between international trade and intellectual property “would [virtually] disappear from mainstream discourse.”¹⁵⁹ Although one controversy disappeared from center stage, an equally contentious one took its place. “[T]his period marked the full development of the discourse justifying [intellectual property rights] as an acceptable and legitimate form of monopoly.”¹⁶⁰

Henceforth, proponents of patent protection generally regarded intellectual property as “a direct reward for intellectual labor (drawing on Lockean logic of labour desert), as part of the inalienable right of individuals to be associated with their innovations, or perhaps most clearly, an economic ‘necessity’ to ensure the efficient use of resources.”¹⁶¹ This idea of knowledge as property became more widespread and accepted,¹⁶² thus facilitating increased international commerce in intellectual property-protected goods and services and the development of multilateral legal structures to regulate and support such commerce.¹⁶³

The justification of patents at the end of the nineteenth century was a key moment of settlement. Analogizing intellectual property rights to material property rights rendered ownership of intellectual property conceptually unproblematic.¹⁶⁴ Society’s acceptance of the rights of intellectual property owners allowed for “the development of the then only emerging global intellectual property rights structure.”¹⁶⁵ While the truly revolutionary technologies that would transform the role of knowledge-based assets in economic

156. MacLeod, *supra* note 69, at 7.

157. *See id.*

158. Sell & May, *supra* note 43, at 483.

159. *See* Machlup & Penrose, *supra* note 97, at 28–29.

160. Sell & May, *supra* note 43, at 483.

161. *Id.*

162. Machlup & Penrose, *supra* note 97, at 9–28.

163. *See* Sell & May, *supra* note 43, at 483–85.

164. *Id.* at 483.

165. *Id.* at 483–84.

organization were just on the horizon, the trend toward increased recognition of intellectual property rights facilitated the emergence of international intellectual property legal regimes.¹⁶⁶ Waning enthusiasm for totally unrestricted free trade also paved “the way for greater co-ordination of cross-border recognition of patent protection to replace the [existing] territorially delimited provisions”¹⁶⁷ As a result, multilateralism replaced the complex system of bilateral treaties.¹⁶⁸

D. A Multilateral Settlement

This important shift in ideas about intellectual property was accompanied by economic and technological changes that combined to drive the establishment of the multilateral institutions that would come to govern intellectual property.¹⁶⁹ Intellectual property, both patents and copyright, became the basis for a new business model for investment and production. During this period, economic and technological leadership shifted from Britain to the United States¹⁷⁰ and Germany.¹⁷¹ The first industrial revolution had been driven by the invention of the steam engine, the spinning jenny, machine tools, and the development of the textile, iron, and shipbuilding industries.¹⁷² The second industrial revolution, roughly from 1870–1914, would be driven by chemicals,¹⁷³ steel, oil, and electricity.¹⁷⁴

166. *Id.* at 484.

167. *Id.* at 483–84.

168. See BRAITHWAITE & DRAHOS, *supra* note 97, at 58–59.

169. *Id.* at 60.

170. See Cullis, *supra* note 116, at 31–34.

171. GRAHAM DUTFIELD, *INTELLECTUAL PROPERTY RIGHTS AND THE LIFE SCIENCES INDUSTRIES: A TWENTIETH CENTURY HISTORY* 75–82 (2003); see generally CRAIG N. MURPHY, *INTERNATIONAL ORGANIZATION AND INDUSTRIAL CHANGE: GLOBAL GOVERNANCE SINCE 1850* (1994) (discussing inequality within the disciplinary boundaries of international relations).

172. FREDERIC PEARSON & SIMON PAYASLIAN, *INTERNATIONAL POLITICAL ECONOMY: CONFLICT AND COOPERATION IN THE GLOBAL SYSTEM* 79–80 (1999).

173. DUTFIELD, *supra* note 171, at 75–83.

174. Reese V. Jenkins, *Patents and Market Dominance: Western Union, General Electric and Eastman Kodak*, ESRC Research Seminar Series Intellectual Property Rights, Economic Development and Social Welfare: What Does History Tell Us? 1 (April 26, 2004) (unpublished manuscript, on file with Loyola of Los Angeles Law Review) (discussing electricity’s role in

The second industrial revolution witnessed the swift expansion of world commerce facilitated by the transportation revolution and the invention of telegraphy.¹⁷⁵ American economic growth was fueled by the development of railways, which created a huge domestic market and facilitated mass production.¹⁷⁶ The new leading sectors favored the United States' abundance of raw materials¹⁷⁷ and Germany's emphasis on scientific education.¹⁷⁸ During this time, large business enterprises with international marketing aspirations emerged.¹⁷⁹

In many cases "myth-making" inventors, such as Thomas Edison and Werner Siemens, were at the helm.¹⁸⁰ Significantly, these business leaders pressed for higher standards of patent protection and also sought protection for the fruits of corporate research and development.¹⁸¹ Additionally, an 1871 U.S. Supreme Court decision, *United States v. Burns*,¹⁸² amended the 1791 Patent Act to permit employment contracts to include a clause requiring employees to assign patents or other invention rights to the employer.¹⁸³ "Without this change in the effective law, the R&D of in-house research laboratories and workshops, such as Edison's at

driving the second industrial revolution); Cullis, *supra* note 116, at 12–18 (same).

175. PEARSON & PAYASLIAN, *supra* note 172, at 83.

176. MARK RUPERT, PRODUCING HEGEMONY: THE POLITICS OF MASS PRODUCTION AND AMERICAN GLOBAL POWER 59–63 (1995).

177. *Id.* at 61–62.

178. DUTFIELD, *supra* note 171, at 75.

179. RUPERT, *supra* note 176, at 67–69.

180. Jenkins, *supra* note 174, at 15–33 (discussing Edison's business and marketing strategies for sale and distribution of the telegraph and electric light); Cullis, *supra* note 116, at 15–18 (discussing Edison's business and marketing strategies for sale and distribution of the electric light); DUTFIELD, *supra* note 171, at 77 (discussing Siemens' leadership role in the movement for stronger patent protection).

181. DUTFIELD, *supra* note 171, at 77 (stating Siemens' concern that British and American firms would take out patents that would be ineffective in Germany); PETER DRAHOS & JOHN BRAITHWAITE, INFORMATION FEUDALISM: WHO OWNS THE KNOWLEDGE ECONOMY? 43–45 (2002).

182. *United States v. Burns*, 79 U.S. (12 Wall.) 246 (1871).

183. William Kingston, *Schumpeter and Institutions: Does His "Business Cycles" Give Enough Weight to Legislation?* 4 (2004), available at <http://www.schumpeter2004.uni-bocconi.it/papers.php?Invin=SELECTbstch=S> (last visited Sept. 20, 2004).

Menlo Park, would have been impossible to finance.”¹⁸⁴ In Germany, Werner Siemens, founder of the Siemens Corporation, went into politics and became a member of the German Parliament in order to promote the 1877 German Patent Act’s passage.¹⁸⁵ Needing large numbers of employed inventors in its research labs, Siemens wanted to ensure that the company’s patents would belong to the firm and not to the individual company inventors.¹⁸⁶ As in the United States, the 1877 German law created this option.¹⁸⁷

In 1873, the Austro-Hungarian Empire hosted a World Exhibition in Vienna in which American inventors refused to take part out of concern that their inventions would not be adequately protected.¹⁸⁸ German inventors shared this reluctance.¹⁸⁹ In 1873 the empire adopted a temporary law providing protection for foreigners to encourage foreign inventors’ participation.¹⁹⁰ This protection would last for the duration of the exposition.¹⁹¹

As a result of German and Austrian patent attorneys’ and engineers’ intense lobbying efforts, the German government held a Congress in Vienna in 1873 to address inventors’ concerns.¹⁹² Werner Siemens’ brother, William, chaired the Congress.¹⁹³ German participants predominated, and while the majority of the 158 participants were private sector actors, 13 represented nations.¹⁹⁴ The Vienna Congress endorsed international patent protection but retained support for compulsory licensing.¹⁹⁵ The overriding objective was to establish a system in which states would “recognize and protect the rights of foreign [inventors and] artists within states’

184. *Id.*

185. *Id.*

186. *Id.* (internal citations omitted).

187. For an excellent account of the development of the work-for-hire doctrine in copyright, see Catherine Fisk, *Authors at Work: The Origins of the Work-for-Hire Doctrine*, 15 *YALE J.L. & HUMAN.* 1 (2003).

188. Cullis, *supra* note 116, at 31; BRAITHWAITE & DRAHOS, *supra* note 97, at 59.

189. MURPHY, *supra* note 171, at 93.

190. DUTFIELD, *supra* note 171, at 55.

191. *Id.*

192. *Id.*

193. *Id.*

194. Porter, *supra* note 53, at 265.

195. DUTFIELD, *supra* note 171, at 55.

own domestic borders.”¹⁹⁶ Several follow-up Congresses in 1878 and 1880 further developed the details of an agreement and prepared a draft convention that became the basis for the 1883 Paris Convention for the Protection of Industrial Property (covering patents, trademarks, and industrial designs).¹⁹⁷ The Paris Convention created an international union for the protection of industrial property.¹⁹⁸

Thus, the patent controversy was ultimately laid to rest with the victors’ perspectives enshrined in a new multilateral treaty—the 1883 Paris Convention. A number of nations also adopted the Berne Convention of 1886, which covered copyright law.¹⁹⁹ The underlying principles of these agreements were non-discrimination, national treatment, and the right of priority.²⁰⁰ Nations were free to pass legislation of their own design, but were obligated to extend their legislative protection to foreigners of member states.²⁰¹ These conventions neither created new substantive law nor imposed new laws on member states but instead “reflected . . . a consensus reached among the states” legitimized by domestic laws already in place.²⁰²

Private sector actors, including forty-eight Chambers of Commerce, played a prominent role at the 1878 Paris Conference, indicating “the degree to which states were being asked to provide a regime within which a new level of negotiated private arrangements could be brought about.”²⁰³ Additionally, the role of American and German interests in these deliberations represented a change in intellectual property preferences from those of followers to those of

196. Ruth L. Gana, *Has Creativity Died in the Third World? Some Implications of the Internationalization of Intellectual Property*, 24 DENV. J. INT’L L. & POL’Y, 109, 137 (1995).

197. WORLD INTELLECTUAL PROP. ORG., BACKGROUND READING MATERIAL ON INTELLECTUAL PROPERTY 49–50 (1988).

198. *Id.*

199. Barbara A. Ringer, *The Role of the United States in International Copyright—Past, Present, and Future*, 56 GEO. L.J. 1050, 1054 (1968).

200. WORLD INTELLECTUAL PROP. ORG., *supra* note 197, at 50 (discussing Paris Convention); *see also* Gana, *supra* note 196, at 137–38 (discussing Paris and Berne Conventions).

201. WORLD INTELLECTUAL PROP., *supra* note 197, at 50.

202. Gana, *supra* note 196, at 138.

203. Porter, *supra* note 53, at 266.

leaders seeking enhanced protection.²⁰⁴ The anti-patent mood of Europe vanished as it retreated from free trade.²⁰⁵ The Netherlands had abolished its patent system in 1869 but reinstated it in 1910, while Switzerland, under pressure from Germany, enacted its first patent law in 1887.²⁰⁶

Fierce copyright competition between French, Belgian, and Swiss publishers, and a dense network of bilateral European treaties inspired a quest for a broader multilateral agreement that would incorporate the doctrine of national treatment.²⁰⁷ In 1858 Victor Hugo convened a Congress of Authors and Artists in Brussels that affirmed the principle of national treatment.²⁰⁸ By 1886, ten European nations agreed to sign the Berne Convention.²⁰⁹ The United States remained excluded from Berne, however, because it retained a provision in its copyright laws requiring authors to register their work in Washington D.C. and to send a copy to the Library of Congress.²¹⁰ These terms were inconsistent with Berne Convention provisions that made acquisition automatic upon authorized publication in any member state.²¹¹ Thus, Berne's prohibition against registration as a precondition for granting a copyright effectively excluded the United States from the Convention.²¹²

The United States' robust copyright battle represented a compromise between competition and security. The nineteenth century copyright battles between Britain and the United States

204. For a fascinating discussion of the evolution of the German position see Heinrich Kronstein & Irene Till, *A Re-evaluation of the International Patent Convention*, 12 *LAW & CONTEMP. PROBS.* 765, 765-81 (1947).

205. Machlup & Penrose, *supra* note 97, at 5-6.

206. MacLeod, *supra* note 69, at 7; *see also* Kingston, *supra* note 183, at 5 ("The [German chemical] industry financed three referenda in Switzerland until it got the patent legislation it wanted there to prevent free-riding on its inventions by local firms . . .").

207. Ringer, *supra* note 199, at 1052.

208. *See* STEPHEN P. LADAS, *THE INTERNATIONAL PROTECTION OF LITERARY AND ARTISTIC PROPERTY* 12, 71-72 (rev. ed. 1975) (discussing the Brussels Congress of 1858).

209. Ringer, *supra* note 199, at 1054 n.23 (the original European members of the Berne Union were Belgium, France, Germany, Italy, Spain, Switzerland, and the United Kingdom).

210. *See generally id.* at 1055-59 (discussing the United States' posture toward Berne Convention requirements).

211. *Id.* at 1059.

212. *Id.*

increasingly pitted two American factions against each other.²¹³ “On one side, trade protectionists, printers’ unions and publishing houses, whose fortunes were rooted in pirating British literature argued against any international agreement. On the other side, advocates of indigenous authors allied themselves with partisans of free trade and international copyright, claiming universal natural rights of authorship.”²¹⁴

It was not until the 1880s, in the face of ruinous competition from new “penny-press” publishing houses in the Midwest, that the older, East Coast publishing interests changed their tune.²¹⁵ They altered their business strategies and their views on intellectual property because:

They now realized that they would be better positioned than the new generation of publishers to sign exclusive copyright agreements with foreign authors that would be enforceable within the United States. The . . . Berne Convention . . . added further momentum to a shift in . . . views . . . American theologians, including the Reverend Isaac Funk, now denounced the “national sin of literary piracy” (which had allowed him to make his fortune on his pirated *Life of Jesus*) as a violation of the seventh commandment.²¹⁶

In response to this new attitude toward intellectual property, a group of publishers formed the American Copyright League in 1884 to press for copyright reform.²¹⁷ The United States’ exclusion from Berne prompted the League to push for changes in U.S. law to conform to the Berne Convention.²¹⁸ Southern Democrats bitterly opposed any effort to open American markets to foreign competition, however.²¹⁹ The printing industry also opposed copyright reform because it “feared loss of work [to foreign competitors if] copyright in imported books was protected under American law.”²²⁰

213. See Hesse, *supra* note 5, at 41.

214. *Id.*

215. *See id.*

216. *Id.* at 41–42.

217. *See* FEATHER, *supra* note 133, at 168.

218. *See id.*

219. *Id.*

220. *Id.*

To appease the printing workers' unions, the final compromise of 1891, the Chace Act, provided that foreign authors could obtain copyright protection only if the United States published their work no later than the work was published in its country of origin.²²¹ Additionally, foreign works "had to be printed in the United States, or printed from type set in the United States."²²² This so-called manufacturing clause went directly against the Berne Convention,²²³ excluding the United States from the agreement until the clause expired in 1986.²²⁴ Finally, in 1891 Congress signed an international agreement with England for reciprocal copyright protection.²²⁵ This compromise reflected both the security interests of the printers' unions to retain their manufacturing jobs, and the competitive interests of the well-established East Coast publishers, and American and British authors.

E. Thomas Edison: Patents as a Business Strategy

Just as ruinous competition in the late 1880s prompted a redefinition of the established American publishers' interests in intellectual property protection, a similar dynamic in electric light and chemical industries animated a major shift toward stronger patent protection. In the new business model of the second industrial revolution, patents played a starring role. For example, "between 1840 and 1910, the annual number of patents [granted in the United States] increased more than fifty-fold."²²⁶ The rise of large managerial firms in the chemical and electrical industries, such as Werner Siemens in Germany and Edison Electric in the United States, introduced a new way of organizing innovation and attracting finance capital.²²⁷

The story of Thomas Edison's transformation from "Yankee genius" to predatory businessman illustrates this trend toward

221. *Id.*

222. *Id.*

223. *Id.*

224. Lee A. Hollaar, *Legal Protection of Digital Information*, § I.C. (2002), available at <http://www.digital-law-online.info/lpdi1.0/treatise4.html> (last updated June 30, 2004).

225. Hesse, *supra* note 5, at 42.

226. Jenkins, *supra* note 174, at 1.

227. *Id.* at 24–28; DUTFIELD, *supra* note 171, at 77–78.

stronger patent protection.²²⁸ Popular mythology notwithstanding, Edison was a latecomer to electric lighting.²²⁹ Well-known in the telegraph industry, Edison approached successful telegraph entrepreneurs to help him establish the Edison Electric Light Company.²³⁰ General Counsel of Western Union, Grosvenor P. Lowrey, advised Edison to establish “a corporation to finance research and take out patents [on electric light inventions].”²³¹ Western Union had already pioneered a strategy of patenting and cross-licensing inventions with competitors in order to secure market shares.²³² With financial support from the President of Western Union, a major stockholder in the Gold and Stock Telegraph Company and a partner in J.P. Morgan, Edison set up his company to “own and license all [sic] Edison’s electrical inventions other than those concerned with telegraphy.”²³³ Edison’s mentors at Western Union, William Orton and Marshall Lefferts, promoted a business strategy of market dominance by controlling the fruits of innovation through acquiring both “existing and future patented inventions.”²³⁴ The idea was to maintain control over innovation, manage patents to create barriers to entry, and prepare patents with broad claims.²³⁵ “Lefferts taught Edison the business importance of patents and of ‘covering the field’ with patents and with broad claims within patents.”²³⁶ Lefferts also introduced Edison to patent attorney Lemuel Serrell who taught Edison to keep scrupulous records for the Patent Office and for future litigation.²³⁷

228. “Yankee Genius” usually refers to the innovativeness and ingenuity of Americans, especially when it came to inventions. Jenkins, *supra* note 174, at 21 (describing how Edison’s early reputation as a creative inventor has persisted today, due largely to corporate America’s attempts to further the “myths of ‘Yankee ingenuity’ and of all technological innovation as ‘progress’”).

229. Cullis, *supra* note 116, at 16.

230. *Id.*

231. *Id.*

232. See Jenkins, *supra* note 174, at 11–12.

233. Cullis, *supra* note 116, at 16.

234. See Jenkins, *supra* note 174, at 16.

235. See *id.* at 29 (describing how Edison’s subsequent corporation, General Electric, paralleled Western Union’s strategy of controlling innovation and creating barriers for competitors).

236. *Id.* at 17.

237. *Id.*

At the same time, the establishment of corporate research laboratories, such as Edison's in Menlo Park, New Jersey, and amendments to U.S. patent law in 1871 allowing employers to require employees to sign over any patent rights in their work-related innovations, launched a new way of organizing research and development.²³⁸ Patent attorneys were central to this new model, playing key roles as agents of the industrial research system and campaigners for heightened patent protection.²³⁹ Edison was extremely litigious and used predatory patenting strategies to good effect.²⁴⁰ "Between 1885 and 1901, the Edison company" responded to growing competition by filing over "two hundred infringement suits . . . [and] spending around \$2,000,000 on litigation."²⁴¹ Even when Edison technically lost, litigation costs ran many small competitors out of business.²⁴² After Edison's spate of aggressive lawsuits, competition virtually disappeared.²⁴³ By 1893, Great Britain had only seven producers in the lamp business, not all of which actually produced lamps.²⁴⁴

The story of British inventor James Swan illustrates how Edison effectively absorbed competition through predatory patenting strategies. Even though Swan invented and exhibited the incandescent filament lamp, Edison beat him to the patenting punch by filing a British patent with extremely broad claims.²⁴⁵ When Swan established a company in Britain to manufacture his lamps, Edison immediately filed an injunction to stop Swan from infringing his patents.²⁴⁶ Ultimately, Edison wielded his patent power to convince Swan to amalgamate the two companies into The Edison and Swan United Electric Light Company, Ltd.²⁴⁷ Even though

238. DRAHOS & BRAITHWAITE, *supra* note 181, at 40.

239. *Id.* at 43-45.

240. *See* Jenkins, *supra* note 174, at 24-25; *see also* Cullis, *supra* note 116, at 31-32.

241. Cullis, *supra* note 116, at 36-37.

242. *See id.* at 35.

243. *Id.* at 36.

244. *Id.*

245. *Id.* at 31-32.

246. *Id.* at 32.

247. *Id.*

Swan had contributed more innovation to the invention, Edison's patent enabled him to maintain a monopoly position.²⁴⁸

The Court of Appeal's ruling in *Edison & Swan United Electric Light Co. v. Holland*,²⁴⁹ further strengthened Edison's monopoly position.²⁵⁰ In 1885, Edison brought an action against Holland and several other defendants on the grounds that they had infringed on two of Edison's patents related to the incandescent lamp.²⁵¹ The defendants attacked the accuracy of Edison's broad claims and the sufficiency of the patent specifications.²⁵² At trial, the judge ruled that one of Edison's patents was invalid.²⁵³ On appeal, however, the court upheld the validity of Edison's patent, and "Edison and Swan United Electric Light Company emerged in an unassailable position."²⁵⁴ The court condemned Edison for "unfair exploitation of the rules of legal etiquette and avaricious patent claims" to "gain ascendancy over competitors."²⁵⁵

At the height of this high-profile case, one outraged commentator, James Swinburne, decried Edison's tactics and highlighted the unfortunate consequences of Edison's monopoly:

The first effect of a lamp monopoly will be that prices of lamps will remain high or go higher, and there will be no stimulus to improvement in their quality because there will be no competition. People often grumble at the price of lamps. Prices have to be high because it takes a long time to get a factory into working order, as the making of lamps is new to all the hands, an enormous amount of experimenting, and that on a commercial scale, is needed before lamps can be made cheap and well. A factory takes about two years to get into swing, but after that lamps can be made very cheaply. The actual labour and material in practice comes to about fivepence halfpenny per lamp sent out when made on a small scale. These are the actual

248. *Id.* at 31–36.

249. 41 Ch. D. 28 (1889).

250. *See* Cullis, *supra* note 116, at 34–35.

251. *See id.*

252. *See id.*

253. *See id.* at 34.

254. *See id.* at 35.

255. *Id.*

figures. On the scale of manufacture of a large company the lamps should be sold at a shilling or eighteen pence.²⁵⁶

Today, advocates of access to generic medicines to address the HIV/AIDS pandemic are making the very same arguments.²⁵⁷ By highlighting the gap between the high start-up costs of developing pharmaceutical drugs and the far lower costs of producing them once the manufacturing process is up and running, like Swinburne, they argue that the prices should be lowered to reflect the production costs.

F. The Rise of the German Business Model and the Emergence of Patent Cartels

With the development of the German dyestuff industry in the 1860s, a new business model emerged under which professional research and development departments eclipsed the “inventor-entrepreneur” system.²⁵⁸ German industrial policy supported the development of industry by protecting German companies from foreign competition and permitting “cooperative inter-firm alliances to fix prices and rationalize sales networks.”²⁵⁹

Beginning in the mid-1860s, German interest groups representing the chemical industry lobbied hard for patent laws.²⁶⁰ While eager for domestic patent protection, Werner Siemens, industrialist and president of a powerful patent cartel, worried that British and American firms would take out patents but fail to work them in Germany.²⁶¹ The German Patent Law of 1877, therefore, included a working requirement that allowed the government to withdraw a patent if the holder did not work the patent in Germany within three years of the grant date.²⁶² Meanwhile, the debate over

256. James Swinburne, *The Edison Filament Case*, 19 TELEGRAPHIC J. & ELECTRICAL REV. 129, 132 (1886).

257. See, e.g., Mark Warner et al., *AIDS Drugs and the Developing World: The Role of Patents in the Access of Medicines*, 12 FORDHAM INTELL. PROP. MEDIA & ENT. L.J. 683, 697–708 (2002) (remarks of James Love).

258. DUTFIELD, *supra* note 171, at 75.

259. *Id.* at 76.

260. *Id.* at 77–79 (explaining how two interest groups, the German Chemical Association and the German Society for Patent Protection, helped pass the German Patent Law of 1877).

261. *Id.* at 77.

262. *Id.* at 78.

whether patents should cover processes, products, or both divided the chemical industry.²⁶³ In line with the wishes of the German Chemical Association, the final bill covered processes not products.²⁶⁴ To enable firms to claim patent rights in employees' innovations, German patent law excluded the term "inventor" in favor of "applicant."²⁶⁵ Thus, German law reflected the chemical industry's commitment to a research strategy of process innovation and a marketing strategy of product diversity.²⁶⁶

German firms' process patents and tacit knowledge further strengthened their position in the dyestuff industry.²⁶⁷ As with the Edison firms, German firms realized that strong patent positions, i.e., massive holdings, could help block research by rivals and facilitate market domination.²⁶⁸ Despite an absence of provisions for patenting chemical products, German firms took advantage of such provisions in other countries, including the United States and Britain.²⁶⁹ They also took advantage of foreign laws, such as those in the United States (after 1908) and Britain that did not include working requirements.²⁷⁰ In 1912, ninety-eight percent of chemical patent applications filed in the United States were assigned to German firms but were never worked in the United States.²⁷¹ Outraged by this asymmetry, Americans lobbied Congress to abolish product protection and enact a working requirement.²⁷² Leading industrialists such as Edison, however, along with their bankers and patent attorneys, outflanked their efforts.²⁷³

263. *Id.*

264. *Id.*

265. *See id.* at 79.

266. *See id.*

267. *See id.* at 79–80 (stating three German firms came to dominate the chemical industry by using "process innovation as a research strategy" and protecting their innovations with intentionally deceptive patent specifications).

268. *Id.* at 81.

269. *Id.* at 82.

270. *See id.*; Merges, *supra* note 128, at 2221 ("Fortunately for firms pioneering the strategic use of patent portfolios, the Supreme Court rejected the rule disfavoring unworked patents in the 1908 case *Continental Paper Bag Co. v. Eastern Paper Bag Co.* In this case, the Court swept aside any notion that a patented invention must be practiced to justify its initial grant or sustain its validity.").

271. DUTFIELD, *supra* note 171, at 82.

272. *Id.*

273. *Id.*

The German business model, organized to conduct large-scale industrial research, spread rapidly in the first ten years of the twentieth century.²⁷⁴ German dyestuff producers Bayer and Hoechst used the model to dominate the pharmaceutical industry before World War I.²⁷⁵ They did this by moving into pharmaceutical production and investing their huge dyestuff profits into research and development departments.²⁷⁶ Similarly, U.S. firms such as General Electric, Westinghouse, AT&T, International Harvester, Parke Davis, and E.R. Squibb set up research labs.²⁷⁷ Eastman Kodak set up its industrial research lab in 1912.²⁷⁸

Following Germany's lead, U.S. firms also established patent departments that became central players in corporate business strategies. Firms regarded patents as strategic business assets that could be used not only to protect inventions but also to raise capital and force cross-licensing with rival firms.²⁷⁹ Corporate patent departments also policed intra-firm patenting activity.²⁸⁰ DuPont earned a reputation for being particularly stingy by preventing its employees from publishing scientific papers.²⁸¹

Under the German business model, the number of U.S. patents granted between 1870 and 1911 shot up from 120,573 to 1,002,478.²⁸² In the early days, individuals obtained the majority of patents, but by the beginning of the twentieth century most went to large firms.²⁸³ Meanwhile, follower states such as Spain saw the bulk of patents granted between 1878 and 1907 go to foreign, non-resident firms.²⁸⁴ As Professor Edward Beatty points out, the dramatic expansion of trade and foreign investment in the last quarter

274. John Braithwaite & Peter Drahos, *Intellectual Property, Corporate Strategy, Globalization: TRIPS in Context*, 20 WIS. INT'L L.J. 451, 453-54 (2002) (describing the German business model as "large industrial laboratories linked to equally organized production and sales facilities, all coordinated by one management structure").

275. See DUTFIELD, *supra* note 171, at 75.

276. See *id.*

277. Braithwaite & Drahos, *supra* note 274, at 454.

278. Jenkins, *supra* note 174, at 47.

279. Merges, *supra* note 128, at 2220.

280. DRAHOS & BRAITHWAITE, *supra* note 181, at 45.

281. See *id.*

282. Braithwaite & Drahos, *supra* note 274, at 460.

283. *Id.*

284. Gonzalez, *supra* note 111, at 73.

of the nineteenth century, coupled with the 1883 Paris Convention, sparked “patent law reforms [that] yielded an increasingly homogenous landscape in a process that was not complete until the eve of World War I.”²⁸⁵

Most nations that found themselves increasingly part of the globalizing economy of the late nineteenth century could not avoid international pressures to offer patent protection to foreign inventors. Moreover, domestic elites around the world . . . had also largely adopted the liberal arguments that linked property rights with incentives to invest.²⁸⁶

Thus, the discourse linking intellectual property rights with liberal markets had finally triumphed over the skepticism of the patent controversy of 1850–1875.

During the late nineteenth and twentieth centuries, while Edison purchased, absorbed, or merged with rivals through predatory patent litigation, numerous other firms formed cartels by consolidating to set up cross-licensing, price-fixing and market-dividing arrangements based around their patents.²⁸⁷ These patent cartels played an important role in changing the structure of the economic market from one of free trade to one dominated by monopolistic forces.²⁸⁸ “In the period between World Wars I and II, firms joined international private formalized collaborative arrangements of unprecedented number and complexity.”²⁸⁹

In 1896 General Electric formed a cartel, the Incandescent Lamp Manufacturers Association, to control prices and market shares.²⁹⁰ Very few firms remained outside this group.²⁹¹ The cartel made a price-fixing agreement with Westinghouse, causing lamp prices to rise about thirty percent.²⁹² The U.S. bank panic and depression of 1893 left General Electric surrounded by weakened competitors.²⁹³ Taking advantage of the situation, General Electric adopted yet another monopolistic strategy: it proceeded to acquire its

285. Beatty, *supra* note 99, at 143.

286. *Id.* at 132.

287. *See* Porter, *supra* note 53, at 266.

288. *Id.* at 266–67.

289. *Id.* at 266.

290. Cullis, *supra* note 116, at 39.

291. *Id.*

292. Jenkins, *supra* note 174, at 32.

293. *See id.*

competitors under the rubric of the National Electric Lamp Company—a clever stratagem designed to create the appearance of an independent company.²⁹⁴ General Electric used its patent-licensing power to acquire relevant patents, charge higher royalty rates, prohibit others from exporting without General Electric's permission, and obtain leadership and control of European cartels.²⁹⁵ Thus, General Electric's "strong patent position gave [it] an initial near monopoly position from which it then exercised its financial and market power to maintain a dominant American and world position until after World War II, decades after its key patents had expired."²⁹⁶

In Britain, British Thomson-Houston, Siemens, and the General Electric Company pooled their patents to collectively control the electric light industry.²⁹⁷ In 1912 they formed the Tungsten Lamp Association, which included most of the significant producers in England.²⁹⁸ However, three years later the Robin Electric Lamp Company filed a suit challenging Tungsten's price fixing arrangements that required the court to consider the public interest.²⁹⁹ The judge ruled in Tungsten's favor, stating that "although poor families could not afford electric lighting, there was no evidence that the price was so high as to be a serious burden to the consumer."³⁰⁰

In 1925, faced with potentially ruinous competition and stock dumping just after World War I, the leading European and British electric lamp producers negotiated the Phoebus Agreement, an international agreement to control and manage competition.³⁰¹ This private multilateral agreement required members to divide markets and exchange technical information and patents.³⁰² Patent ownership induced independent companies "to enter into similar contracts

294. *Id.* at 33.

295. *See id.* at 32.

296. *Id.*

297. *Id.*

298. *See id.*

299. *See id.* at 43–44. The Robin Electric Lamp Company acquired a patent in 1911 for an improved filament lamp. *Id.* at 43. The cartel offered to manufacture Robin's lamp, but only if Robin agreed to sell its product at the cartel's fixed prices. *Id.* Robin felt that the prices were too high and therefore prohibitive. *Id.*

300. *Id.* at 44.

301. *Id.*

302. *Id.*

involving quota restrictions and observance of agreed prices.”³⁰³ The Phoebus Agreement remained in force until World War II broke out.³⁰⁴

Similar arrangements flourished across sectors during the interwar period.³⁰⁵ The patent system was a central mechanism facilitating cartel solidarity.³⁰⁶ This expansion of international agreements was not limited to industrial sectors, but also included mineral and agricultural sectors such as cottonseed oil, corn products, and heavy minerals.³⁰⁷ In 1939 the proportion of goods sold under cartel control in the United States was roughly “eighty-seven percent for mineral products, sixty percent for agricultural products, and forty-two percent for manufactured products.”³⁰⁸ In sector after sector, companies subordinated competitive risk to security and control.

G. Twentieth Century American Ambivalence

The trust-busting movement in the late nineteenth century United States did little to undermine the industrial cartels.³⁰⁹ However, by the end of World War II, U.S. policy turned against monopolistic strategies, such as organizing cartels, returning to the principles of weaker patent protection and free competition.³¹⁰

In the late 1800s, farmers lobbied vigorously for controls over private monopolies, aiming their efforts primarily at consumer goods industries such as fuel, oil, sugar, matches, linseed oil, and whisky.³¹¹ Congress responded by passing the Interstate Commerce Act of 1887 and the 1890 Sherman Anti-Trust Act.³¹² The Acts largely laid dormant until 1903 when Theodore Roosevelt allocated funds to the Justice Department for enforcement measures.³¹³ Consistent with the farmers’ interests, early government anti-trust litigation focused

303. *Id.*

304. *See id.*

305. Porter, *supra* note 53, at 266.

306. *Id.*

307. *See* BRAITHWAITE & DRAHOS, *supra* note 97, at 41.

308. Porter, *supra* note 53, at 266.

309. *See* Cullis, *supra* note 116, at 50–51.

310. *See* Porter, *supra* note 53, at 269–71.

311. Cullis, *supra* note 116, at 50.

312. *Id.* at 51.

313. *Id.*

primarily on the sugar and whisky industries.³¹⁴ The government lost six of its first seven cases, however.³¹⁵

In 1911 the Justice Department won its first anti-trust suit.³¹⁶ The suit was filed against General Electric and thirty-four other companies for disguising acquired companies as independent entities, and entering into price fixing and market-sharing agreements.³¹⁷ The resulting consent decree required General Electric "to cease all the alleged practices except 'the use of patents for market control.'"³¹⁸ However, General Electric retained its patent monopoly and continued to dominate the U.S. lamp industry.³¹⁹ Cartel dominance during the interwar period epitomized the resurgence of economic nationalism and spelled an end to the late nineteenth century's international liberal economic order.

At the close of World War II, the victors retrospectively associated economic nationalism with militarism. Pointing to Germany and Japan as examples, the world began to view economic nationalism with suspicion.³²⁰ As the strongest victorious power, the United States took the lead in discrediting economic nationalism and promoting a new postwar economic order based on multilateralism and, in response to the Great Depression, a welfare-state version of economic liberalism.³²¹ The Bretton Woods institutions including the International Monetary Fund (IMF) and World Bank, the United Nations (UN), the General Agreement on Trade and Tariffs (GATT), Marshall Plan, and the European Economic Community (EEC) institutionalized this multilateral, liberal economic perspective.³²² American military occupation of Japan and Germany further entrenched economic liberalism by reshaping Japanese and German

314. *See id.*

315. *Id.*

316. *Id.*

317. *Id.* at 51–52; *see also* Jenkins, *supra* note 174, at 31.

318. Jenkins, *supra* note 174, at 31.

319. *See* Cullis, *supra* note 116, at 52. The consent decree required General Electric to absorb its subsidiaries into its own business. *Id.* Nevertheless, General Electric continued to serve eighty percent of the U.S lamp industry. *Id.*

320. *See* Porter, *supra* note 53, at 269.

321. *See id.* at 269–74.

322. JOHN G. RUGGIE, *Embedded Liberalism and the Postwar Economic Regimes*, in CONSTRUCTING THE WORLD POLITY: ESSAYS IN INTERNATIONAL INSTITUTIONALIZATION 62, 78–79 (1998).

corporate governance regimes.³²³ The United States thereby delegitimized cartels by associating them with Japanese and German militarism.³²⁴ At the same time, American policy specifically targeted the horizontal inter-firm cooperation prevalent in Germany and Japan while pitching its own form of corporate governance—highly centralized oligopolistic, non-financial corporations (epitomized by the automobile industry)—as consonant with freedom, democracy, and competition.³²⁵ As with the rise of the British cotton industry, however, the patent system actually played a very minor role in the emergence of the U.S. automobile industry.³²⁶ As Professor Tony Porter notes:

A particular target of U.S. policy was the use of the patent system for constructing cartels. As the tide turned against cartels the restrictive aspects of the patent system came under attack. A prominent 1942 proposal by *Fortune* magazine called for “abolishing the protection which the patent system gives to monopolistic practices” and perhaps even introducing compulsory licensing.³²⁷

These negative attitudes toward strong patent protection and monopolistic cartels reverberated in American law. From the 1940s to the 1970s, aggressive anti-trust enforcement and judicial attacks on patents constituted what Professor David Silverstein has referred to as the “Dark Ages.”³²⁸ For instance, the U.S. Supreme Court struck down “tying arrangements,” which required purchasers of patented items to buy corresponding unpatented items, as inconsistent with the overriding public policy of free competition.³²⁹ “Patent rights increasingly were construed as monopolies, market power was presumed and these rights were subordinated to the dominant anti-trust policy.”³³⁰ The concept of patent misuse reached

323. Porter, *supra* note 53, at 269.

324. *Id.*

325. *Id.* at 270.

326. *Id.* at 271.

327. *Id.* at 270.

328. David Silverstein, *Patents, Science, and Innovation: Historical Linkages and Implications for Global Technological Competitiveness*, 17 RUTGERS COMPUTER & TECH. L.J. 261, 304 (1991).

329. SUSAN K. SELL, *PRIVATE POWER, PUBLIC LAW: THE GLOBALIZATION OF INTELLECTUAL PROPERTY RIGHTS* 66–67 (2003).

330. *Id.* at 66.

its zenith in a series of cases in the 1940s, including the *Mercoid*³³¹ cases and *Morton Salt Co. v. G. S. Suppinger Co.*³³² These decisions alarmed the patent bar because “misuse became a *per se* defense that an infringer could successfully use to escape all liability. In this respect it proved to be a real windfall for patent infringers.”³³³ Referring to the doctrine of patent misuse, William Nicoson complained that “[i]n this welter of opportunity for judicial absolution, it must be a dull rascal indeed who cannot make piracy pay.”³³⁴

This anti-patent environment, characterized by vigorous anti-trust enforcement and judicial attacks on the scope and validity of patents, led U.S. businesses to question the economic value of patent protection.³³⁵ More often than not, the courts presumed patents to be invalid and criticized patentees for setting monopoly prices for inventions that were already in the public domain.³³⁶ Thus, potential domestic competitors had little to fear from infringing behavior.³³⁷ For example, in 1976 when Eastman Kodak sought to develop an instant camera to compete with Polaroid, its development committee issued an internal directive that stated: “Development should not be constrained by what an individual feels is potential patent infringement.”³³⁸

Since courts frequently invalidated patents and infringers faced low penalties that usually amounted to paying royalties, U.S. businesses sought other means of protection from competition, such as trade secret protection, government subsidies combined with high secrecy levels (in defense industries), and “voluntary” export quotas (for the automobile industry).³³⁹ Not all industries, however, could

331. *Mercoid Corp. v. Mid-Continent Inv. Co.*, 320 U.S. 661, 669 (1944); *Mercoid Corp. v. Minneapolis-Honeywell Regulator Co.*, 320 U.S. 680 (1944) (sustaining anti-trust liability).

332. 314 U.S. 488 (1942).

333. James B. Kobak, Jr., *The Misuse Defense and Intellectual Property Litigation*, 1 B.U. J. SCI. & TECH L. 2, 97 (1995) (internal citations omitted).

334. William J. Nicoson, *Misuse of the Misuse Doctrine in Infringement Suits*, 9 UCLA L. REV. 76, 92 (1962).

335. Silverstein, *supra* note 328, at 304.

336. Rochelle Cooper Dreyfuss, *The Federal Circuit: A Case Study in Specialized Courts*, 64 N.Y.U. L. REV. 1, 6 (1989).

337. Silverstein, *supra* note 328, at 307.

338. *Id.*

339. *Id.* at 304–05.

take advantage of these alternative forms of protection, and the decline of the U.S. patent system from the 1940s through the early 1980s had deleterious effects in sectors such as consumer electronics.³⁴⁰ In this environment, “few American businesses were willing to undertake the financial risks of commercializing new technologies.”³⁴¹ Therefore, while U.S. firms pioneered technologies such as the transistor, the video cassette recorder, and the integrated circuit, other countries, most notably Japan, successfully commercialized these U.S. inventions.³⁴² In fact, by the late 1960s Japan came to dominate the consumer electronics market.³⁴³

Congress began to address this lax patent environment by passing the 1952 Patent Act.³⁴⁴ The Act reflected the wishes of corporations that had amassed huge patent portfolios and clarified the notion of patent power as the power to withhold.³⁴⁵ Specifically, the Act ratified the acceptance of the so-called blocking patent: “the right to exclude others from use of the invention.”³⁴⁶ This clarification supported the corporate practice of developing blocking positions to counter rivals’ strength in new technologies and “overwrote some critical anti-patent decisions of the Supreme Court from its most virulent anti-patent era (roughly 1930–1948).”³⁴⁷

Beginning in 1980, a number of Supreme Court decisions began to signal a new attitude toward patents. In *Dawson Chemical Co. v. Rohm & Haas Co.*,³⁴⁸ the Court stated that “[t]he policy of free competition runs deep in our law[,] . . . [b]ut the policy of stimulating invention that underlies the entire patent system runs no less deep.”³⁴⁹ For the first time since the *A. B. Dick*³⁵⁰ case in 1912, the Supreme Court placed the public policy of supporting patent

340. *Id.* at 305.

341. *Id.*

342. *Id.*

343. *See id.* at 263 n.2, 305 n.171 (comparing Japan’s strengths to the United States’s success in aerospace, medical technology, etc.).

344. Merges, *supra* note 128, at 2221–22.

345. *Id.* at 2222.

346. *Id.*

347. *Id.* at 2223 (internal citations omitted).

348. 448 U.S. 176 (1980).

349. *Id.* at 221.

350. *Henry v. A.B. Dick Co.*, 244 U.S. 1, 47 (1912) (stating that a patentee could extract whatever price or other concession he chose as a consideration for granting a patent license).

rights on equal footing with the public policy of supporting free competition, "effectively end[ing] the era of anti-trust dominance over patent law in the eyes of the judiciary."³⁵¹ The rights of intellectual property owners became more important as they became increasingly likely to deliver economic and competitive objectives valued by the U.S. government.³⁵²

The United States' establishment of the Court of Appeals for the Federal Circuit (Federal Circuit) in 1982 also institutionalized a more pro-patent approach.³⁵³ Although the court's creation was animated by pedestrian concerns such as docket management for a grossly over-burdened Supreme Court, "[j]ust under the surface, . . . the creation of the Federal Circuit had a clear substantive agenda: to strengthen patents."³⁵⁴

The proposed creation of the Federal Circuit generated intense political debate. Advocates of a Federal Circuit argued that such a court could remedy the problems caused by uneven application of patent law in various circuit courts.³⁵⁵ Infringers tended to get better results in certain circuits, whereas patent holders fared better in others.³⁵⁶ For example, between 1945 and 1957, the Seventh Circuit enforced patents nearly four times more often than the Second Circuit.³⁵⁷ While infringers favored lenient circuit courts, patentees fought to have their cases heard in the more stringent Fifth and Seventh Circuits.³⁵⁸ This inconsistency across circuit courts led to strategic forum shopping, and rendered the process uncertain at best.³⁵⁹ When the Industrial Research Institute surveyed 250 companies engaged in industrial research on the question of a single patent court, "the vast majority of respondents indicated that the uncertainty, complexity, and inconsistencies in patent enforceability eroded the full economic value of the patent."³⁶⁰ Most firms did not

351. Lawrence Kastriner, *The Revival of Confidence in the Patent System*, 73 J. PAT. & TRADEMARK OFF. SOC'Y, 5, 20 (1991).

352. I thank Chris May for urging me to clarify this point.

353. Merges, *supra* note 128, at 2224.

354. *Id.*

355. Dreyfuss, *supra* note 336, at 7.

356. *Id.* at 6-7.

357. *Id.*

358. *See id.*

359. *Id.* at 7.

360. SELL, *supra* note 329, at 69.

consider patents to be reliable incentives for investing in R&D.³⁶¹ Rampant forum shopping led to costly and protracted litigation, and the attendant uncertainty “made it difficult for patent attorneys to advise their clients.”³⁶²

An important 1972 Supreme Court decision in *Blonder-Tongue Laboratories v. University of Illinois Foundation*³⁶³ raised the stakes in patent litigation. The ruling barred “a patent owner from relitigating patent validity against a new defendant.”³⁶⁴ Therefore, if a patent owner’s case were heard in one of the circuit courts more lenient toward infringers, the patent owner stood to lose both the case and the entire patent.³⁶⁵ The patent owner would have no more opportunities to defend the patent. In the face of these high stakes and palpable uncertainty, “proponents of a [Federal Circuit] argued that a single [patent] court would eliminate forum shopping and inconsistent court rulings, provide more uniformity in patent law, and thereby facilitate innovation by reducing doubt as to what protection is available for inventions.”³⁶⁶

Opponents of the Federal Circuit, however, questioned the extent to which forum shopping was a problem.³⁶⁷ They expressed fear that special interest groups might easily capture a specialized court devoted to patents.³⁶⁸ If the court consistently were to rule more strongly in favor of or against patent rights, “the dangers of concentrated judicial decision-making power could have a negative impact on the law.”³⁶⁹ Advocates of the Federal Circuit ultimately won the day, and in the process addressed some of the main objections that the skeptics had raised. In particular, the CAFC supporters allayed fears attendant to specialized courts by ensuring that the court’s docket would encompass not just patents, but a broad range of issues including government contract and labor disputes,

361. Dreyfuss, *supra* note 336, at 7.

362. SELL, *supra* note 329, at 69.

363. 402 U.S. 313 (1971).

364. Silverstein, *supra* note 328, at 309.

365. *Id.*

366. SELL, *supra* note 329, at 69.

367. *Id.*

368. *Id.*

369. *Id.*

technology transfer regulations, trademarks, and tariff and customs law.³⁷⁰

The activation of the [Federal Circuit] ushered in a more vigorous approach to the enforcement of patent holders' rights. The [Federal Circuit's] decisions have reflected a more pro-patent approach and have supported higher damage awards than decisions of previous Courts of Appeal. The [Federal Circuit] has invigorated the presumption of validity of patent rights, 'making the challenger's case harder to sustain' Under the [Federal Circuit], references to patents as 'monopolies' have all but disappeared.³⁷¹

Indeed, two Federal Circuit decisions, one in 1983 and another in 1986, emphasized that courts may issue permanent injunctions once a patent has been held valid and infringed.³⁷² "This signaled a further shift in public policy in favor of patent holders in so far [sic] as the court ruled that 'public policy favors protection of rights secured by valid patents, . . . [and] favors the innovator, not the copier.' This is a far cry from earlier judicial suspicion of the monopoly aspects of patent rights."³⁷³

Illustrating this shift is the Federal Circuit's 1986 decision, *Polaroid Corp. v. Eastman Kodak Co.*³⁷⁴ In that case, the court found that Kodak infringed Polaroid's patents.³⁷⁵ The court issued an injunction and assessed staggering damages against Kodak.³⁷⁶ As Professor Silverstein notes, "the outcome effectively restored to Polaroid a virtual monopoly over the United States market in instant photography."³⁷⁷ Many regard the *Kodak* case as the most striking

370. Jack Q. Lever, Jr., *The New Court of Appeals for the Federal Circuit (Part I)*, 64 J. PATENT OFF. SOC'Y 178, 204 (1982).

371. SELL, *supra* note 329, at 69-70 (internal citations omitted).

372. Kastriner, *supra* note 351, at 13-14 (discussing *Smith Int'l v. Hughes Tool*, 718 F.2d 1573, 1581 n.8 (Fed. Cir. 1983) and *Polaroid Corp. v. Eastman Kodak Co.*, 789 F.2d 1556 (Fed. Cir. 1986)).

373. SELL, *supra* note 329, at 70 (quoting Kastriner, *supra* note 351, at 13-14).

374. 789 F.2d 1556 (Fed. Cir. 1986).

375. *Id.*

376. Silverstein, *supra* note 328, at 306.

377. *Id.* at 307.

instance of an increasingly pro-patent sentiment in U.S. courts.³⁷⁸ The case demonstrated that “a successful patent infringement suit can eliminate a competitor from a business, as well as cost the infringer over a billion dollars in damages and related costs,” and signaled to businesspeople that “infringement is no longer an economically feasible option.”³⁷⁹

In the 1980s, the United States embraced the conception that intellectual property protection primarily was a system for protection and exclusion instead of a public policy to foster competition and diffusion.³⁸⁰ The structure of global capitalism had evolved to produce new pressures on the domestic environment for intellectual property protection.³⁸¹ The U.S. government’s priority to increase economic competitiveness led it to alter a number of significant policies and institutions.³⁸²

For example, beginning in 1982 the U.S. Department of Justice relaxed its antitrust standards and argued “anti-trust laws should not be applied in a way that hinders the renewed emphasis on competitiveness.”³⁸³ The new anti-trust guidelines permitted the introduction of non-structural factors, such as foreign competition or the possession of a new technology that was important to long-term competitiveness.³⁸⁴ Intellectual property owners have benefited from this change because “administrators and the courts have adopted the view that an intellectual property owner has no relevant market power (in terms of anti-trust) if close substitutes exist for the product or process.”³⁸⁵ Furthermore, institutional changes such as the creation of the Federal Circuit provided new opportunities for intellectual property owners to promote their interests.³⁸⁶

378. Eric Schmitt, *Business and the Law: Judicial Shifts in Patent Cases*, N.Y. TIMES, Jan. 21, 1986, at D2.

379. Kastriner, *supra* note 351, at 15.

380. SELL, *supra* note 329, at 74.

381. *Id.*

382. *Id.*

383. *Id.* (quoting PAUL HOFF, INVENTIONS IN THE MARKETPLACE: PATENT LICENSING AND THE U.S. ANTITRUST LAWS 19 (1986)).

384. *Id.*

385. *See id.* at 73.

386. *Id.* at 74; *see also* Dreyfuss, *supra* note 336, at 26 (stating that “anecdotal evidence suggests that the [Federal Circuit] is a good court for patentees”).

Significantly, the policies of this decade galvanized the link between competitiveness and intellectual property.³⁸⁷ “The *Kodak* case brought American jurisprudence full circle, back to the *A.B. Dick* philosophy championing protection, exclusion, and opportunities for extracting monopoly rents. [*Kodak*] symbolized the emergence of U.S. patent law out of an era of judicial skepticism that characterized much of the twentieth century.”³⁸⁸ As a result, U.S. businesses gained renewed confidence in the value of patents as economic resources.

III. MULTILATERAL SETTLEMENT: PROPERTY RIGHTS EXPANDED

In the 1980s, American private sector actors led the charge for a new multilateral settlement embracing their expanded notions of property rights.³⁸⁹ Just as in times past, leading industrialists, this time in the pharmaceutical, chemical, software, and entertainment sectors, lobbied for a reinvigorated approach to intellectual property protection—one championing security over competition.³⁹⁰ Commenting on the successful negotiation of the 1994 Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS), one participant stated that private sector lobbyists received ninety-five percent of what they wanted.³⁹¹ TRIPS incorporates a notion of intellectual property rights as a system of exclusion and protection rather than one of diffusion and competition.³⁹² It extends rights holders’ privileges and reduces their obligations.³⁹³

In April 1994, 114 countries and the European Union became signatories to the Uruguay Round of Multilateral Trade Negotiation’s Final Act.³⁹⁴ The Final Act included numerous agreements such as the establishment of the WTO and TRIPS. “All of TRIPS is binding on all members of the WTO . . . States therefore have to implement

387. SELL, *supra* note 329, at 74.

388. *Id.*

389. *See generally id.* at 8–9 (describing how private actors used the TRIPS agreement to pursue their intellectual property interests).

390. MAY & SELL, *supra* note 44 (manuscript at 233).

391. Interview with Jacques Gorlin, Advisor to the Intellectual Property Committee, in Wash., D.C. (Jan. 22, 1996).

392. SELL, *supra* note 329, at 74.

393. *Id.* at 8–9 (providing an overview of the TRIPS agreement).

394. *Id.*

a common and enlarged set of intellectual property standards.”³⁹⁵ TRIPS covers all intellectual property rights: patents, trademarks, and copyrights.³⁹⁶ Additionally, it includes provisions on industrial designs, geographical indications for wine and spirits, integrated circuits, trade secret protections,³⁹⁷ and sound recordings.³⁹⁸

TRIPS also incorporates the Paris and Berne Conventions³⁹⁹ with some additional protections.⁴⁰⁰ For example, TRIPS adds copyright protection for computer programs and databases.⁴⁰¹ TRIPS also raises the term of patent protection to twenty years from the date the application is filed,⁴⁰² and expands the covered subject matter to “virtually all fields of technology recognized in developed country patent systems.”⁴⁰³ It extends patent rights to virtually all subject matter except plants and animals other than micro-organisms, including pharmaceutical products, chemicals, and pesticides.⁴⁰⁴ TRIPS reaches “deep into national territories in requiring respect for intellectual property from products destined for domestic markets such as pharmaceuticals, processes internal to production such as chemicals, and practices in local agriculture, medicine and education which were outside of market relations.”⁴⁰⁵ Furthermore, in contrast to past practice, importation of a good now constitutes “working” the patent.⁴⁰⁶

“States are obligated to provide enforcement mechanisms both internally and at the border.”⁴⁰⁷ In the case of disputes arising under

395. *Id.*

396. *Id.*

397. *Id.*

398. *Id.*

399. *Id.*

400. TREBILCOCK & HOWSE, *supra* note 42, at 323–24.

401. *Id.*

402. *Id.* at 325.

403. Jerome Reichman, *The TRIPS Component of the GATT's Uruguay Round: Competitive Prospects for Intellectual Property Owners in an Integrated World Market*, 4 FORDHAM INTELL. PROP. MEDIA & ENT. L.J. 171, 182 (1993).

404. SELL, *supra* note 329, at 8.

405. Christopher Arup, *Competition Over Competition Policy for International Trade and Intellectual Property*, 16 PROMETHEUS 367, 374 (1998).

406. DUNCAN MATTHEWS, GLOBALISING INTELLECTUAL PROPERTY RIGHTS: THE TRIPS AGREEMENT 57–58 (2002).

407. SELL, *supra* note 329, at 9.

TRIPS, complainants have access to the WTO's Dispute Settlement Understanding.⁴⁰⁸ TRIPS allows for the possibility that infractions in intellectual property can lead to sanctions on goods, reflecting U.S. practices under section 301 of the Trade Act.⁴⁰⁹ When the WTO's Dispute Settlement Body rules on a case, the WTO monitors compliance to see that the defendants adjust their policies in a timely manner.⁴¹⁰ In the event that defendants do not comply with the ruling, "the WTO will authorize the complainant to impose retaliatory trade sanctions if requested to do so."⁴¹¹

The implications of this far-reaching agreement are grave for less industrialized countries. TRIPS undoubtedly will shape innovation practices, the location of industry, economic development and the global division of labor.⁴¹² By locking in high standards of intellectual property protection for countries in much earlier stages of economic development, it prohibits industrial latecomers from adopting the very policies that proved to be so successful in countries such as the United States, Spain, Switzerland and the Netherlands.⁴¹³

As this Article has demonstrated, the industrialized countries built much of their economic prowess by appropriating others' intellectual property. TRIPS sharply constricts the range of public policies that states can adopt to manage intellectual property in a manner tailored to their specific needs. The TRIPS regime makes information and technology more costly and less accessible while vigorously defending the monopoly privileges of rights holders.⁴¹⁴ For example, one World Bank study estimated that the annual benefit of TRIPS to the United States is about \$19 billion in royalties and licensing fees, whereas South Korea pays about \$15 billion each year.⁴¹⁵ TRIPS supports an approach to intellectual property that closes off significant segments of what was once the public domain,

408. *Id.*

409. *Id.*

410. *Id.*

411. *Id.*

412. *Id.*

413. *See id.*

414. *See id.*

415. RICHARD NEWFARMER ET AL., GLOBAL ECONOMIC PROSPECTS AND THE DEVELOPING COUNTRIES 137 (2001), available at <http://www.worldbank.org/prospects/gep2002/gep2002complete.pdf>.

“making it unavailable to future creators.”⁴¹⁶ States and firms whose comparative advantage lies in imitation and adaptation stand to lose under the current regime.

The expansion of property rights combined with American relaxation of anti-trust enforcement has also facilitated increasing economic concentration within many prominent sectors.⁴¹⁷ This is particularly apparent in the life sciences industries.⁴¹⁸ In a pattern familiar in history, the life sciences companies emerged and adopted a new business model in response to declining revenues in the chemical industry.⁴¹⁹ As Professor Graham Dutfield summarizes:

During the 1970s, U.S. chemical giants like Dow, American Cyanamid, Du Pont and Monsanto encountered decreased profits, higher costs . . . and public criticisms stemming from concern about industrial pollution. They responded by moving into or increasing their involvement in fine chemicals sectors like agrochemicals and pharmaceuticals. These offered much higher profit margins, especially with the availability of effective monopoly protection through the patent system.⁴²⁰

Further, in the agrobiotechnology field “six companies are responsible for three-quarters of all U.S. patents granted to the top thirty patent-holding firms. These are Monsanto, Du Pont, Syngenta, Dow, Aventis and Grupo Pulsar.”⁴²¹ Professors Peter Drahos and John Braithwaite have referred to these life sciences corporations as “biogopolies” and likened them to the chemical cartels that persisted through the interwar period.⁴²² Thus, in what Professor Robert Merges has referred to as “pigging out at the IP trough,”⁴²³ recent trends threaten to choke off innovation.

416. Keith Aoki, *(Intellectual) Property and Sovereignty: Notes Toward a Cultural Geography of Authorship*, 48 STAN. L. REV. 1293, 1332 (1996).

417. *See id.* at 1346.

418. *See generally* DUTFIELD, *supra* note 171, at 135–75 (providing an historical overview of the role intellectual property rights have played in the life sciences industries).

419. *See id.* at 148.

420. *Id.*

421. *Id.* at 154.

422. DRAHOS & BRAITHWAITE, *supra* note 181, at 150–68.

423. Merges, *supra* note 128, at 2233.

Similarly, copyright protection has expanded as a result of intensive private sector lobbying and government acquiescence to its demands.⁴²⁴ One of the most egregious examples of expanded protection is the United States' Sonny Bono Copyright Term Extension Act of 1998 (the Sonny Bono Act).⁴²⁵ In a classic example of "ex post" protection,⁴²⁶ the Walt Disney Corporation lobbied hard for this law because the copyright on the Mickey Mouse character was set to expire.⁴²⁷ Dubbed the "The Mickey Mouse Protection Act,"⁴²⁸ this law has been described as "a classic instance of almost pure rent-seeking legislation."⁴²⁹ The law extends the copyright term from the life of the author plus fifty years to the life of the author plus seventy years.⁴³⁰ In the case of works-made-for-hire, the term increases from seventy-five to ninety-five years.⁴³¹ The law also applies "retrospectively to works subsisting under copyright, extending their term to a maximum of ninety-five years."⁴³²

The Sonny Bono Act reflects a dramatic institutionalization of the romantic notions of authorship sketched out at the beginning of this Article. Although the corporate animator producing a work-for-hire hardly evokes the image of the lone artist in the garret with his quill, the Walt Disney Corporation has benefited greatly from this romantic notion. As has historically been the case in intellectual property protection, the choice today is between a future in which "the most significant aspects of our culture remain perpetually in the control of a relatively small number of corporations—the publishers of our day,"⁴³³ and one in which clear limits on such rights facilitate the circulation of knowledge, culture, and information.⁴³⁴

424. See MAY, *supra* note 3, at 12.

425. Lemley, *supra* note 30, at 133–34.

426. See generally *id.* at 132–48 (describing the new justifications for intellectual property protection as focusing on incentives to manage and control existing works rather than on incentives to create new works).

427. Merges, *supra* note 128, at 2236.

428. Lawrence Lessig, *Copyright's First Amendment*, 48 UCLA L. REV. 1057, 1065 (2001).

429. Merges, *supra* note 128, at 2236.

430. Lessig, *supra* note 428, at 1065.

431. *Id.*

432. *Id.*

433. *Id.* at 1072.

434. See *id.*

IV. CONCLUSION

This historical overview suggests that, in many respects, everything old is new again. There are numerous parallels between the contemporary era and the world of one hundred years ago. The current era is characterized by extensive property rights and economic concentration in leading industrial sectors.⁴³⁵ To be a member of the WTO, follower countries must abide by TRIPS strictures that sharply reduce their policy-making autonomy.⁴³⁶ This is evocative of the late nineteenth and early twentieth centuries in which countries began to accept some uniformity in intellectual property policy.⁴³⁷ Just like nineteenth century nations, modern countries have been increasingly unable to resist pressure to offer higher levels of intellectual property protection. Under intense bilateral economic pressure, developing countries have been forced to adopt policies that reflect an unproven linkage between intellectual property protection and incentives to invest.⁴³⁸ Desperate for foreign investment, many countries have signed onto foreign investment agreements that require them to offer much higher standards of protection than are incorporated in TRIPS.⁴³⁹

At the same time, new groups have mobilized to protest this broad expansion of property rights, just as groups did in the past. This movement has been most pronounced in connection with access to HIV/AIDS drugs in sub-Saharan Africa.⁴⁴⁰ The HIV/AIDS pandemic thrusts the trade-offs inherent in intellectual property rights into sharp focus.⁴⁴¹ At what point do rights-based incentives to invest in developing life-saving pharmaceutical products defeat the very purpose of saving lives? This question animates one of the most vigorous areas of contestation in contemporary thinking about property rights.

435. DRAHOS & BRAITHWAITE, *supra* note 181, at 2–3.

436. *Id.* at 10–11.

437. WORLD INTELLECTUAL PROP. ORG., *supra* note 197, at 49–50.

438. See Peter Drahos, *BITS and BIPS: Bilateralism in Intellectual Property*, 4 J. WORLD INTELL. PROP. L. 791, 791–93 (2001).

439. See *id.* at 793.

440. See *id.* at 801.

441. See *id.* (describing doubts of Congressmen about ability of sub-Saharan African States to meet both intellectual property standards and provide healthcare).

While the overall pattern of settlement and contestation is fairly consistent throughout history, it is also clear that in recent years the baseline for property rights has moved quite far in the direction of private reward over public access. Rights which used to be thought of as privileges and exceptions have superseded obligations. The balance must be restored and history teaches us that it might. Characterizing this imbalance as a “one-way ratchet,” Professor Rochelle Cooper Dreyfuss has proposed incorporating a Bill of Rights for users into TRIPS.⁴⁴² This approach could revisit the possibility of reinstating some of the important instruments that nearly all countries used in the past, such as working requirements, compulsory licensing, and differential treatment for foreigners.

Ultimately, a legitimate international intellectual property rights regime must recognize the variegated constellation of interests and abilities within and between countries. A one-size-fits-all approach makes no sense in light of the historical record of economic development. If nations are to craft policies appropriate to their levels of economic development and comparative advantages in innovation and imitation, they must reclaim their autonomy. The fundamental mismatch between TRIPS as a blanket form of global governance and the diverse patchwork it purports to replace will inevitably create friction. As Professor Christopher May states:

Either the global governance of IPRs [intellectual property regimes] needs to more resemble the previous national regimes of governance, or states’ governments need to reassert their sovereignty over certain aspects of the governance of IPRs It may be the case that, when the issues become so politically charged, the notion of an emergent global polity collapses under the weight, returning the political response to the national level, where many governments feel the need to respond to a domestic polity whose interests are likely to be somewhat different from the global class of knowledge “owners.”⁴⁴³

442. Rochelle Cooper Dreyfuss, *TRIPS-Round II: Should Users Strike Back?*, 71 U. CHI. L. REV. 21, 22–30 (2004).

443. Christopher May, *Cosmopolitan Legalism Meets ‘Thin Community’: Problems in the Global Governance of Intellectual Property*, GOV’T & OPPOSITION LTD. 393, 422 (2004).

This historical survey of intellectual property rights shows that they have evolved as a result of shifting conceptions of property rights, technological change, and institutionalization of legal settlements. The mobilization of private actors has played an important role in shaping this evolution. Property owners have not always prevailed, however, as rights of ownership are dynamic, contested, and socially constructed. Realist theories, which explain ownership rights solely in reference to power, cannot capture the complex interplay of ideas, institutions, and material capabilities.

Further, functional accounts of “economic necessity” neglect the extent to which “necessity” is a highly contested social construction. Each new round of contestation and settlement produces new winners and losers. History has shown that depending on how well mobilized and badly threatened the losers are, they can rise up to challenge the settlement. Sometimes they prevail, which helps to redress egregious imbalances. Thus, history provides some hope for a more balanced future for intellectual property rights.

