

Intellectual property and industrialization: legalizing hope in economic growth

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Abstract This article draws on theoretical resources from economic sociology and sociology of law to intervene in economic debates about the relationship between intellectual property and industrialization. Utilizing historical evidence from the earliest period of American intellectual property law and from a formative company in the New England textile industry, I propose a social process of influence that connects intellectual property law to industrialization. I argue that, consistent with the findings of New Economic Sociology, social relationship structures and social capital are the proximate influential force in industrialization. However, I also argue that transformative changes in those social relationship structures are rooted in the emergence of a particular type of political culture: what I call here, borrowing from Hannah Arendt and Frank Dobbin, a “Natal-Industrial Culture.” A Natal-Industrial Culture, as I propose it here, is a political culture in which collective hopes for the future are placed in new technologies and new cultural products, as means for achieving economic growth. Intellectual property law contributed to the emergence of this new type of political culture by holding out the promise of property, as a reward for the provision of new technologies or new cultural products. Because of the way that hope works on motivation—through cognitive pre-rehearsals of future attainment, which involve semantically-meaningful propositions and contribute to positive emotional experience—the promise of property provided a powerful stimulant to social capital formation. Working through the semantic resonances of property, intellectual property law contributed to a political culture in which invention and creativity were expected to secure a future of growth within the political community, both for particular members and for the political community, as a whole. By fostering a Natal-Industrial Culture, intellectual property law contributed to systematic invention and social capital-formation, leading, in turn, to the transformative changes in working and material provisioning that constitute industrialization.

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Does intellectual property—a legal creature of the modern nation-state, which holds out the promise of proprietary protection for certain kinds of innovative, creative enterprise—contribute to industrialization? If so, how? Economists have said yes, but important questions remain about the social processes involved (see Mokyr 2009a; North 1981).

The argument of this article is that intellectual property’s effect on industrialization is mediated by political culture and social relationships. By contributing to a specific type of political culture—what I call here a “Natal-Industrial Culture”—intellectual property law contributes to a range of socio-economic behaviors that are necessary to industrialization, including: (1) systematic invention, and (2) the creation and maintenance of social relationships for resource-pooling and shared innovative endeavor. These social relationships, in turn, generate feedback-loops, especially from social capital, thereby generating further inventive activity, resource-pooling, and shared innovative endeavor. In this way, intellectual property contributes to long-term investment in innovative technologies and business plans, despite risks, fierce competition, and objectively high probabilities of failure.

The crucial, micro-foundational means of influence that I focus on in this article is hope. Building on the work of economic historian Mokyr (2009a), I argue that intellectual property law has social effects in industrialization because it contributes to hope. Differing from Mokyr, however, and building on Swedberg’s (2007) grounding for a sociological theory of hope, I argue that hope is not irrational emotion. Hope, instead, rests on cognitive exercises of “pre-rehearsal,” in which scenarios of future attainment are played out discursively, thereby generating emotional and behavioral responses—what Augustine, following the Stoics, referred to as “motivating impressions” (*suggestiones*)—in social actors (Byers 2013, pp. 30–37, 153–161). These cognitive exercises—pre-rehearsals—may be carried out collectively by multiple social actors. Such collective pre-rehearsals are obvious candidates for social capital formation because of their jointly affective, cognitive, and social character.

I hypothesize that intellectual property law affects cognitive exercises of pre-rehearsal by supplying two crucial ingredients: (1) a semantic content, and (2) a political warrant. Intellectual property law holds out discursive promises that innovative technologies and cultural products will be rewarded by the political community with a temporary grant of property-based protection and exclusivity. These promises are articulated by officers and agents of the political community and in this way their semantic content becomes part of the broader political culture. In the case of a Natal-Industrial Culture—a particular type of political culture, as I am conceiving it—intellectual property law is linked to a particular logic (or narrative) about the good of the political community. This is an Industrial Culture (Dobbin 1994) because the good of the political community is seen to rest on economic growth. This is a Natal-Industrial Culture, I argue here, because hopes for economic growth are placed in novelty: new technologies and original cultural products. Hope in newness rests at the foundation of industrialization, and intellectual property law helps to make this hope possible.

The methodology employed in this article is historical. I focus on a specific case, studying the formation of a Massachusetts company that became a model for factory-based textile production in the early nineteenth century: the Boston Manufacturing Company. The conclusions presented in this article are based on intensive study of this particular case, utilizing primary and secondary historical sources. The primary sources include legal materials, corporate records, letters, and newspaper articles. Secondary sources include biographies and business case studies.

Drawing on theoretical resources from economic sociology and sociology of law, I aim to contribute to sociological understanding of industrialization. In addition, I aim to contribute to social scientific understanding of the roles played by law and political culture in stimulating and maintaining hope.

Intellectual property and the industrial revolution: economic perspectives

Although he is by no means the first, Douglass North was perhaps the most famous economist to argue that the emergence of intellectual property contributed to the Industrial Revolution. In *Structure and Change in Economic History* (1981), North argued that the emergence of intellectual property rights constituted a world-historical change in economic history, one that contributed causally to the Industrial Revolution and to subsequent patterns of dramatically-increased economic growth (what he calls the “Second Economic Revolution”). Building on nearly four decades of meticulous historical research, Joel Mokyr recently (2009a) endorsed North’s conclusion, while debating North’s account of the causal mechanisms involved.

In North’s Second Economic Revolution, a change in property rights structures incentivized the increased inventiveness and innovation associated with the Industrial Revolution of the late eighteenth century (pp. 147, 158–186). However, the true Revolution, according to North, came in the mid- to late nineteenth century, with the linkage of technological innovation to increased investment in basic scientific knowledge (p. 159 ff.). This Second Economic Revolution “ushered in an era of unequalled prosperity in the Western world” (p. 179), enabling societies to overcome the Malthusian crisis traditionally posed by increasing population (pp. 159–160, 171).

The fundamental change in property rights structures enabling the Industrial Revolution and the Second Economic Revolution, according to North, was triggered by a legal change: the emergence of “intellectual property rights,” particularly patents, together with a range of closely-associated legal changes, especially in contract law (pp. 164–165). North recognizes complexity in the legal changes involved, but nevertheless marks those legal changes with The Statute of Monopolies (1624) and The Glorious Revolution (1688–89) in England (pp. 155–157, 164–167).

Narrowly speaking, the mechanism that connects intellectual property to invention and innovation in North’s account is a rational choice mechanism. In a world without well-enforced intellectual property rights, an ideal-typically rational economic actor (let us call him “*homo economicus*”) cannot afford to allocate very much time to invention. Any invention that the actor produces may be easily copied and will accordingly become a “public good” for all to benefit from. The price mechanism will not work here. Such an invention will not, therefore, contribute to putting food on his table or generate profit to the actor’s business. Facing opportunity costs for any use of precious

and limited time, *homo economicus* will allocate his time to activities more likely to generate economic returns. However, with intellectual property rights, inventions become a private good, subject to the price mechanism, and can accordingly constitute a source of wealth and profit. Knowing this, *homo economicus* will allocate more time to invention and pursue more long-term innovative projects.

What changes the economic calculus for *homo economicus* is fundamentally a constitutional change in the legal, political, and moral institutions of his society (see North 1981, pp. 201–209; see also North and Weingast 1989). In North's account, this change is ultimately attributable to the Parliamentary Revolution of seventeenth century England (pp. 154–157). Intellectual property—patent law, in particular—emerged as part of this Parliamentary Revolution, changing the economic calculus for *homo economicus*, and thereby increasing the rate of technological change (pp. 164–165). The increased rate of technological innovation contributed to dramatic productivity gains, enabling economic growth to exceed population growth, and thereby enabling Britain to avoid the Malthusian crisis faced by its Continental competitors (pp. 143–186).

The argument that intellectual property rights incentivize socially desirable rates of innovation, thereby enabling higher rates of economic growth than would otherwise be seen, actually has a long history of debate among economists (see Machlup 1958; Machlup and Penrose 1950; see also Lang 2010). Mokyr (2009a) has returned to the debate in recent years, accepting the argument that intellectual property contributed to the increased rate of economic growth associated with the Industrial Revolution, but debating North's account of the mechanism involved. According to Mokyr, the mechanism involved is one of emotion and hope, rather than the rational choices of *homo economicus*.

Drawing on extensive historical research into the origins of the British Industrial Revolution (Mokyr 2009b), as well as evidence from widely-acclaimed economic work (Moser 2005), Mokyr accepts the argument that the actual working of the patent system in England during the eighteenth century could not have provided a rational basis for changed behavior on the part of *homo economicus* (2009a, at pp. 350–352). However, Mokyr responds, what mattered was not how the patent system *actually* operated, but rather how it was *perceived* to operate (p. 352). “Hope for a successful patent,” elicited by a few highly-publicized cases of wealthy patentees, may have been the crucial factor influencing willingness to invest in an innovative project, irrespective of the objective probabilities that a person would be successful in obtaining a patent (pp. 352–353). We are dealing, in other words, not with *homo economicus*, but with his or her far less rational cousin, the one who buys lottery tickets. “As long as, on average, people were willing to be fooled, a few vastly successful patents would keep hope alive” (p. 353).

Joel Mokyr and Douglass North both argue that the institution of intellectual property mattered in stimulating the British Industrial Revolution, and ushering in the era of “modern economic growth.” They disagree, however, about the social processes involved. For North, the constitutional changes associated with the emergence of intellectual property contributed to a change in the rational choices of *homo economicus*, causing an increased rate of inventive and innovative activity. For Mokyr, a few highly-publicized cases of wildly successful patentees were sufficient to stimulate objectively-illusory hopes, thereby leading to an increased rate of inventive and innovative activity.

Constitutional changes and rational choices, or deluded emotion? In the remainder of this article, I endeavor to show how a sociological perspective can mediate this debate, adding nuance to our understanding of the role that intellectual property has played in industrialization.

Sociological accounts of intellectual property and industrialization

Sociologists have not yet focused much attention on intellectual property and have generally shown more interest in capitalism than industrialization. However, as I argue in this section, perspectives from economic sociology and sociology of law can contribute significantly to social scientific understanding of the relationship between intellectual property and industrialization.

Intellectual property & market economies: sociological resources

“Intellectual property” is a legal category that at present includes patents, copyrights, trademarks, trade secrets, and other, similar forms of knowledge-based, intangible property (see, e.g., Merges et al. 2012). This is a relatively new type of legal property, and one that is ever more frequently a topic of conversation in economy and society (see Greenspan 2004). Politicians, economists, and thought leaders regularly declare as collectively-accepted fact that ours is the era of the “knowledge-based economy,” and sociologists, for example, have used patent data to examine the characteristics of this new economy (see Powell and Snellman 2004; Powell and Owen-Smith 1998; Merton 1935; cf. Bell 1999).

In its modern form, intellectual property protects innovative, creative, and distinctive ideational “assets” that are, in some way, embodied in physical matter and human activity. Patents, for example, protect novel inventions that are embodied in machines, electrical switching algorithms (i.e., software), or a delineated process of human activity (i.e., a business method). Copyrights, similarly, protect creative ideas that are given some kind of tangible form, such as a handwritten text, a painted canvas, or an electronic file encoded on a silicon chip. Trademarks protect the “branded” mental associations that consumers make between distinctive, embodied symbols (e.g., slogans and pictures) and a particular seller of products or services (e.g., Starbucks). Trade secrecy protects the embodied “know-how” of a business, which the business-owner has endeavored to keep secret.

To date, there has been no sociological attempt to address comprehensively the phenomenon of intellectual property and the need for a “sociology of intellectual property” has been noted (see Felin 2012; Carruthers and Ariovich 2004; Swedberg 2003). Sociologists have certainly touched upon the institution of intellectual property, however. Chorev (2012) has recently examined the case of patent protection for AIDS medications and utilized this as a case study to refine sociological understanding of the social process that Halliday and Carruthers (2009, 2007) have labeled “recursivity”: the cyclical process by which the “law in books” is continually transformed as a result of tensions and agentive activities occurring with the “law in action.” Mark Suchman also (2003, 1989) has repeatedly touched upon institutions relating to intellectual property in the body of his work.

Sociological approaches to intellectual property have primarily focused on the ways that intellectual property-related norms are sustained or contested. Kapczynski (2008), for example, has explored “Access to Knowledge (A2K)” social movements—social movements that are opposed to particular intellectual property norms—contributing thereby to an understanding of “frame mobilization”: the ways in which social actors draw on interpretive strategies in instigating and legitimating their collective action. Lang (2010) has revisited the nineteenth century debates over the legitimacy of patents, which focused on their necessity for economic growth. And Sigrid Quack has explored the ways in which transnational copyright institutions are being sustained and contested across national borders (see, e.g., Dobusch and Quack 2013).

Inquiring into the economic effects of intellectual property, this article takes a slightly different tack. In this type of inquiry, it is necessary to ask whether intellectual property can work as a kind of causal influence, and, if so, how this influence works. We want to know when and why this influence first started operating (see Ford 2015; cf. Suchman 1989). And we want to examine empirically the social processes (cf. Hedström and Swedberg 1998) that are hypothesized as linking intellectual property to industrialization and economic growth (see also Lang 2010).

For this type of inquiry, economic sociology points a way forward. Economic sociologists have shown that dynamics of trust, information-sharing, and control within and between social-relational “networks” are crucial to the functioning of modern market economies. The fundamental intuition is that the economy, in all its myriad aspects—from credit markets and money, to patterns of production and consumption—is “embedded” in social relationships (see Granovetter 1985). These social relationships are therefore the foundation of economic patterns and the source of social processes operating to produce economic outcomes.

Economic sociologists often differentiate social relationships based on the degree of mutual knowledge and loyalty that characterizes a relationship,¹ attributes that are typically identified through frequency and length of interpersonal contact. Impersonal (or “arms-length”) relationships involve very little mutual knowledge or loyalty and are characterized by brief or infrequent interaction (see Uzzi 1999, 1996; Burt 1992). Personal (or “embedded”) relationships, on the other hand, involve high levels of mutual knowledge and loyalty and are characterized by long-term or frequent interaction (see Uzzi 1999, 1996). Personal relationships involve “bonding ties,” while impersonal relationships may form the basis for “bridging ties,” connecting otherwise distant social groups (see Putnam 2000; Burt 1992).

Personal (embedded) social relationships and bonding ties have been shown to be an especially important determinant in the willingness to share private or unformulated financial and ideational resources and to cooperate in long-term, complex endeavors (see Uzzi 1999; 1996). Impersonal relationships and bridging ties, on the other hand, have been shown to be especially important in gaining broader access to public information and in transferring semi-public ideational resources from one social group to another (see Burt 2004, 1992; Uzzi 1999). Ronald Burt’s concept of “structural

¹ The term “reciprocity” is used more often than loyalty. However, researchers are typically interested in an actor’s *subjective expectation* of reciprocity, i.e., in her motivation for action. In this case, her belief in the loyalty of another person seems to be the more fundamental attitude, rather than her belief in the other’s reciprocity. We want our relationships to be fair, but even if they are not always strictly fair, we are likely to trust them when we believe the other person is loyal.

holes” (2004, 1992) especially emphasizes the value-enhancing role that bridging ties (or “brokerage”) can play both for the brokers themselves and for the social-relational clusters they connect.

The term “social capital” has been coined to express the idea that social relationship structures can generate significant economic benefits, as well as costs, to the people who comprise them (see Burt 2005, 2004; Lin 2002; Putnam 2000; Portes 1998; Coleman 1988a, b; Bourdieu 1985). An understanding of social capital-related processes has proven to be especially valuable in accounting for innovation and entrepreneurship. For example, Burt (2004) has argued that brokerage is an important form of social capital because it enables the formulation of new ideas that will be taken seriously and rewarded. Brokers have a “vision advantage,” according to Burt, because they are able to bridge the homogenous worldviews that develop within groups, and to combine elements from those worldviews in innovative ways. Social capital has also been shown to be important to entrepreneurship in enabling access to credit, and in facilitating organizational survival (see Portes 1998; Uzzi 1996).²

Even among economic sociologists who place less emphasis on the language of social capital and the tools of network analysis, mechanisms of social-relational bonding play a central explanatory role. Carruthers (1996), for example, emphasizes the extent to which the extension of credit involves a social-relational bond, and draws on this fundamental insight to explain the English Financial Revolution. Fligstein (2001, 1990) emphasizes the ways in which social-relational bonds facilitate control and draws on this insight to explain the behavior of corporate producers in markets.

These accounts may all be seen to cohere, therefore, in treating the dynamics of social relationships as the proximate causes of economic outcomes. However, critics have trenchantly argued that such accounts often lack the capacity to explain how and why the underlying social relationships are formed and maintained. What is often lacking, according to the critics, is an explanation of the role that is played by institutions and culture in facilitating certain types of social relationships, and in inhibiting others (see Krippner and Alvarez 2007; Krippner et al. 2004).

Economic sociologists who focus on the underlying cultural and institutional foundations for social relationships agree in emphasizing the role of political culture, law, and the state (see Beckert 2013a, 2009; Streeck 2012; Krippner 2011; Swedberg 2009; Carruthers 1996; Dobbin 1994). From these perspectives, cultural and institutional foundations are crucial to relationship-formation and maintenance, because they contribute to the formation of stable expectations and beliefs on the part of individual actors. In Weberian terms, social relationships are possible because individual actors are orienting their behavior to meanings, which may be derived from “legitimate orders” (Weber 1978). Political culture and institutions provide the orienting frameworks that enable social relationships to exist and therefore they constitute an important foundation for the social-relational dynamics that contribute to economic outcomes.

In this article, I focus on the role of law in triggering and channeling the influential forces of political culture and social relationships, building on a line of socio-legal

² Three factors can be analytically distinguished in considering how social relationship structures generate these economic benefits or costs: (1) the attributes of the overall relationship structure, (2) the position an individual or firm occupies within the structure, and (3) the quality of the ties comprising the structure (see Uzzi 1996, p. 675).

studies that treats law as a cultural force, a force that operates at the level of meanings, worldviews, and culturally-informed practices (see Gephart 2015; Ford 2014, 2011; Halliday and Carruthers 2009, 2007; Swedberg 2006; Geertz 1973a, b; Weber 1967; Durkheim 1957). Following Halliday and Carruthers (2009, 2007; see also Liu and Halliday 2009), I think that the dynamics of law can be usefully theorized in terms of “recursivity.” However, to broaden the concept’s historical applicability, I propose that we view the dynamic as a dialectic between law as *structuring* and law as *agency-enabling* (see Sewell 2005, 1992). From the structuring side, law is a meaningful system of social control, which aims to discipline and direct social activity. From the agency-enabling side, on the other hand, law creates opportunities for creative activity on the part of individuals and social groups. The concept of “recursivity” becomes most useful in thinking about how the agency-enabling side of law generates a feedback loop, triggering new efforts to discipline and direct social activity, and thereby adding new dimensions of meaning to the legal system of social control.

In both its structuring and its agency-enabling manifestations, law contributes to the formation, maintenance, and disintegration of social relationships. However, because it works as a cultural force, law’s effects are mediated through political culture, i.e., through the meaningful categories, concepts, and discursive practices that are taught within a political community. Thus, in examining how intellectual property may contribute to social relationship structures that facilitate industrialization, we must first consider how intellectual property law contributes to political culture.

Political culture & industrial society

Sociologists have generally focused much more explicit attention on capitalism than on industrialization. Important exceptions have been Bell (1999); Aron (1968). Within the framework of the “new economic sociology” inspired by Mark Granovetter’s work, however, the most prominent scholar of early industrialization is Frank Dobbin.

In *Forging Industrial Policy* (1994), Dobbin offers a fruitful understanding of US “industrial culture”—as experientially-developed logics and practices aimed at achieving economic growth—and he links this industrial culture to the broader political culture within the US nation-state, comparatively contrasting that culture with other industrialized, national economies, whose logics and practices were developed under different political conditions. Dobbin argues that US industrial culture is unique in emphasizing regulatory protection of market mechanisms as a primary means for effecting economic growth. In Dobbin’s view, this market-protective emphasis in US industrial culture fundamentally reflects American political experience from the eighteenth and nineteenth centuries: the experience of perceived “tyranny” on the part of Britain, followed by the experience of a fragmented and weak central state. It was in the nineteenth century context of this political experience that defining institutional paradigms for American industrial policy originated, according to Dobbin, paradigms that continue to inform economic policy today (see also Dobbin 2009).

The “Industrial Revolution” was famously delineated as a social and economic phenomenon by Arnold Toynbee. Lecturing in 1880–81, Toynbee identified the Industrial Revolution with the hundred-year period stretching from 1760 to 1860. During this century, “the mediaeval regulations which had previously controlled the production and distribution of wealth” were replaced by competition, and herein lay the

“essence” of the Industrial Revolution, according to Toynbee (1956, p. 58). Toynbee, it should be noticed, defined the Industrial Revolution as a holistic revolution occurring on a “macro” scale: a transformational change in law, politics, economy, and society (compare Polanyi 2001).

Contemporary definitions of the Industrial Revolution identify its essence with changes in the organization of production and in methods of work (see Stearns 2013; see also Hobsbawm 1999; Bell 1999; Crafts 1985; Thompson 1966). To focus on changes in the organization of production and methods of work is to focus on changing patterns of social and economic behavior and ultimately to define the Industrial Revolution at the “micro” level of individual behavior. The virtue of a micro, behavioral definition rests in the way it facilitates empirical investigation. Defined at the micro level, the Industrial Revolution becomes something that we can see in changing patterns of everyday, social life: the extent to which our ways of working and providing for our material needs are fundamentally different today, as compared to what they would have been in seventeenth century England, for example.

Changes in the organization of production and methods of work, however, are inextricably tied to broader social, economic, political, and legal changes. Thus, even a micro definition of the Industrial Revolution is embedded in a macro account of holistic social, economic, political, and legal change. Indeed, contemporary historians of the Industrial Revolution view it as an ongoing, global transformation that is occurring at all levels of society, micro to macro, economic to political (see Stearns 2013). Rather than viewing this transformational change as something that happens once—a view that is implied by referring to the change as a Revolution—it is rather viewed as an ongoing process: “industrialization.”

Industrialization, from this contemporary perspective, is a transformational process that is occurring around the world. According to the current consensus (see Stearns 2013), this transformational process began in a “first wave,” which hit Western Europe and North America in the 1770s. A “second wave” occurred about a century later, during the 1880s, in Russia, Japan, Canada, and Australia. A “third wave” began in the 1960s from the Pacific Rim, spreading to Turkey, India, and South America. Today, no society is unaffected by industrialization.

If industrialization is an ongoing, global phenomenon, which was global from its first beginnings, the question still remains: what started the process? Are North and Mokyr correct in arguing that the emergence of intellectual property is part of the explanation? If so, which causal mechanisms are involved: the rational choices of *homo economicus* or irrational hopefulness on the part of his lottery-playing cousin?

Intellectual property law, natal-industrial culture, & social capital: a proposal

My proposal is that intellectual property law contributes to industrialization by contributing to a specific type of “Industrial Culture” (Dobbin 1994): a “Natal-Industrial Culture.” A Natal-Industrial Culture, as I am conceiving it, is a political culture in which novelty—new technologies and product lines, and original artistry—is seen as the key to economic growth, and economic growth is seen as the key to a healthy political community. Hopes for the future of the political community are pinned on economic growth, in a Natal-Industrial Culture, and innovation (newness) is seen as the key contributor to economic growth.

Following Geertz (1973a, b), a Natal-Industrial Culture can be theorized as a system of meanings that links particular understandings about the nature of reality (a “worldview”) with characteristic dispositions toward moral judgments (an “ethos”). In order to be systematized—organized into a coherent whole—such meaningful frameworks require ordering principles, which contribute to the linking of concepts and ranking of moral values. In the case of a Natal-Industrial Culture, as I am conceiving it, a fundamental ordering principle rests in a particular means-end logic that links novelty to economic growth. According to this logic, self-organizing action by individuals or private groups is privileged over state-centralized organization, as the means for achieving economic growth, because this is seen as a more powerful generator of novelty and originality (cf. Dobbin 1994).

Such a cultural system does not spring into place in one moment, of course. Typically it is the product of recursive processes involving cultural traditions that are handed down from one generation to another and reinterpreted in changing social contexts (see Halliday and Carruthers 2009, 207; MacIntyre 2007, 1999, 1988; Bellah 2006). Such traditions and their recursive interpretation—especially their synthesis and integration—must be taught to new generations, and the teachings (doctrines) must be reinforced through repeated cycles of recursivity, as well as experiential validation.

In the case of a Natal-Industrial Culture, what I am contending is that legal traditions—legal doctrines and practices, handed down through recursive cycles—provided a contributing source, both for semantic (meaningful) content and for synthesis and reinforcement of the cultural system. In particular, doctrines about a new type of legal property, which would be given by the political community to protect new creations and inventions, contributed to meaningful propositions linking novel technologies and cultural products to new possibilities for future economic attainment, both for particular individuals and their families and for the political community as a whole. In this way, legal doctrines about intellectual property—a new type of property, which drew nonetheless on very old legal traditions about what property is and how it works—contributed to a new type of political logic, which linked a promise of property to future possibilities of economic development, both for the political community and for its members.

There is perhaps no modern social theorist who has thought more deeply about the significance of novelty—the meaning and importance of the genuinely new—than Hannah Arendt (see Baehr 2002). For Arendt (1998), genuine novelty can only come because new human persons are brought into a space of political action, a space in which free and differently-equal human persons appear to one another and engage in dialog with one another. The potential for novelty in this sphere of action exists because of the natural process of birth, which brings new and unique human persons into the world. Arendt’s concept of *natality* accordingly links natural processes of new human birth with possibilities for genuine novelty in social action between free and plural human persons.³

³ Hannah Arendt was notoriously skeptical of sociology and the social sciences (see Walsh 2015; Baehr 2010, 2005, 2002). In her view, the rise of the social sciences is tied to a historical development toward modernity that elevated “society,” and correspondingly devalued “politics,” in dangerous and morally-objectionable ways (Arendt 1998). She was deeply disturbed by tendencies toward social engineering in sociology and the social sciences, which were characteristic of a type of social action in which society is something that we make and manipulate. Nevertheless, her vision is centrally focused on the life of human beings in interaction with one another, and she was certainly a social theorist. She was, moreover, a deeply original social theorist who reflected on a number of themes centrally relevant to this article: law, political community, culture, meaning, economic growth, technology, property, and hope.

Nativity is linked to hope, for Arendt, because it enables us to overcome inevitability and determinism (Arendt 1998, pp. 8–9, 246–247). In the realm of social action natality is seen especially in the power to forgive, and in forgiving to transcend inevitable and never-ending cycles. The power to effect new beginnings, as seen in the “miracle-working faculty” of forgiveness, is a source of hope because it opens up a space of possibility for human thoughtfulness, a space in which death and annihilation are not inevitable. The experience of new beginnings, when new human persons are brought into the world and when genuine forgiveness opens up new possibilities in human interaction, is, for Arendt, the ultimate basis for hope. In conjunction with the labor of our bodies and the tool-making work of our hands, natality provides the ontological foundation for a world that we share and preserve through social action.

Another important linkage between natality and hope in Arendt’s thought, however, may be found in the power of promises. Promises bind us to one another, and in so doing they give stability to our action, and to our expectations about the future (Arendt 1998, pp. 237, 243–247). Through our promises to one another, we create “islands of security” in the chaotic ocean of the future, and it is these islands of security that enable continuity and durability in our social relationships. Natality, in other words, cannot simply be a flux of ongoing novelty; it needs stability and rootedness in order to constitute a basis for hope, and it is ultimately our making and keeping of promises that provides this stability and rootedness (cf. Weil 1952).

Arendt’s linkages among natality, hope, and action, and especially her emphasis on beginnings, were deeply influenced by Augustine (see Arendt 1998, pp. 177–178; Arendt 1978). Augustine, in Arendt’s view, was “the first Christian philosopher,” and, perhaps, the only Roman philosopher (Arendt 1978, p. 84). Working from Augustinian foundations, Arendt viewed hope and fear as the two modalities in which, through our capacity of willing, we relate to the future, building projects that launch us into the future (e.g., 1978, at pp. 34–39). Hope, from this Arendtian perspective, is connected with the deepest levels of motivation in human social life, especially the motivation to begin new projects that involve collective investment in the future.

Hannah Arendt saw Augustine as the “first philosopher of the will,” but recent Augustinian scholarship has argued that this is not the case (see Byers 2013, 2006). Augustine built heavily on Stoic theories of perception and motivation, which he then synthesized in novel and sophisticated ways with Platonic and Biblical conceptions in formulating his theory of will (*voluntas*) (see also Sorabji 2000; cf. Wolterstorff 2012; Nussbaum 2001). The Stoic theory of “hormetic impressions”—sensory perceptions that appear to us mentally in the form of semantically meaningful propositions, to which we either assent or demur, thereby triggering self-directed imperatival responses that move us toward action—provided the precursor and foundation for Augustine’s theory of will and motivation, according to Byers (2013, 2006). Augustine was not the first philosopher of the will, but rather built on an already existing theory, the Stoic theory of *hormê*.

What recent scholarship has also shown, however, is that Augustine’s fullest development of a theory of motivation did not come in his most famous, philosophical works, but rather in his rhetorical treatises, sermons, and letters, i.e., in social contexts in which he was engaging in moral exhortation and seeking to change the orientation of the persons with whom he was communicating (see Byers 2013). Quite significantly for sociological theories of hope, it turns out that Augustine theorized motivation and

hope in social contexts, and understood that social relationships are vitally important to hope (see also Brown 2000).

As Richard Swedberg (2007) has noted, sociological theorizing of hope has been quite limited (see also Chignell and Newlands 2016). Swedberg (2007) has laid a foundation for sociological theorizing, however, by surveying the terrain and proposing a definition of hope as “the wish for something to come true.” From this perspective, hope may be seen as an “imagined future” (Beckert 2013b), a desired future, one that motivates action. In Swedberg’s foundational synthesis, hope is dependent upon (1) socially-available items that may be wished-for, and (2) social institutions that facilitate a hope-positive environment (see Swedberg 2007, pp. 20–25).

Swedberg’s emphasis on the role of wishing in hope is echoed both in recent Kantian scholarship (Chignell 2013), and in the Late Roman Stoic tradition that Augustine built upon (see Byers 2013). The Latin verb for wishing is *optare*, and the optative was an archaic mood-form in Latin construction, akin to the subjunctive, which peculiarly expressed longing and wishing (see Byers 2013, at pp. 9–11, 22, 34). The Stoic theory of perception emphasized the optative (or wishing) character of the meaningful semantic propositions (“sayables,” *lekta*, *sententia*) accompanying certain sensory impressions, and these were important in their theory of motivation. However, the Stoics also thought that we are capable of distinguishing between impossible and possible wishes. Only in cases where the wished-for object is actually possible for us is a “hormetic impression” produced, assent to which will produce a full-fledged motivation (Byers 2013, p. 34). It is notable that precisely this distinction between impossible and possible wishes has been emphasized in Chignell’s (2013) development of Kantian, “rational hope.”⁴

From a sociological perspective, Augustine’s Stoically-founded theory of hope is especially promising because it accounts for social relationships and communities in both fostering and being developed by hope. Hope, for Augustine, is not primarily an emotion, although it is closely-associated with the emotion of joy (see Byers 2013, at pp. 155–161). Hope consists instead in cognitive exercises, in which scenarios of future attainment (of a good) are imagined and rehearsed. As these scenarios are rehearsed, they produce preliminary joy, and so they are associated with positive emotion. However, it is the way in which these “pre-rehearsals” (*praemeditationes*) produce assent to motivating impressions that makes them so important for motivation and action.

With Augustine, of course, we are a very long way from a theory that would emphasize the role of property in hope-building and social relationship-formation. Augustine viewed hopes for joy placed in material wealth as signs of moral sickness, and he would have thought they needed correction, not encouragement. However, his

⁴ Pairing Kant and Augustine in a sociological theory of hope might seem to be a rather ill-fated proposition. Kant, after all, famously excluded emotions and affectivity from moral motivation, whereas Augustine placed love, joy, grief, and fear at the very heart of his ethical theories. Without denying the obvious differences between Kantian and Augustinian theories, it is nevertheless true that both theorists emphasized the role of judgment in moral motivation. And it is precisely in the area of moral judgment that contemporary social psychologists and moral philosophers are pointing to the inseparability of reason and emotion (see Nussbaum 2013, 2001). When it comes to processes of moral judgment, social psychologists tell us that “emotion and cognition are best viewed as a set of processes ... so deeply intertwined that [they] cannot be captured within a simple dichotomy” (Helion and Pizarro 2015).

theory of hope was morally-neutral, in the sense that it allowed for hopes to be placed in morally-bad as well as morally-good objects (see Byers 2013, p. 157). In both cases, hopes are importantly connected to motivation, but in the former case they will lead us in directions that will ultimately be harmful, in Augustine's view.

Recognizing that we are parting ways with Augustine, we can nevertheless see how a promise of property, on the part of the political community, might encourage hopes. As Hannah Arendt emphasized very strongly, the concept of property is traditionally bound up with concepts of political membership, as well as economic exclusivity and control (Arendt 1998, pp. 58–73). In eighteenth and early nineteenth century America, particularly, a promise of property meant a promise of participation in the political community as an economically-empowered citizen and member (see Wood 2009, pp. 8–9). A recognition of property ownership was a recognition of the owner as wielder of dispositional power and control and as a free and equal participant in the political community (see also Ford 2016, pp. 285–287).

To summarize this theoretical framework, then, we can say that hope is (1) a discursive practice involving pre-rehearsals of the attainment of a future good, which cultivates (2) positive emotion (preliminary joy) and (3) motivational impulse toward the future good. In essence, hope combines discursive thought, emotion, and motivation. As a discursive practice, hope is a skill that must be taught, and it is one that can be conducted collectively. This means that hope is intrinsically social, and it accordingly lends itself to the building of social bonds and social capital. Because hope is discursive, moreover, it requires semantic, propositional content, which must be supplied by the social environment. This semantic, propositional content will include beliefs about the possibility of a future good. In the case of intellectual property, the future good that is promised is simultaneously a good for the political community and for its members: it is a grant of property in a new technology or cultural product, which will provide economic security and a foundation for growth, both for its provider and for the community.

In looking for empirical evidence of hope, what this Augustinian perspective means is that we will *not* look primarily for emotion. Instead, we will look for evidence of discursive pre-rehearsals and especially for instances in which discursive pre-rehearsals were socially conducted. Semantically, we will look for evidence that law was encouraging hopes for the possibility of a future good, specifically a logic that links new inventions and new cultural products to a future of participation in economic growth.

To reiterate, the proposal is that intellectual property law contributed to the formation of a new type of political culture, a Natal-Industrial Culture, in which hopes for the future were placed on new technologies and new cultural products. In the empirical account that follows, we will look for collective pre-rehearsals involving scenarios of new invention, artistry, and future good. We will also want to see evidence that these collective pre-rehearsals are contributing to social capital and to new methods of working involved in industrialization. And, finally, we will want to see intellectual property laws being formulated with the goal of encouraging hope in new inventors and artists. If we see evidence of each of these, a sociological theory linking intellectual property law to industrialization through a hope-positive political culture—a Natal-Industrial Culture—will have been substantiated, although by no means proven.

Early American industrialization: the Waltham-Lowell system

By 1845, a factory-based system of production was firmly established in New England, and was spreading. The earliest and fullest development of the American-style factory system had occurred in the Massachusetts textile industry, led by the Boston Manufacturing Company (Waltham) and the Lowell manufacturing companies. The “Waltham-Lowell System” pioneered by these companies became a model for American factory production that was widely followed, and adapted to other regions and industries (see Howe 2007, pp. 132–136; Perrow 2005; Appleby 2000, pp. 76–77; Weil 1998, pp. 1349; Nettels 1962, pp. 274–288; Clark 1916, pp. 448–455, 529–577).

In an early-twentieth century treatise, Clark (1916, p. 450) described the American-style factory system, as exemplified in the Boston Manufacturing Company, as follows:

It differed from previous establishments of equal size, either here or abroad, in performing all operations of cloth-making by power at a central plant. Labor was specialized and workers were organized by departments. Wages were paid in cash, output standardized, cost accounting introduced, and buying and selling systematized. In a word, the commercial, technical, and operative elements of a factory were brought together in accordance with an intelligent plan so coordinated as to make a more efficient producing unit than had hitherto existed in this country. Manufacturing was specialized completely and no longer retained even subordinate relations with household industry or general merchandising. *The idea of the factory, as we know it, was conceived and demonstrated so that its application at other places and to other industries was a mere matter of adjustments.* (emphasis added)

What made this American factory system distinctive, according to Clark (1916, pp. 450–451), was the degree of its concentration around machinery. All productive activities necessary to transform raw cotton into finished textiles were carried out in the factory. In this concentrated space, human labor was harnessed to machinery, enabling high-volume transformation of water power and cotton fibers into finished cotton textiles.

The wealth invested to make Waltham and Lowell was mercantile wealth, which had been earned primarily through seafaring trade before Jefferson’s Embargo (1807–1809) and the War of 1812 (see Wood 2009, p. 647 ff.). The individual whose name is most closely associated with the Waltham-Lowell System is Francis Cabot Lowell. By all accounts, Lowell was the “informing spirit,” but he was joined by a cohort of closely-associated Boston merchants, including Nathan Appleton and Patrick Tracy Jackson (see Boston Manufacturing Company, Director & Proprietor Records, 1813–1874; Appleton 1858; see also Rosenberg 2011; Howe 2007, pp. 132–136; Dalzell 1987; Gibb 1950).

Part of what made this American factory system possible was proprietary control. This proprietary control was rooted in “mill privileges,” which gave preferential access to water for powering mills, and in land-ownership. It was also rooted in patents, which enabled control over the making, use, and sale of innovative machinery. Mill privileges and landownership enabled the Waltham and Lowell companies to harness river power to run their machines and to control the physical space around their machinery. Patents,

however, enabled the companies to create a zone of exclusivity and control around their innovative machinery that extended beyond localized, physical space to newly-emerging markets for machinery and finished textiles.

In shifting from commerce to manufacturing, Lowell and his cohorts were seeking greater security for their investments (*see* Howe 2007, pp. 132–136; Dalzell 1987). Proprietary control gave them this security. Rather than suffering the vagaries of seaborne commerce, the Boston merchants could concentrate their wealth in manufacturing activity carried out within the boundaries of their own property. The concentration of productive activity around machinery characteristic of the Waltham-Lowell System was, in part, therefore, a desired effect flowing from proprietary control.

Effort to secure this proprietary control is particularly evident in the formative period of the Waltham-Lowell System. During this era the combined effect of the Napoleonic Wars and Jefferson's Embargo made the position of a New England merchant untenable. In April 1808, Francis Cabot Lowell notified his mercantile associates: "I am closing my business" (Rosenberg 2011, p. 161). He decided to make a tour of Europe with his family, and there are indications that he planned to retire afterwards (*see* Rosenberg 2011, p. 170). During the course of that tour, however, he changed his mind.

In 1811, Lowell met a fellow Boston merchant, Nathan Appleton, in Edinburgh, and confided his plans to introduce an "improved" cotton manufactory in America. As Appleton, his future partner, recalled in 1858:

We had frequent conversations on the subject of the Cotton Manufacture, and he informed me that he had determined, before his return to America, to visit Manchester, for the purpose of obtaining all possible information on the subject, with a view to the introduction of the improved manufacture in the United States. I urged him to do so, and promised him my co-operation. He returned in 1813. He and Mr. Patrick T. Jackson, came to me one day on the Boston exchange, and stated that they had determined to establish a Cotton manufactory, that they had purchased a water power in Waltham ... and that they had obtained an act of incorporation, and Mr. Jackson had agreed to give up all other business and take the management of the concern (p. 7).

Between 1811 and 1813, Francis Cabot Lowell had traveled through England and Scotland with his family, systematically observing the textile factories and machinery in operation there (*see* Rosenberg 2011, pp. 167–195; Dalzell 1987, pp. 5–25; Appleton 1858). Committing his observations to memory, and thus evading British prohibitions on the export of technological know-how, Lowell was able to reverse engineer a power loom and make it functional by 1814.

In May of 1813, Patrick Tracy Jackson's youngest sister Mary recorded the following observations of Lowell and Jackson in her diary:

Hannah [Lowell's wife] was not very bright, but Mr. Lowell was unusually so and on the whole I enjoyed the day very much. Pat was there in the afternoon to fix their famous loom. It really makes me feel depressed to see Pat so engrossed in business as he is. He is not as sanguine as he once was but seems almost to exclude all other things—even his wife and child do not draw him from it. I most sincerely hope this manufactory in which he is engaged, may prove lucrative.

They have now completed their company and are beginning to think of fixing up on a stream and commencing their establishment; and I found, much to my surprise that they really intended to live at the place—certainly Pat and perhaps Mr. Lowell. I had no idea that it was a thing that would decide their future destination (quoted in Rosenberg 2011, p. 236).

Two years later, in February 1815, Lowell and Jackson would be awarded a patent for their “famous loom.”⁵

As we can see from Mary’s diary, from 1813 onwards Lowell and Jackson were working zealously and industriously toward a patent that they viewed as being crucial to their new business project. At the same time, however, we see from Nathan Appleton’s recorded memories that Lowell and Jackson were investing in a social relationship structure for pooling their resources, and for cooperating in a long-term, shared endeavor. What we also see from Appleton’s recorded memories is evidence of collective pre-rehearsal, those “frequent conversations” and promises of cooperation involving a new business of cotton manufacturing, along the lines of what they were seeing in England.

Appleby (2000) refers to Francis Cabot Lowell’s generation as the “inheriting generation”—they were the first generation that inherited the Revolution, without having fought in it. Their period of maturity and influence stretched from the 1790s into the 1830s (see Appleby 2000, p. 3). They were, accordingly, the generation that was responsible for starting the process of industrialization in America.

Lowell had experience with patents from his days as a merchant (see Rosenberg 2011, pp. 92–96). As an importer of sugar and molasses from the West Indies, and as a seller of rum to Northern Europe, he saw an opportunity to produce rum himself. He purchased a Boston distillery in 1801 and began experimenting with distillation methods. In May 1802, he wrote to Alexander Anderson, who had patented a “steam still” in 1794 (Rosenberg 2011, pp. 93–94; Commissioner of Patents 1872, p. 9).⁶ In this letter, Lowell gave a detailed description of his unsuccessful efforts to conform to Anderson’s patented method of steam distillation and requested Anderson’s advice about how to make improvements. Lowell also wrote to his brothers Charles and John, who were in Scotland, seeking their aid in discovering the Scotch secrets of distillery. Although his brothers were not able to help him, Lowell continued experimenting, and by 1804 was able to write to Anderson that he had developed an improved method for steam distillery. According to biographer Rosenberg (2011, p. 95), Lowell was seeking a patent-sharing arrangement with Anderson. Nothing came of this, apparently, but the incident shows that Lowell was well aware of the benefits to be gained from patents,

⁵ On February 23, 1815, a US patent “in looms” was issued to “F.C. Lovell and P.T. Jackson” of Boston (Commissioner of Patents 1872, p. 150). The Directory of American Tool and Machinery Patents (www.datamp.org) identifies this patent as patent number X2,271, and identifies its issuance date as February 21, 1815, rather than February 23. In 1836, a fire destroyed US Patent Office records, so patents issued before this time have not been completely recovered. The Patent Office only began assigning unique patent numbers in 1836.

⁶ Between 1790 and 1802, at least 5 patents were issued for distillery-related inventions. The fourth US patent was issued to Aaron Putnam for an “improvement in distilling” (Jan. 29, 1791). Thereafter, patents were issued to Joseph Simpson for an improvement in “distilling spirituous liquors” (Mar. 4, 1794); Alexander Anderson for his steam still (Sept. 2, 1794); Fitch Hall for a “combin. of astring. woods and vegetables, in distilling, &c” (Apr. 17, 1797); and Benjamin Henfrey for “increasing the surface of evaporation for the purpose of distilling” (Mar. 2, 1801) (Commissioner of Patents 1872, pp. 4, 8–9, 14, 24).

including on methods imported from abroad. The incident also shows that he knew how to gain access to patent specifications.

Prior to obtaining their patent for the power loom, brothers-in-law Francis Cabot Lowell and Patrick Tracy Jackson had petitioned the Massachusetts General Court for an act of incorporation for a manufacturing company; this petition was granted on February 23, 1813 (see *Laws of the Commonwealth of Massachusetts* 1813; *Boston Manufacturing Corporation, Director & Proprietor Records*, 1813–1874). Although Massachusetts law of the time did not limit the liability of manufacturing corporation shareholders, it did enable concentration of property and decision-making within a unitary corporate structure (see *Laws of the Commonwealth of Massachusetts* 1809; *American Jurist & Law Magazine* 1829). The act of incorporation for the Boston Manufacturing Company pronounced that “Francis C. Lowell, Benjamin Gorham, Uriah Cotting, and Patrick T. Jackson, their associates, successors, and assigns, be, and hereby are made a Corporation, by the name of the Boston manufacturing Company, for the purpose of manufacturing cotton, woolen, and linen goods,” and authorized the company to raise up to \$400,000 in “capital stock” (see *Laws of the Commonwealth of Massachusetts* 1813).

In September 1813, Patrick Tracy Jackson purchased the land, buildings, and water rights to a paper mill on the Charles River at Waltham (see Rosenberg 2011, p. 240; Gibb 1950, p. 23). Just over a month later, the shareholders of the Boston Manufacturing Company held their first meeting, authorizing \$100,000 to be raised through the sale of 100 company shares (see *Boston Manufacturing Corporation, Director & Proprietor Records*, 1813–1874; Dalzell 1987, pp. 26–27). Thereafter, regular meetings of the Directors and Proprietors created ongoing opportunities for conversation and collective pre-rehearsals of future success, together with strategizing about the acquisition of additional patent rights (see *Boston Manufacturing Corporation, Director & Proprietor Records*, 1813–1874).

Over the next decade, the Boston Manufacturing Company established itself as a highly-successful cotton-cloth manufactory (see Gibb 1950, pp. 23–62). Patented inventions played a vital role in this early period of success. In addition to the power loom, a number of patents were issued to Paul Moody, the chief machinist of the Boston Manufacturing Company.⁷ Indeed, the “machine shop” at Waltham became, according to Gibb (1950, pp. 12, 23–62), “the heart of the new enterprise,” enabling the company to profit from sales of machinery and patent licenses, as well as sales of finished cloth. A mill-related patent was also acquired in this early period: a share in Jacob Perkins’s patented “machine for removing backwater” was purchased and Perkins himself was hired to install it in the Waltham Mill; Perkins’s former employee, Paul Moody, also designed a “governor” to control waterwheel speeds (see Malone 2009, pp. 15–18).⁸

⁷ Between 1816 and 1821, 9 textile machine-related patents were issued to Paul Moody. This may represent only a portion of the total machine-related patents held by the Boston Manufacturing Company, since it is possible that patents were issued to other employees in the machine shop.

⁸ Francis Cabot Lowell had hoped to hire Perkins as his chief engineer, but his inventive needs were well-supplied by Paul Moody, Perkins’s former employee. Between 1795 and 1813, at least 14 patents were issued to Jacob Perkins, including 3 patents relating to pumps and mills. A patent for a water mill was dated June 26, 1913, and is numbered 1955X in the DATAMP database (see also Commissioner of Patents 1872, pp. 124, 127).

By 1821 a basic business pattern had been established at Waltham, which would be adapted for transfer to Lowell. Every phase of productive activity was centered on machines (see Gibb 1950, pp. 29–33). Opening and picking machines were used to tear and loosen the cotton fibers and to remove dust and other unwanted matter remaining after the “ginning” process.⁹ Then “carding” machines combed out the cotton fibers into parallel strips of “sliver.” After this, “drawing” and “roving” machines rolled the slivers of cotton together, stretched them, twisted them, wound them onto bobbins, and transformed them into a soft string ready for spinning. “Spinning” was the process whereby soft cotton “rovers” were wound and twisted into a firm cotton yarn ready for weaving on the power looms. Additional machinery inventions (e.g., “dressing” machines to keep yarn moving smoothly through the power looms) helped to ensure that each phase of the weaving went smoothly and efficiently (see Gibb 1950, pp. 32–39; Marsden 1888). Printing machines would later be added to the process, transforming simple, white cotton cloth into colorful, patterned textiles (see Rivard 2002; Dalzell 1987; Gibb 1950).

The machines needed skilled operators to function properly. Moreover, laborers had to be brought to the machines, whose location was determined by capacities for water-power production, not proximity to large population centers. The response of the Boston Manufacturing Company to these two challenges resulted in a distinctive labor policy, which became the model for the much larger-scale development at Lowell: medium-term employment of young farm women, who were paid in cash and boarded on site (see Moran 2002; Gibb 1950, pp. 51–55; Clark 1916, p. 397; Robinson 1898).

To persuade Massachusetts farm families to surrender their daughters to the factories, the mill towns and boarding conditions had to be upstanding: Sundays were a mandatory day of rest and church attendance and boarding houses were strictly controlled. For the young women, the opportunity for cash wages and the relative freedom of life outside the family farm were powerful incentives.¹⁰ In addition, for women with a desire for education, the textile mills offered opportunities that would have been otherwise unavailable. *The Lowell Offering*—a literary publication edited by former factory women—and organized labor movements were only two of the products of the extraordinary New England “mill girls” (see Moran 2002; Eisler 1977; Robinson 1898).

The machines also needed skilled mechanics. Paul Moody became the chief mechanic at Waltham and Lowell, and under him a cadre of skilled machinists built and maintained the machines and contributed to further mechanical invention (see Gibb 1950, pp. 33–62; see also Rosenberg 2011, pp. 231–257; Dalzell 1987, pp. 26–73).

⁹ “Ginning” is the process whereby the husk and seeds are removed from the cotton plant; it was usually carried out at or near the plantation (see Marsden 1888, p. 74).

¹⁰ As remembered by Harriet Robinson (1898, pp. 68–69): “A woman was not supposed to be capable of spending her own or of using other people’s money.... She was a ward, an appendage, a relict. Thus it happened, that if a woman did not choose to marry, or, when left a widow, to re-marry, she had no choice but to enter one of the few employments open to her, or to become a burden on the charity of some relative. In almost every New England home could be found one or more of these women, sometimes welcome, more often unwelcome, and leading joyless, and in many instances unsatisfactory, lives. The cotton factory was a great opening to these lonely and dependent women. From a condition approaching pauperism they were at once placed above want; they could earn money, and spend it as they pleased; and could gratify their tastes and desires without restraint, and without rendering an account to anybody. At last they had found a place in the universe; they were no longer obliged to finish out their faded lives mere burdens to male relatives.”

Through these mechanics, relationships with other New England machine shops were forged, enabling the spread of mechanical know-how and invention (see Meyer 2006). From such circulating cadres of mechanically-skilled employees, the American “engineering” profession gradually developed (see Meyer 2006; Clark 1916).

An expertise in machine-building accumulated within the Waltham and Lowell Companies, which enabled those Companies to profit significantly from sales of machines and licenses of patented inventions, especially in the period 1817–1824 (see Gibb 1950, pp. 39–70). After 1824, patents were less aggressively pursued and the Lowell Machine Shop became primarily a licensee of patents and a producer of machinery.¹¹ However, it was during the early period at Waltham that the pattern for the Waltham-Lowell system was forged. And, in this early period, continuous invention and patent licensing policies were central elements of the system (see Clark 1916, pp. 515–521).¹² Formal patent licensing agreements were legal vehicles through which enduring relationships were forged between New England mills, enabling an increasing volume of machines to be produced and sold over a widening geographical area (see Gibb 1950, pp. 42–44).¹³

In short, patents rested at the heart of the Waltham-Lowell System, which became a paradigm for the early American factory system and for early American industrialization. But this is somewhat ironic, because the Waltham-Lowell System was created at a time when American patents were much weaker than they are today. After 1793 and before 1836, patents were not formally examined for novelty, as they are today. Instead, prospective patentees only had to meet certain minimal, formal requirements in order to register a valid patent. A review of patents issued prior to 1836 (see Commissioner of Patents 1872) reveals that multiple patents were issued for very similar (if not identical) inventions.

The lack of a rigorous examination prior to issuance of a patent meant that a patentee, who wished to enforce his patent against a competitor, had to litigate the patent aggressively (see Khan 1995). Only through litigation would it be possible to show that one inventor, rather than another, was truly the first to invent. Once this “priority” of invention had been shown, the competing patent would be declared invalid by the court and judicially repealed. Any production system built on patents, then, required effective litigators of those patents.

¹¹ Between 1823 and 1825, a series of agreements between the Boston Manufacturing Company and the Merrimack Manufacturing Company at Lowell resulted in the transfer of all patents rights, and of the employees of the Waltham Machine Shop, to the Merrimack Company. Subsequently, the patents and machine shop operations were transferred to another Lowell company owned by the Merrimack shareholders: the Proprietors of the Locks and Canals on the Merrimack River (see Gibb 1950, pp. 55–70).

¹² Speaking of New England machine shops generally, and of the Lowell machine shops in particular, Clark (1916, pp. 519–520) writes that “Inventors and owners of patents exercised a large control over the development of this industry.”

¹³ “The Waltham licensing agreements constitute an early example of a business technique which did much to hasten the industrial development of the country. The practice of selling manufacturing rights enabled small machine shops to get their machines produced in greater volume and over a wider area than would have been possible had they utilized only their own manufacturing facilities.... There is no evidence to show that the licensing of inventions to other manufacturers in the cotton textile industry was practiced on any significant scale before the time of the Boston Manufacturing Company. Widespread knowledge and use of Samuel Slater’s machinery in the 1790s came about as a result of actual theft of machine plans by workmen. The fact that two decades later Waltham machinery was made available to the industry largely through legitimate channels of sale and patent leasing indicates, not that Americans were becoming more scrupulous, but that patent rights and laws had now come to carry weight” (Gibb 1950, p. 44).

There is very clear evidence that the Waltham-Lowell companies understood the importance of effectively litigating their patents. An illustration of this may be seen in an early and foundational patent case bearing Francis Cabot Lowell's name: *Lowell v. Lewis*, 15 F. Cas. 1018 (Circuit Court, D. Mass. 1817). In this case, Francis Cabot Lowell sought to enforce, as assignee, Francis Perkins's water pump patent against a later patentee of a water pump. The case was ultimately decided by a jury, but the doctrines of law involved in the case were decided by Joseph Story. In his instructions to the jury, Judge Story laid down a number of doctrines—doctrines relating to the “utility” requirement for patents, and to the requisites for a legally valid patent specification—that have been of enduring significance in patent law (see also Story 1987, pp. 202–204).¹⁴

One of the attorneys for the defendant in this case was Daniel Webster. Despite their opposition in the *Lowell v. Lewis* case, however, Webster and Lowell had great mutual respect. The previous year, Webster and Lowell had worked together on the Tariff Act of 1816 (see Rosenberg 2011, pp. 264–265). Lowell had travelled to Washington, DC in support of measures for protecting fledgling American industries against foreign competition, including a tariff on cotton cloth imported from India. Webster, then a Congressman for New Hampshire, later wrote of Lowell, “I was much with him & found him full of exact practical knowledge on many subjects” (quoted in Rosenberg 2011, p. 265). After his term in Congress ended, Daniel Webster moved to Boston and became a leading attorney for prominent Bostonians, including Francis Cabot Lowell and the Boston Manufacturing Company (see Rosenberg 2011, pp. 264–265, 268–269; Curtis 1893, p. 156 et seq.).

According to data compiled by Khan (1995, p. 63), 36 patent cases were litigated in the United States from 1820 to 1829. The Boston Manufacturing Company alone accounted for 22% of this litigation. Between 1820 and 1822, the Boston Manufacturing Company initiated eight patent infringement cases (see Fisk 2009, p. 40). Daniel Webster represented Moody or the Company in six of these cases (see Rosenberg 2011, p. 269). Two of these cases vindicated patents on foundational Company technology: the double-speeder for roping cotton and the cotton spinning machine.¹⁵ Based on this evidence, it seems clear that the Boston Manufacturing Company understood the importance of litigating its patents and acted on this understanding by drawing on the extraordinary rhetorical skills of Daniel Webster.

The pattern of social activities exhibited in the “Waltham-Lowell System” represents a pattern of social activities that was made possible by virtue of patent-based proprietary control, along with social relationships growing out of this proprietary control. In its details, of course, this pattern of proprietary activity was shaped by a myriad of additional social and individual factors. However, the legal treatment of patents as

¹⁴ Regarding Joseph Story's influence on American patent law, patent historian Frank Prager (1961, p. 264) wrote: “Even if more recent judges and legislators have modified the ideas of Story, such ideas are nevertheless present in the law. Some of them have in fact proven stronger than the written word of the statute.”

¹⁵ See *Boston Manufacturing Company v. Fiske*, 2 Mason 119 (C.C.D. Mass. 1820); *Moody v. Fiske*, 2 Mason 112 (C.C.D. Mass. 1820). The *Moody v. Fiske* case involved a nominal defeat, since the patent as specified was ruled to lack novelty and thus to be void. However, the ruling permitted Moody to withdraw his patent and obtain replacements that would address the specification problems. Moody did so, and obtained a verdict against the defendants the following year (see Khan 2005, p. 94; Commissioner of Patents 1872, at pp. 218, 223–224).

property seems to have been recognized as a foundation for the corporation's business model, standing behind the corporation's formation, and contributing to a widespread transformation in the social organization of production and methods of work in New England.

As we saw with the meetings between Francis Cabot Lowell and Nathan Appleton in Edinburgh, and with a number of instances following, collective pre-rehearsals of future attainment played a significant role in moments of transition, in the formation of this factory system. Most dramatically, Lowell changed his mind about retiring, and formulated a business plan, with promises of cooperation from Appleton. Less dramatically, however, we have seen a number of instances in which hope-building collective pre-rehearsals were likely: in the periodic meetings of the Directors and Proprietors, in the conversations between Lowell and his attorney, Daniel Webster, and in the transformed daily lives of rural farm women. New possibilities for hope-building and social capital formation had come into existence in New England, and there is evidence that intellectual property law (particularly patent law) played a foundational role in enabling this to happen.

Now, however, it is time to develop and substantiate further the argument about how intellectual property law may have contributed to the formation of a Natal-Industrial Culture. Due to limitations of space, I focus here on the post-Revolutionary decade of the 1780s, the period leading up to the Constitutional Convention and ratification of the "Intellectual Property Clause" of the US Constitution (Article I, Section 8, Clause 8), which empowered Congress to grant Federal patents and copyrights.

Cultivating industrial society: the post-revolutionary decade

The allocation of power to grant patents and copyrights to the Federal Congress constituted a consolidation and transfer of that power from the States. Long prior to becoming States, however, the colonies had exercised lawgiving powers to encourage "new manufactures." In 1620, for example, the stockholders of the Virginia Company had elected to "draw" a patent to a "Mr. Somerscales," who was considered to be "very skillfull" in curing Tobacco, and who, as a result of the patent, would presumably apply his skill "in curing that Plant wherby itt may be made more profitable then itt is" (quoted in Bugbee 1967, p. 58). Less than twenty years after the enactment of the Statute of Monopolies in England, the Massachusetts Bay colony also enacted an "Act Against Monopolies" (1641), which followed the English statute in prohibiting monopolies and in carving out an exception for monopolies granted to protect "new inventions that are profitable to the country" (Charters & General Laws of Colonial Massachusetts 1814, p. 170).

Following the well-established European pattern, and drawing particularly on the English anti-monopoly and parliamentary traditions, the North American colonies granted "privileges" and "bounties" to "encourage" the development of particular industries, especially textile manufactures (see Clark 1916, pp. 31–72; Bagnall 1893). The exercise of this pre-Revolutionary lawgiving power by the colonies may have been influenced by the 1720 opinion of two eminent British jurists, expressing doubt that the king's prerogative power to grant patents extended to the colonies (see Chalmers 1814,

pp. 202–204). In any case, by the Revolutionary period, the colonies had the beginnings of a patent tradition, a hybrid of English statutory law, caselaw, and colonial legislation and practice. Existing alongside a number of other efforts to encourage industry and manufacture in the colonies, this patent tradition was legitimated on the basis of its capacity to encourage inventive and industrial activity (see Bugbee 1967, pp. 57–83; Clark 1916, pp. 31–72). A very limited tradition for protecting printer-publishers against the reprinting of literary works, based evidently on English precedents, had also been established in Massachusetts Bay and Connecticut (see Bracha 2008; Bugbee 1967, pp. 65–67).

With the exception of a singular reference to the printer as “owner” in the Massachusetts colonial law just mentioned, there is no evidence that the monopolistic privileges granted to “encourage” industry were conceived in proprietary terms. It was only after the Revolution, during the early 1780s, that a proprietary conception emerged. Constituting, until recently, part of the British Empire, the Americans were very likely influenced by the *Millar v. Taylor* (1769) and *Donaldson v. Becket* (1774) copyright decisions in England, and by Justice Blackstone’s *Commentaries*, which reached the colonies in the early 1770s (see Nolan 1994).¹⁶ Even before their Revolution had formally ended, prominent Americans were beginning to use proprietary language in referring to patents and copyrights.

British legal traditions & proprietary conceptions

Benjamin Franklin provides an interesting example of the transition to a proprietary conception of patents and copyrights. In January 1782, he wrote a letter from Passy, France (1818, pp. 100–101) to some unknown “manufacturers,” responding to their inquiry about a proposed emigration to Pennsylvania. Franklin wrote that it was not customary in the colonies to provide funding for the passage of skilled immigrants, but promised that “a special law might be easily obtained to give you a property for seven years in the useful inventions you may introduce” (p. 100). This expresses a proprietary conception in relation to “inventions” during the early period when it was first emerging in relation to literary works.

It should be remembered that Benjamin Franklin lived in London between 1765 and 1775 (see Isaacson 2004, pp. 219–289; Campbell 1999, pp. 1–36, 176–197), the period of the *Millar* and *Donaldson* decisions, when proprietary conceptions and principles were being formulated in relation to copyrights and extended to patents by analogy (see also Fessenden 1810). Franklin was, moreover, a printer by profession and a close friend and regular correspondent of William Strahan, London Stationer and royal printer. It is quite probable, then, that Franklin was aware of the *Millar* and *Donaldson* decision—which had been decisions about Stationers Company

¹⁶ Taken together, the *Millar* and *Donaldson* decisions constituted the definitive legal determination that copyrights are a statutorily-established and temporally-limited type of legal property, recognized as such by English law (see Ford 2015; Stern 2012; Deazley 2004; cf. Gómez-Arostegui 2014). In the course of the legal debates, analogies were constantly drawn between patents and copyrights, so the implications of *Millar* and *Donaldson* extended to patents, as well, although their status as legal property would not be explicitly acknowledged for some time to come.

property—including (perhaps) the analogies drawn in those decisions between literary property and patents. In 1784, Franklin wrote to Strahan (1818, pp. 168–173) that

the rapid growth and extension of the English language in America must become greatly advantageous to the booksellers, and holders of copy-rights in England. A vast audience is assembling there for English authors, ancient, present, and future, our people doubling every twenty years; and this will demand large and of course profitable impressions of your most valuable books. I would, therefore, if I possessed such rights, entail them, if such a thing be practicable, upon my posterity; *for their worth will be continually augmenting* (pp. 172–173, emphasis added).¹⁷

Franklin does not seem to have regarded his own inventions in a proprietary light. In his *Autobiography* (Bigelow, ed., 1868), he described his 1742 invention of the “Franklin Stove,” noting that he was offered a patent “for the sole vending of them for a period of years” by Pennsylvania Governor George Thomas (pp. 273–274). Franklin stated that he declined the patent “from a principle which has ever weighed with me on such occasions, viz., *That, as we enjoy great advantages from the inventions of others, we should be glad of an opportunity to serve others by any invention of ours; and this we should do freely and generously*” (p. 274, emphasis in original). According to Franklin, a London ironmonger slightly modified his design, obtained an English patent for it, “and made, as I was told, a little fortune by it” (p. 274). Stating that he had “no desire of profiting by patents myself,” Franklin asserted that a number of his inventions had been patented by others.¹⁸

When his statements pertaining to patents and copyrights are viewed together, Benjamin Franklin helps to reveal the transitional pattern: a proprietary conception manifesting itself in North America in the early 1780s, shortly after the *Millar* and *Donaldson* decisions, and just as the Revolutionary War was drawing to a close.

Looking beyond the elder statesman Franklin and his connections to English legal traditions, however, we should examine the law of the early American States. The State of Connecticut enacted the first general copyright statute in January 1783, and Massachusetts followed soon thereafter; one year later, New England’s developing literary property traditions would be extended to patents by South Carolina (see Bracha 2008; Patterson and Joyce 2003; Crawford 1975; Bugbee 1967, pp. 104–108, 110).

New England copyright traditions, the continental congress, and South Carolina patents

Titled “An Act for the Encouragement of Literature and Genius,” and evidently modeled on the English Statute of Anne (1710), Connecticut’s copyright statute provided for a 14-year period of protection (which could be extended to 28 years) for the “author, assignee, or proprietor” of a literary work (*Acts and Laws of the State of*

¹⁷ There are strong tones of irony and jest in this letter, which was written by an American citizen to a British friend shortly after the Revolution had been won.

¹⁸ According to the editor John Bigelow, this description appeared in a part of the manuscript written by Franklin around 1789, near the end of his life (Franklin 1868, p. 15).

Connecticut 1796, pp. 282–284; Library of Congress 1906). The preamble to the statute stated its underlying principles as follows:

[I]t is perfectly agreeable to the Principles of natural Equity and Justice, that every Author should be secured in receiving the Profits that may arise from the sale of his Works, and *such Security may encourage Men of Learning and Genius to publish their Writings*; which may do Honour to their Country, and Service to Mankind... (p. 282, emphasis added).

Shortly after Connecticut enacted its copyright statute, on March 10, 1783, the Continental Congress nominated a three-man committee to consider “the most proper means of cherishing genius and useful arts through the United States by securing to the authors or publishers of new books their property in such works” (quoted in Bugbee 1967, pp. 112, 189). On April 28, 1783, the committee submitted an initial report, declaring in rhetorically-powerful language that “nothing is more properly a man’s own than the fruit of his study,” and determining that “the protection and security of literary property would greatly tend to encourage genius, [and] to promote useful discoveries...” (quoted in Patterson and Joyce 2003, p. 932; Donner 1992, p. 373).¹⁹

On May 2, 1783, this Congressional committee, “to whom [had been] referred sundry articles and memorials on the subject of literary property,” reported the following resolution:

That it be recommended to the several states, to secure the authors or publishers of any new books not hitherto printed, being citizens of the United States, and to the executors, administrators and assigns, the copy-right of such books for a limited time, not less than 14 years from the first publication; and to secure the said authors, if they shall survive the term first mentioned, and to their executors, administrators and assigns, the copy-right of such books for another term of time not less than 14 years, such copy or exclusive right of printing, publishing and vending the same, to be secured to the original authors, or publishers, their executors, administrators and assigns, by such laws and under such restrictions as the several states shall seem proper (*Journals of the American Congress*, Vol. 4, 1823, p. 219; Bugbee 1967, pp. 113, 189).

Within one year, eight states had enacted copyright statutes (Connecticut, Massachusetts, Maryland, New Jersey, New Hampshire, Rhode Island, Pennsylvania, and South Carolina; see Crawford 1975, p. 13; Library of Congress 1906). By 1786, four additional states (Virginia, North Carolina, Georgia, and New York) had enacted copyright statutes, bringing the total number to twelve; Delaware remained the lone state without a copyright statute on the eve of the Constitutional Convention (see Crawford 1975, p. 13; Library of Congress 1906).²⁰

¹⁹ This three-man committee consisted of Ralph Izard (South Carolina), James Madison (Virginia), and Hugh Williamson (North Carolina) (*Journals of the American Congress*, Vol. 4, 1823, p. 219; Bugbee 1967, pp. 113, 189).

²⁰ The dates of the statutes are as follows: Connecticut (January 1783), Massachusetts (March 17, 1783), Maryland (April 1783), New Jersey (May 27, 1783), New Hampshire (November 7, 1783), Rhode Island (December 1783), Pennsylvania (March 15, 1784), South Carolina (March 26, 1784), Virginia (October 17, 1785), North Carolina (November 19, 1785), Georgia (February 3, 1786), New York (April 29, 1786) (Crawford 1975, p. 13; Library of Congress 1906).

Massachusetts had enacted its statute on March 17, 1783, more than a month before the Congressional committee proclaimed that “nothing is more properly a man’s own than the fruit of his study.” The preamble to the Massachusetts statute proclaimed in stirring rhetoric as follows:

Whereas the improvement of knowledge, the progress of civilization, the public weal of the community, and the advancement of human happiness, greatly depend on the effort of learned and ingenious persons in the various arts and sciences: *As the principal encouragement such persons can have to make great and beneficial exertions of this nature must exist in the legal security of the fruits of their study and industry to themselves; and as such security is one of the natural rights of all men, there being no property more peculiarly a man’s own than that which is produced by the labor of his mind:* Therefore, to encourage learned and ingenious persons to write useful books for the benefit of mankind... (*Laws of the Commonwealth of Massachusetts, 1780-1800* (1801), p. 94, emphases added).

The similarity in the “no property more a man’s own” language is striking, especially when placed alongside Justice Aston’s words in *Millar v. Taylor* (1769): “I confess, I do not know, nor can I comprehend any property more emphatically a man’s own, nay, more incapable of being mistaken, than his literary works” (98 Eng. Rep., p. 224). In light of the striking parallels in this “no property more a man’s own” language, it seems likely that the Massachusetts legislature drew on the “great case” of *Millar v. Taylor*, particularly Justice Aston’s interpretation of the English common law and natural law traditions, in formulating the legal foundations for “literary property” in their state. Madison and his fellow Congressmen may have also picked this up in their April recommendation.

However, there was also an earlier New England precedent for the “no property more a man’s own” language, which points to deep social connections between the legal communities of Connecticut and Massachusetts. These deep social connections parallel clear connections in legal culture, which can be seen in substantive provisions of the Connecticut and Massachusetts copyright laws.

The earliest and best-documented advocacy—social activity that has been labeled “lobbying” (see Bracha 2008)—for an author’s “natural right” to his writings came from men of Connecticut. Connecticut’s precocious copyright statute had been a response to a request by one John Ledyard for an “exclusive right of publishing” his account of a “voyage around the world” (Ledyard 1783; see Bracha 2008).²¹ Pressures also came from a young Noah Webster,

²¹ Ledyard’s petition made no reference to a “natural right” of authors, emphasizing instead his need for legislative “patronage,” and the usefulness of his account to America and her “northern States by opening a most valuable trade across the north pacific Ocean to China & the east Indies” (Ledyard 1783, p. 3). Rather than simply granting the privilege, however, the Connecticut Assembly named a committee under Samuel Huntington to examine the petition and make a recommendation (Ledyard 1783, p. 3).

who in January 1783 wrote to a Connecticut attorney and assemblyman urging adoption of a copyright law.²²

Since the previous fall, in fact, Webster had been urging the Connecticut Assembly to enact a law that would “vest” in him and “his assigns the exclusive right of printing, publishing, and vending” his new American Dictionary (Webster 1953, p. 2).²³ Webster’s efforts in the fall of 1782 to secure copyright protection—extending beyond Connecticut into New York, New Jersey and Pennsylvania—were generally consistent with a colonial pattern of “encouragement” seeking. Although there are hints at a proprietary attitude in Webster’s October letter to the Connecticut Assembly, he did not attempt to ground this proprietary attitude in legal concepts, principles, or justifications. Nevertheless, Webster’s fall 1782 journey did yield a letter from Samuel Stanhope Smith, a professor of moral philosophy and future president of Princeton College; Smith’s letter would help Webster to ground his “entitlement” claim in legal conceptions and principles of property, as well as benefit to the new nation-state.

Webster met with Smith at Princeton in September 1782 and they discussed his Speller (see Unger 1998, pp. 51–52; Webster 1989, pp. 136–137). Smith suggested some changes, which Webster adopted. In return, Smith recommended Webster’s Speller, and “expressed his opinion in favor of copyright laws” (Webster 1843, pp. 173–174). In the letter of endorsement that he sent with Webster, Smith asserted that:

Men of industry or of talents in any way, have a right to the property of their productions; and it encourages invention and improvement to secure it to them by certain laws, as has been practiced in European countries with advantage and

²² The very same day that Ledyard sent his request (January 6, 1783), 24-year-old Noah Webster sent a package of materials from Goshen, New York to John Canfield, a Connecticut attorney and assemblyman (Unger 1998, pp. 58–59; Webster 1953, pp. 3–4). This package of materials included a preliminary manuscript of Webster’s *American Spelling Book*, a primary-school textbook intended to provide basic instruction in reading, writing, and spelling to American children, and to replace the then-dominant British “spellers” that Webster believed were inadequate (see Unger 1998, pp. 33–58). Appended to the manuscript were letters of recommendation, including a brief letter from law instructor Tapping Reeve, whom Webster may have met while studying law in Litchfield, Connecticut—possibly through his Yale friend Oliver Wolcott, Jr., who studied law under Reeve (see Unger 1998, pp. 34–40; Webster 1793, p. vii). Also included was a letter to Canfield, which urged the assemblyman to “procure my request at the Assembly” (Webster 1953, p. 3). This “request” was for a special copyright enactment, which Webster had sought from the Connecticut Assembly the previous fall.

²³ In this 1782 letter, Webster had described the Speller, particularly emphasizing its benefits to the “interest of literature and the honor and dignity of the American empire” (Webster 1953, p. 2). He had also emphasized his desire to “prevent spurious editions and ... have the book under his own correction, and especially to secure to him the pecuniary advantages of his own productions to which he conceives himself solely entitled” (Webster 1953, p. 2). In his January 6 letter to John Canfield, Webster pressed the urgency of his request, asserting that financial constraints would not permit him to continue work on the Speller unless that work received the “encouragement” and “security” of copyright protection (Webster 1953, p. 3).

Noah Webster’s “lobbying” efforts in the fall of 1782 and thereafter to secure copyright protection for his Speller have received considerable attention from legal and cultural historians (see Pelanda 2011; Bracha 2008; Bugbee 1967). The general consensus is that Webster’s contributions have been overemphasized; while his labors were significant in drawing attention to the national benefits of copyright protection, it goes too far to call him the “prime mover” of copyright, as his granddaughter did (see Ford 1912, p. 53; Webster 1843; compare Pelanda 2011; Bracha 2008; Bugbee 1967).

success. And it is my opinion that it can be of no evil consequence to the state, and may be of benefit to it, to vest, by a law, the sole right of publishing and vending such works in the authors of them (Webster 1843, pp. 173–174, emphasis added).²⁴

Taking this letter with him, Webster proceeded to Trenton and Philadelphia, and then on to Hartford, before eventually returning to Goshen, New York (see Webster 1989, pp. 136–139; cf. Webster 1843, pp. 173–174). He very likely included Smith's letter in the package he sent to the Connecticut Assembly on January 6, 1783 (see Webster 1953, p. 3).

The day after Noah Webster sent his letter and manuscript to the Connecticut Assembly (January 7, 1783), an unsigned essay was published on the front page of the *Connecticut Courant*, a widely-circulated Hartford newspaper, extolling the national benefit and “natural justice” of copyright protection for authors (see *Connecticut Courant*, Jan. 7, Anonymous [John Trumbull], 1783; Pelanda 2011, pp. 437–442). The essay was evidently intended to persuade the people of Connecticut and their Assembly that this “property” should be “secured” by statute (see *Connecticut Courant*, Jan. 7, 1783; Pelanda 2011, p. 441).²⁵ The essay primarily emphasized the discouragements to literary production connected with the absence of copyright protection for authors, appealing to the national interest in protecting authors (see *Connecticut Courant*, Jan. 7, 1783). However, in language strongly echoing Justice Aston in the British case of *Millar v. Taylor*, the anonymous author closed by appealing to his readers to agree that “there is no kind of property, in the nature of things, so much our own, as the writings which we originate merely from our own creature imaginations” (*Connecticut Courant*, Jan. 7, 1783).

Cultural historian Grasso (1999, p. 319; 1995, pp. 6, 22–23) has identified the author of this anonymous letter as John Trumbull, a Hartford author and lawyer (see also Pelanda 2011, p. 438 n.21; Cowie 1936, pp. 187–188). Educated at Yale College, Trumbull published a series of hortatory and satirical essays in New Haven's *Connecticut Journal* during the early 1770s under the name of “Correspondent” (see Grasso 1995; Trumbull 1820). During this same period, he served with Timothy Dwight as Tutor of Yale College, and began studying law (see Trumbull 1820, pp.

²⁴ Smith (who would serve as President of Princeton College from 1795 to 1812) began a series of lectures on moral and political philosophy in 1795, and published them in 1812. In his jurisprudence lectures pertaining to the acquisition of property by “occupation” and labor, Smith wrote the following:

Labor forms another, and still juster title to property. By it is intended any exertion of our talents, or any effort of industry, corporeal or mental, by which a thing is discovered that was not known before—fabricated that did not exist before—or receives, from some change in its form, an augmented value. The title acquired by this means is a necessary result of the natural right which every man possesses to the use of his own faculties, and the enjoyment of their fruits. The productions of a man's ingenuity and skill are his property, which he may employ or dispose of for his own benefit (pp. 196–197)

The influence of John Locke is evident in these lectures, and they clearly draw on Roman law and natural law traditions. For example, in the sentences following the quoted language, Smith drew on the category and principles of “accession” to address to the use of another's materials in creative labor (p. 197).

²⁵ “An application on this subject will be made at the next sessions of our legislature, and I have that opinion of the public spirit and natural equity of my countrymen, that I can hardly doubt its success.” (*Connecticut Courant*, Jan. 7, 1783). The January Session of the Assembly began on January 8 and went through February 8 (see The Public Records of the State of Connecticut for the Years 1783 and 1784 (Volume 5) (Leonard Labree ed. 1943).

14–15). In 1773, he was admitted to the bar of Connecticut, “but immediately went to Boston” to study law under John Adams (Trumbull 1820, pp. 15–17).

Returning to Connecticut, Trumbull spent several more years in New Haven before moving to Hartford in 1780 to establish a legal practice (see Cowie 1936, p. 208; Trumbull 1820, p. 18). In Hartford, he became an active member in the “Friendly Club,” which assembled weekly to discuss “subjects, legal, philosophical and political” (Trumbull 1820, p. 18; see Cowie 1936, p. 211). This club came to be seen as the “Hartford Wits,” a group that included Yale classmates Noah Webster and Joel Barlow (see Cowie 1936, p. 211; Parsons 1922).²⁶

On January 10, 1783, three days after Trumbull’s essay had appeared in the *Connecticut Courant*, Joel Barlow sent an influential letter from Hartford to the Continental Congress. The letter was addressed to Elias Boudinot, President of the Congress; in it, Barlow urged Congress to recommend legislation to the states modeled on English copyright law. Echoing Trumbull’s essay, the letter emphasized the benefits of copyright law to author and nation, while also asserting that “[t]here is certainly no kind of property, in the nature of things, so much his own, as the works which a person originates from his creative imagination” (Barlow 1783). To illustrate the harm to authors occasioned by the absence of copyright protection, Barlow drew on the unfortunate case of an unnamed “Author of *McFingal*” (i.e., the former Yale Tutor, his friend and fellow Hartford resident, John Trumbull). He also asserted that “[t]he same Gentleman has by him a number of original Poems, of equal merit with those he has already given to the Public; which cannot be brought forward [in the absence of copyright protection]” (Barlow 1783).

Joel Barlow waited until 1787 to publish his epic poem, *The Vision of Columbus*, having observed the widespread “piracy” of Trumbull’s *McFingal* after its initial publication in 1782 (see Pelanda 2011, p. 442; Trumbull 1820, pp. 18–19).²⁷ Later he would depart for France, become a French citizen and revolutionary writer, and serve as a delegate to the French National Assembly (see Unger 1998, pp. 177–178). Meanwhile, his friend Noah Webster spent substantial portions of 1783–1787 traveling throughout the states, peddling his Speller (which had expanded into a three-volume *Grammatical Institute of the English Language in America*), lecturing on the need for a “national” American language and government, and lobbying for copyright protection.

²⁶ Trumbull knew Barlow from his days as a Tutor at Yale, and probably met Webster after his return from Boston to New Haven in 1774 (see Cowie 1936, p. 208; Trumbull 1820, p. 15). As Tutor of Yale College during a very unsettled period, both in the history of the nation and in the history of that educational institution, John Trumbull had worked with Timothy Dwight to raise the pedagogical status of fine literature and literary work (see Trumbull 1820, pp. 12–15; see also Unger 1998, pp. 12–20). These efforts were advanced under the Presidency of Ezra Stiles, which commenced in 1777/1778 (see Unger 1998, pp. 28–32). Joel Barlow and Noah Webster were, in different ways, products of Yale’s new literary emphasis, determined to pursue literary vocations upon their graduation in 1778. While establishing his legal practice, Trumbull also established a relationship with the Hartford printer-publishing firm of Hudson and Goodwin, which printed his poem *McFingal* as well as the *Connecticut Courant*. In 1783, Hudson and Goodwin, with financial support from Trumbull, would publish Noah Webster’s Speller (see Unger 1998; Grasso 1995, p. 22).

²⁷ “The whole [of *McFingal*] was finished, and the first edition published at Hartford, before the close of the year 1782. As no author, at that period, was entitled by law to the copyright of his productions, the work soon became the prey of every bookseller and printer, who chose to appropriate it to his own benefit. Among more than thirty different impressions, one only, at any subsequent time, was published with the permission, or even the knowledge of the writer; and the poem remained the property of newsmongers, hawkers, pedlars and petty chapmen” (Trumbull 1820, pp. 18–19).

During this period, Webster conversed and corresponded with a number of influential American statesmen, including George Washington and James Madison (see Unger 1998, pp. 58–153; Webster 1989, 1953; Ford 1912; Webster 1843).

Even before the Continental Congressional Committee took up the question of “literary property” in spring 1783, then, state legal traditions vis-à-vis copyright were being formulated and communicated. Blending English legal traditions and North American colonial traditions, particularly those developing in New England, the committee determined that “the protection and security of literary property would greatly tend to encourage genius, [and] to promote useful discoveries.” In so doing, the committee endorsed a paradoxical blend of consequentialist ethics, nationalism, and natural law that has, ever since, provided a foundation for the American institution of intellectual property. Echoing Joel Barlow, John Trumbull, the Massachusetts Assembly, and Justice Aston, the Confederate Congress endorsed a sweeping extension of the property concept, rooted in the natural law tradition, to innovative products of the creative human mind.

These property concepts and principles would be extended to patents by South Carolina in 1784. As the first Southern state to enact a copyright law and the only state to statutorily extend the principles of literary property to patents, South Carolina played a significant role in the emergence of intellectual property in the United States. In common with all the other state copyright laws that preceded it, South Carolina’s “Act for the encouragement of arts and sciences” limited the term of copyright protection, while also endorsing the extension of property concepts and principles to copyright (see Library of Congress 1906; Patterson and Joyce 2003; Crawford 1975). Unlike any of the state copyright laws that preceded or succeeded it, however, the South Carolina law extended all of its protections and restrictions to patents:

And be it further enacted by the authority aforesaid, That the inventors of useful machines shall have a like exclusive privilege of making or vending their machines for the like term of fourteen years, under the same privileges and restrictions hereby granted to, and imposed on, the authors of books (Library of Congress 1906, p. 23).

Registrations of copyrights and patents pursuant to this statute have been preserved and were published in *The South Carolina Historical and Genealogical Magazine* (Volume 9, January 1908). Between 1785 and 1789, six books were copyrighted, and three patents were granted in South Carolina pursuant to this statute.²⁸ As a powerful and ominous sign of things to come, the patents were for cotton picking (“or Ginning”) and spinning machines, and for a steam engine (pp. 57–58).

²⁸ (1) “The Honorable David Ramsey Esquire Registers a Work Called the History of the Revolution in South Carolina from a British Province to an Independent state between the years 1774 and 1783” (April 20, 1785); (2) Henry Osborne Registers an original Work Entitled ‘An English Grammar Adapted to the Capacities of Children’” (April 21, 1785); (3) “Noah Webster Registers an Original Work Entitled ‘An Institute of the English Language in three parts’” (June 30, 1785); (4) “Robert Squibb Registers a Work called ‘The Gardener’s Calendar for South Carolina, Georgia and North Carolina, Containing an account of Work necessary to be done....’” (February 5, 1787); (5) “Nicolas Pike of Newberry Port in the State of Massachusetts ... Registers a Work intitled ‘A New and Complete System of arithmetic Composed for the Use of the Citizens of the United States’” (February 14, 1787); (6) “The Honorable John Faucheraud Grimke Esq^r Registers an original Work entitled ‘The South Carolina Justice of the Peace ...’” (October 11, 1788).

Within one year of formally securing their independence and sovereignty, then, the confederated states of North America had established distinctively American patent and copyright traditions. These were anchored in English legal traditions, colonial legal traditions, and a potently commonsensical blending of consequentialism and natural law (see Noll 2002). These legal traditions were, however, state traditions, which varied substantially from state to state, as we have seen. The determination to consolidate and unify these legal traditions at the Federal level would come toward the end of the 1787 Constitutional Convention in Philadelphia, and would be ratified with relatively little debate by state conventions in 1788 (see Donner 1992).²⁹

Natal-industrial culture: concluding discussion

On March 12, 1811, Dr. William Thornton published a lengthy notice in the *National Intelligencer*, a Washington, DC newspaper with national circulation (see Ames 1972). The notice was issued by Dr. Thornton from a 9-year-old Patent Office, and was addressed to “The Citizens of the United States of America” (see Brown 2009; Ketcham 1990, at pp. 408–440). Referring to himself as “directing or superintending the important duties” of the Patent Office, Dr. Thornton undertook to explain how Americans might obtain patents and copyrights. Praising American “genius,” even among the “unlettered inhabitants of the forest,” Dr. Thornton sought to teach his readers how they might participate in the new American system of intellectual property law, a “system of protection for the property of talent, mind, and genius.”

As we have seen repeatedly in the legislative enactments and in the discussion surrounding state intellectual property laws, Americans saw the promise of intellectual property as an *encouragement*. This word was used over and over again. What was being encouraged? I submit that, quite simply, it was hope. In eighteenth and early nineteenth century English usage, encouragement and hope were closely associated, as we can see from the following quote, which is critically evaluating eighteenth century developments in the philosophy of mind.

If, amidst eternal revolutions, and eternal progress, mankind have not yet risen above the grade at which we now behold them, there seems little *encouragement to hope for any thing like what they anticipate in future* (Miller 1803, p. 29, note x., emphasis added).

Building on British experience, American lawmakers understood that a promise of property, as the reward for invention and cultural production, would act on cognitive processes involved in hoping. They built this understanding into new state intellectual property laws, and sought thereby to trigger processes through which the wealth of the nation would be continually increased by new inventions and cultural productions. Within the first decade of the nineteenth century, this understanding had been

²⁹ In 1790, the First United States Congress enacted Federal patent and copyright laws: *An Act to promote the progress of the useful Arts* (1 Stat. 109, April 10, 1790), and *An Act for the encouragement of learning ...* (1 Stat. 124, May 31, 1790).

institutionalized in the creation of a National Patent Office, and was being diffused through national newspapers. A Natal-Industrial Culture was being born.

The concept of an industrial culture, as formulated by Dobbin (1994), focuses our analytical attention on two conceptualizations informing the behavior of social actors responsible for national economic policy: (1) a goal of economic growth, and (2) a means-end logic by which economic growth is to be achieved. Both of these elements are clearly present in the rhetoric and discussion surrounding enactment of the first intellectual property laws of the newly-formed United States of America. Using words like “augmentation” and “improvement,” rather than “growth,” the Revolutionary generations—from Benjamin Franklin and Samuel Stanhope Smith to James Madison and Noah Webster—signaled their understanding that the goal of economic policy was to increase production within the domestic economy. Their means-end logic for accomplishing this was explicit: encourage industry and technological “progress” by “securing” a property in novel and original productions. The micro-foundational, motivational process through which this occurs, I have argued, is one of hope.

But, building on Richard Swedberg’s foundation for an economic sociology of hope, I have also endeavored to show that hope need not be conceptualized as irrational emotion. The analytical distinction between irrational emotion and rational cognition in moral judgment is no longer accepted by social psychologists (e.g., Helion and Pizarro 2015) and moral philosophers (e.g., Nussbaum 2013). Hannah Arendt’s creative work with Augustinian philosophical conceptions, together with recent work on Augustine’s Stoic borrowings, point the way toward new and fruitful understandings of hope, especially its social foundations and effects.

Following these leads, hope may be seen in collective pre-rehearsals of future attainment, which simultaneously trigger social action and positive emotional experience. This is exactly the type of social process that we would expect might contribute to social capital formation. Drawing on the important historical case of The Boston Manufacturing Company, I have attempted to show that this may, in fact, have been the social process of influence at work in early American industrialization.

In this article, I have sought to contribute sociological nuance to economic debates over the relationship between intellectual property and industrialization. Focusing on evidence from the 1780s and from the early nineteenth century, I have suggested a link between intellectual property law and the development of a Natal-Industrial Culture in America. Although the claim has by no means been proven, this article has substantiated the argument that, by contributing to the system of meanings comprising a Natal-Industrial Culture, intellectual property law contributes to a range of socio-economic behaviors that are necessary to industrialization, including: (1) systematic invention, and (2) the creation and maintenance of social relationships for resource-pooling and shared innovative endeavor. According to well-substantiated sociological findings, these social relationships, in turn, generate feedback-loops, especially from social capital, intensifying hopefulness and trust, and thereby generating further inventive activity, resource-pooling, and shared innovative endeavor.

Through its semantic contributions to a Natal-Industrial Culture, intellectual property law encourages hope, lending new social capital to long-term investment in innovative technologies and business plans, despite risks, fierce competition, and objectively high probabilities of failure.

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