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Literature Review

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Business Historians and the Challenge of Innovation

The Challenge of Remaining Innovative: Insights from Twentieth-Century American Business. *Edited by Sally H. Clarke, Naomi R. Lamo-reaux, and Steven W. Usselman.* Stanford: Stanford University Press, 2009. xviii + 349 pp. Bibliography, notes, index. Cloth, \$39.95. ISBN: 978-0-804-75892-5.

The dawning of the twenty-first century is a convenient time to mine the historical record of the past hundred years for insights into the well-springs of innovation. For historians of the United States who are intrigued by the innovations that have been spawned by business organizations, two different narratives jostle for attention. The first highlights the organizational capabilities of large corporations like Merck and IBM. This narrative was elaborated by Alfred D. Chandler Jr., the most influential business historian of the twentieth century, and is a major theme of his final two monographs, *Shaping the Industrial Century* and *Inventing the Electronic Century*. For Chandler, the most epochal innovations in business strategy were byproducts of the “paths of learning” that the large corporation generated; lacking these capabilities, fundamental innovation was impossible.¹

The second narrative doubts the centrality of the large corporation to business innovation and has ventured an alternative explanatory scheme that casts the spotlight on either a favorable political economy or the dynamism of proprietary firms, industrial districts, and trade associations. Other narratives have occasionally found favor, including,

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¹ Alfred D. Chandler Jr., *Shaping the Industrial Century: The Remarkable Story of the Evolution of the Modern Chemical and Pharmaceutical Industries* (Cambridge, Mass., 2005); Chandler, *Inventing the Electronic Century: The Epic Story of the Consumer Electronics and Computer Industries* (New York, 2001).

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for example, those that emphasize the ingenuity of individual inventors.² Still others point to social arrangements that encouraged upward social mobility and cultural norms that assigned a high value to material betterment.³ Yet, with surprisingly few exceptions, historians interested in the relationship between business innovation and business strategy can be divided into two groups: those who emphasize the primacy of the organizational capabilities of the large corporation, and those who do not.

Prior to 1970, most business historians followed Chandler and hailed the corporate research and development laboratory as the primary engine of innovation. The plausibility of this claim was reinforced by the widely publicized achievements of government-funded, corporate-sponsored "big science" during and immediately following the Second World War. These innovations emboldened a small but influential cadre of corporate leaders to champion the pursuit of fundamental research—or what they sometimes called "pure" science—even if this research had few obvious commercial applications. The supposed efficacy of this research received wide publicity in the triumphalist narratives crafted by the public relations departments of giant corporations like AT&T and GE; it was taken for granted even by scholarship that was highly critical of big business, such as David F. Noble's *America by Design*.⁴

Beginning around 1970, and accelerating in the 1990s, this narrative came under attack. An influential cohort of historians of technology led by Merritt Roe Smith and David A. Hounshell emphasized the indispensability for business innovation of a favorable political economy, while a dissenting group of business historians that included Philip Scranton and Jonathan Zeitlin documented the innovativeness of proprietary firms, industrial districts, and trade associations.⁵ For

² Narratives organized around individual inventors have long proved congenial to historians of technology. For a recent exemplary essay that demonstrates the possibilities of this approach, see Eric Hintz, "Portable Power: Inventor Samuel Ruben and the Birth of Duracell," *Technology and Culture* 50 (Jan. 2009): 24–57. For an exemplary monograph, see W. Bernard Carlson, *Innovation as a Social Process: Elihu Thomson and the Rise of General Electric, 1870–1900* (Cambridge, U.K., 1991).

³ Stanley Buder, *Capitalizing on Change: A Social History of American Business* (Chapel Hill, N.C., 2009); Joyce Appleby, *The Relentless Revolution: A History of Capitalism* (New York, 2010).

⁴ David F. Noble, *America By Design: Science, Technology, and the Rise of Corporate Capitalism* (New York, 1977).

⁵ Merritt Roe Smith, *Harpers Ferry and the New Technology* (Ithaca, 1977); Smith, ed., *Military Enterprise and Technological Change: Perspectives on the American Experience* (Cambridge, Mass., 1985); David A. Hounshell, *From the American System to Mass Production, 1800–1932: The Development of Manufacturing Technology in the United States* (Baltimore, 1985); Hounshell and John K. Smith Jr., *Science and Corporate Strategy: Du Pont R&D, 1902–1980* (New York, 1980); Philip Scranton, *Endless Novelty: Specialty Production and American Industrialization, 1865–1925* (Princeton, 1997); Jonathan Zeitlin and Charles Sabel, eds., *World of Possibilities: Flexibility and Mass Production in Western Industrialization* (Cambridge, U.K., 1997).

the historians of technology, the political economy, by which they meant the relationship of the state to the market, spawned incentives that favored certain business strategies and discouraged others. For the dissenters, in contrast, the political economy was far less important than the social networks through which economic activity flowed.

A major goal of *The Challenge of Remaining Innovative* is to advance this post-1970 revisionist "research agenda" (p. 3). Its subject is business innovation in the twentieth-century United States; its theme is the rise and fall of the large corporation as the primary engine of innovation. Each of the chapters takes as its "starting point" the Chandlerian claim that the large corporation was "the most important source of innovation" in the early twentieth century. Yet each subjects this claim to critical scrutiny, and, in so doing, demonstrates the "complexities and contingent nature" of the "leading role" that the large corporation played in spawning innovation (p. 3). The editors of *Challenge*—Sally H. Clarke, Naomi R. Lamoreaux, and Steven W. Usselman—are all distinguished business historians who have themselves published influential monographs on related topics, giving this collection of original essays the kind of authority that is likely to garner it widespread attention in the field. Ambitious, intelligent, and often provocative, it should long remain a valuable resource for historians, economists, sociologists, and management scholars intrigued by the relationship between business, technology, and innovation in the United States during a critical epoch in its history.

Had the contributors focused merely on complexity and contingency the volume might well have been little more than a grab bag of essays on a common subject. Yet they aspire to do a good deal more. In particular, they aspire to demonstrate the potential of the information-centric theory of the modern business enterprise that Lamoreaux has been championing for over a decade in a series of influential books and articles.⁶ "Collectively," the editors explain, "the chapters in this volume suggest that in order to meet the challenge of remaining innovative, large firms had to learn to manage their organizational boundaries effectively":

They had to learn to tap into external sources of knowledge and creativity without undermining their sense of corporate purpose. They

⁶ Naomi R. Lamoreaux, Daniel M. G. Raff, and Peter Temin, "Business History and Economic Theory," in *Oxford Handbook of Business History*, ed. Geoffrey Jones and Jonathan Zeitlin (New York, 2008), 37–66; Lamoreaux, "Partnerships, Corporations, and the Theory of the Firm," *American Economic Review* 88 (May 1998): 66–71; Lamoreaux, Daniel M. G. Raff, and Peter Temin, eds., *Learning By Doing in Firms, Markets, and Countries* (Chicago, 1999); Lamoreaux and Raff, eds., *Coordination and Information: Historical Perspectives on the Organization of Enterprise* (Chicago, 1995).

had to learn to preserve the advantages that their core capabilities brought them while at the same time accommodating themselves to the shifting complexities of their markets and to changes in the larger economic and political environment in which they operated. And they had to be able to do all this while making sure that the various internal units of their enterprise worked as a coordinated whole. (p. 3)

The editors of *Challenge* seek not only to survey the past, but also to provide "insights" for the future. In so doing, they have crafted a volume that, at times, reads a bit like a manual for aspiring business consultants. Much to the frustration of pundits, forecasters, and the authors of how-to books on business management, history is not predictive. Yet the past is not random, and certain patterns recur. The charting of these patterns is the theme that holds the essays in *Challenge* together and gives them an analytical coherence that is unusual in ventures of this kind.

The contributors' conception of innovation is eclectic. It includes the invention of pathbreaking technical contrivances, such as the transistor and fiber optics; the adoption of novel organizational tools, such as traffic management and risk assessment; the institutionalization of new kinds of linkages between business and the university; and the enforcement of legislation to discourage monopoly. Like most business historians working today, the contributors are attentive to contingency and chance, and to failure as well as success. The locus of innovation is equally varied. Three essays explore innovation inside the firm; three, innovation between firms; and two, the relationship between the firm and the state, with a focus on antitrust and federal regulation. Among the recurring themes are the waning of the independent inventor; the critical role of information as a managerial tool; and the enduring significance of organizational capabilities. Though the essays range widely in time and space, none focus on government-business relations before the Second World War, and none is concerned primarily with innovations that originated after the economic downturn of 1973. Only in passing do we learn about the post-1970 achievements in information technology and biotech, and, with a few notable exceptions, we learn little more about the influence of the state on the innovative process.

Taken together, the essays in this collection tell a familiar story. In the period between the late nineteenth century and the present, the primary engine of innovation in American business shifted first from the independent inventor to the industrial research laboratory and, most recently, to the entrepreneurial networks that thrive in industrial districts like Silicon Valley. This theme will be well known to business historians and historians of technology; in fact, over a decade ago, David A.

Hounshell told a broadly similar story in a pair of influential essays on the rise and fall of industrial research.⁷

While the general outline of this narrative is familiar, several of the essays break new ground. The persistence into the twentieth century of independent inventors in the Midwest is for Lamoreaux and her long-time collaborator, the late Kenneth L. Sokoloff, a tribute to the entrepreneurial spirit, rather than, as East Coast-centric business historians have long assumed, an instance of cultural lag. The symbiosis of pure science and applied science at Bell Labs is, for Kenneth Lipartito, the original vision of Bell scientist Frank Jewett, and not, as AT&T-centric historians have long assumed, its betrayal. The ignorance of business history methods by Harvard Business School case writers is, for Christopher McKenna, a morality tale that exposes the shoddiness of business school pedagogy and its deleterious consequences for student and teacher alike. McKenna's conclusion is at once ironic and sobering. The very business history methods that case writers ignored had been largely invented at the Harvard Business School, while the lack of concern with which well-respected business school academics willfully circulated false information raises troubling questions about the soundness of management education as an intellectual project.

Other essays elaborate on existing scholarship. Building on the intellectual framework devised by the economist Joseph A. Schumpeter and modified by the management scholar Clayton Christensen, Margaret B. W. Graham shows how scientists at Corning successfully navigated a changing political economy to remain innovative. Like the Corning executives who are her protagonists, Graham contends that the antitrust offensive waged by the federal justice department in the 1930s slowed innovation by forestalling interfirm alliances. Yet by foreclosing a business strategy that would have permitted Corning to enter into noncompeting agreements with its rivals, the political economy also encouraged Corning to expand its own research-and-development program—a program that culminated in the commercialization of the catalytic converter and fiber-optic cables.

The willingness of lawmakers to rely on the courts to break up corporate combines has long been regarded by business historians as a major reason for the distinctive institutional development of big business in the United States. Its consequences for IBM are touched on in Usselman's essay on government-business relations in the computer

⁷David A. Hounshell, "The Evolution of Industrial Research in the United States," in *Engines of Innovation: U. S. Industrial Research at the End of an Era*, ed. Richard S. Rosenbloom and William J. Spencer (Boston, 1996), 13–85. In contrast to most of the contributors to *Challenge*, Hounshell explicitly critiques existing categories of knowledge, such as "pure science," which he calls an "ideology." David A. Hounshell, "The Evolution of Industrial Research in the United States," in *Encyclopedia of the United States in the Twentieth Century*, vol. 2, ed. Stanley I. Kutler (New York, 1996), 832.

business. Usselman doubts that the specter of antitrust prompted IBM to contract with Microsoft and Intel to supply the components necessary for IBM's first personal computer, rather than to manufacture these components in-house. Yet he also shows how antitrust worked in tandem with IBM's own business strategy to hasten the "unbundling" of the computer business. From a global perspective, antitrust is "perhaps the most distinctive feature" of the twentieth-century American political economy. Throughout the twentieth century, Americans have "consistently embraced an economic policy intended to break apart concentrated power and preserve market forces" (p. 272).

Still other essays explore topics that we know little about. These include twentieth-century accounting methods at AT&T; a failed corporate-academic alliance in New Jersey; consumer-producer relations in the automobile industry; and the associative activities of oil executives. "Firm-specific learning" at AT&T hastened the emergence of novel accounting techniques in the 1920s, reports Paul J. Miranti Jr. (p. 126). The failure of Stanford president Frederick Terman to establish a corporate-funded research university in New Jersey in the 1960s probes the relevance of geography in industrial policy, concludes Stephen B. Adams. Consumer lobbies ranging from car dealers to feminist activists shaped government-mandated credit policies for car buyers, reveals Clarke. The supposedly fiercely independent oilmen of the Gulf Coast learned how to cooperate following a series of devastating hurricanes that damaged their offshore oil rigs, contends Joseph A. Pratt.

Innovation can be studied in many different ways. These essays are a testament to the continuing vitality of the comparative institutionalist tradition in business history that was pioneered by Chandler and has been refined by his many distinguished students, as well as by the even larger number of historians who have found his legacy impossible to ignore. Several of the contributors to *Challenge* distance themselves from Chandler's mostly positive evaluation of the efficacy of industrial research. Yet all are preoccupied with a Chandlerian conundrum: how did business managers utilize the information at their disposal to fix the boundary between the firm and the market?

The interpretative framework that this collection adopts will be familiar to readers of the controversial 2003 *American Historical Review* essay "Beyond Markets and Hierarchies" that Lamoreaux coauthored with Daniel M. G. Raff and Peter Temin. The Lamoreaux-Raff-Temin essay promised, as its title proclaimed, to go "beyond" markets and hierarchies, and, in so doing, to establish a new post-Chandlerian problematique for business history. In fact, however, as many business historians were quick to observe (primarily, so far as I am aware, in conversation rather than in print), its main interpretative contribution

was to draw attention to coordination mechanisms that mediated "between" the "invisible hand" of market transactions and the "visible hand" of managerial hierarchies.⁸ In so doing, it consigned to historiographical purgatory much of the most provocative recent scholarship in the field—including, in particular, the many books and articles that located business in its social, cultural, and political context without focusing primarily on the coordination mechanisms that shaped business decision-making.

Equally troubling for those business historians who are familiar with the literature of institutional economics was the extent to which this supposedly new synthesis built on concepts popularized more than two decades ago by Oliver E. Williamson.⁹ In short, the Lamoreaux-Temin-Raff essay did not define a new problematique for the field. Rather, it perpetuated the internalist tradition of business history that Chandler himself had invented while narrowing its range to emphasize certain issues, such as the cost of making business transactions, that Chandler himself always regarded as of secondary concern. For Chandler, the "virtuous" paths of learning that were so central to knowledge creation were different from, and, it is worth underscoring, more fundamental than, the mere utilization of information to fix the boundary between the firm and the market.¹⁰

Many business historians have called in the past few years for a broader, contextualist problematique for business history. In fact, among them are at least four of the contributors to *Challenge*.¹¹ It remains a tribute to the enduring power of the internalist paradigm that it continues to inspire imaginative scholarship, even by scholars intent on distancing themselves from Chandler's legacy.

The dangers of internalism are well known. Its principal virtue—that is, its tight focus on managerial decision-making—can preclude the systematic investigation of the political and cultural context in which

⁸Naomi R. Lamoreaux, Daniel M. G. Raff, and Peter Temin, "Beyond Markets and Hierarchies: Toward a New Synthesis of American Business History," *American Historical Review* 108 (Apr. 2003): 404–32. Elsewhere, Lamoreaux, Raff, and Temin have made it plain that they equate business history with a "provisional account" of the "circumstances" under which "archetypal coordination mechanisms have risen and declined." Lamoreaux, Raff, and Temin, "Against Whig History," *Enterprise and Society* 5 (2004): 386.

⁹Oliver E. Williamson, *The Economic Institutions of Capitalism* (New York, 1985). I am grateful to Matthias Kipping for reminding me of Williamson's contribution to our understanding of coordination mechanisms that mediated between the firm and the market.

¹⁰Richard R. John, "Elaborations, Revisions, Dissents: Alfred D. Chandler, Jr.'s *The Visible Hand* after Twenty Years," *Business History Review* 71 (Summer 1997): 152n1.

¹¹Kenneth Lipartito, "Culture and the Practice of Business History," *Business and Economic History* 24 (Winter 1995): 1–41; Sally H. Clarke, "Consumer Negotiations," *Business and Economic History* 26 (Fall 1997): 101–22; Steven W. Usselman, "Still Visible: Alfred Chandler's *The Visible Hand*," *Technology and Culture* 47 (July 2006): 584–96; Christopher D. McKenna, "In Memoriam: Alfred Chandler and the Soul of Business History," *Enterprise and Society* 9 (Sept. 2008): 422–25.

business decision-makers operated. It is easy, in retrospect, to credit business managers with aptitudes they did not possess or, alternatively, with failings that exaggerate their autonomy.¹² The problem of tautology is unavoidable. The managers of successful firms are presumed to have capably analyzed the information at their disposal; the managers of unsuccessful firms, to have failed at the task. Concepts like "innovation," "technology," and "entrepreneurship" are regarded merely as topics for investigation, rather than as value-laden constructs open to critique.¹³

Further problems are raised by the editor's narrow conception of the relationship between business and the state. Here, too, the editors inadvertently follow Chandler's lead: just as Chandler downplayed the influence of governmental institutions and civic ideals on business strategy, so too do the editors.

Much of the problem can be explained by the curious way in which the editors locate the volume in the existing historical literature on the twentieth-century American political economy. The editors frame their contribution as a rejoinder to certain ideas that they impute to the economist Joseph A. Schumpeter. Schumpeter, in their view, exaggerated the fragility of capitalism when he famously warned, in *Capitalism, Socialism, and Democracy* (1942), that the astonishing productivity of big business made socialism inevitable by rendering entrepreneurship superfluous and, with it, the civic ideals that legitimated capitalism as an economic order (pp. 43-44).

The editors' reading of Schumpeter is open to question for two quite different reasons. It is by no means obvious that their interpretation of *Capitalism, State, and Democracy* is tenable; and, even if it is, it is anachronistic to upbraid a social theorist for his failure to anticipate phenomena that occurred long after his death. Schumpeter died in 1950; socialism as a social movement lost much of its appeal with the collapse of the Berlin Wall in 1989; the economic downturn that raised questions about the innovativeness of the American economy—and that, in turn, inspired the anxiety that animates the editors of *Challenge*—would not begin until 1973.

Have the editors read Schumpeter correctly? To answer this question adequately would involve a lengthy excursus into an ongoing

¹²For a related critique of recent historical writing on entrepreneurship by management scholars, see Geoffrey Jones and R. Daniel Wadhvani, "Schumpeter's Plea: Rediscovering History and Relevance in the Study of Entrepreneurship," *Working Knowledge—February 2006*, Harvard Business School Working Paper 06-036. In this essay, Jones and Wadhvani embrace historical institutionalism, which they define as the systematic analysis of the relationship between business and the state: "Institutionalism focuses on how the historical development of certain kinds of rules (e. g., laws, norms, rights) affects the nature of competition and innovation in industries" (p. 15).

¹³Philip Scranton, "Beyond Chandler?" *Enterprise and Society* 9 (Sept. 2008): 426-29.

debate among intellectual historians that shows no sign of abating.¹⁴ Yet it can be noted in passing that Schumpeter's most recent biographer, Thomas K. McCraw, interprets *Capitalism, Socialism, and Democracy* in a very different way. Using the methods of the literary critic—methods that the contributors to *Challenge* mostly eschew—McCraw contends that Schumpeter's masterwork should be read as a biting satire that was intended to arouse, outrage, and perhaps even amuse, rather than as a social scientific theory to be confirmed or rejected.¹⁵

Even if one brackets the hermeneutical issues raised by Schumpeter's text, an additional question remains: is Schumpeter a useful foil? The problems that troubled Schumpeter were quite different from the problems that confront contemporaries today. Socialism, while by no means dead, has few influential champions in the United States—despite, or perhaps because of, the huge recent government bailouts for big business—while the United States confronts a panoply of overseas challengers that neither Schumpeter nor any other midcentury social theorist could have anticipated. Entrepreneurship, in short, has proved more resilient than Schumpeter seemed to allow, while socialism (as distinguished from "corporate welfare" or even "welfare state liberalism") has lost much of its appeal. And what of the technological transformations of the recent past? However prescient Schumpeter may have been as an analyst of interwar capitalism, he knew nothing of the personal computer, the mobile telephone, or the Internet. It would thus seem to be unfair to chide him for failing to anticipate economic developments that would not occur until after 1970—or, for that matter, to critique his time-and-place-bound analysis of government-business relations.

The editors' reading of Schumpeter builds on the influential case for his relevance to business historians that has been put forward in recent decades by Louis Galambos.¹⁶ Galambos is a prolific trainer of business

¹⁴The propensity of business historians unfamiliar with Schumpeter's literary style to read *Capitalism, Socialism, and Democracy* as an obituary for capitalism is understandable. Schumpeter entitled the first section of chapter 12 "The Obsolescence of the Entrepreneurial Function"; called the Vanderbilts, the Carnegies, and the Rockefellers the "true pacemakers of socialism"; and referred at least once to the "perfectly bureaucratized giant industrial unit." Even so, he predicated his analysis of the triumph of socialism on the satiation of human wants—an eventuality that he regarded as "very far off"—and confined his most detailed analysis of "The Problem of Bureaucratic Management" to a different section of the book in which he speculated about the problems that would confront a future "socialist regime." Joseph A. Schumpeter, *Capitalism, Socialism, and Democracy* (New York, 1975; 1st ed. 1942), 131-34, 205-10.

¹⁵Thomas K. McCraw, *Prophet of Innovation: Joseph Schumpeter and Creative Destruction* (Cambridge, Mass., 2007), ch. 21.

¹⁶Louis Galambos, "Identity and the Boundaries of Business History: An Essay on Consensus and Creativity," in *Business History around the World*, ed. Franco Amatori and Geoffrey Jones (Cambridge, U.K., 2003), 16; Galambos, "End of the Century Reflections on Weber and Schumpeter—with Karl Marx Lurking in the Background," *Industrial and Corporate Change* 5, no. 3 (1996): 925-31.

historians with a longstanding interest in the wellsprings of business innovation; his essays on the "organizational synthesis" have done much to give the field a measure of intellectual coherence.¹⁷ Though Galambos himself has published on a variety of topics, he characterizes himself as a friendly critic of Chandlerian internalism, of which he has long been a perceptive interpreter.¹⁸

Galambos's influence on *Challenge* is hardly accidental. Several of the contributors wrote their PhD dissertations under his direction, and the editors dedicate this volume to him as their "reader and advisor." In an earlier age, this project might have been conceptualized as a festschrift to a distinguished mentor and colleague. In its place, the editors have encouraged the contributors to explore a single theme with which Galambos has long been identified: namely, the historical evolution of business innovation in the twentieth-century United States.

The contributors' indebtedness to Galambos is particularly evident in their shared assumptions regarding the relationship between business history and the history of the United States. Like Galambos, they are put off by conventional political categories ("conservative," "liberal," "progressive"); intrigued by what they understand to be Schumpeter's strictures on economic development; and ambivalent about the influence on innovation of corporate giantism. Some contributors (e.g., Lamoreaux and Sokoloff) are more skeptical of corporate-sponsored research and development than others (e.g., Graham and Lipartito). Yet all regard the industrial research laboratory as an engine of innovation in the mid-twentieth century as well as a touchstone for their own forays into business history.

Nowhere is Galambos's influence more evident than in the contributors' adoption of his stage model of American economic development. Like Galambos, the contributors characterize the United States in the period before 1880 as the heyday of proprietary capitalism, an era in which a multitude of small firms jostled for advantage in a more or less unregulated market in a political economy that was "pre-bureaucratic" in the sense that large-scale organizations of any kind—public or private

¹⁷ Louis Galambos, "The Emerging Organizational Synthesis in American History," *Business History Review* 44 (Autumn 1970): 279–90; Galambos, "Technology, Political Economy, and Professionalization: Central Themes of the Organizational Synthesis," *Business History Review* 57 (Winter 1983): 471–93; Galambos, "Recasting the Organizational Synthesis: Structure and Process in the Twentieth and Twenty-First Centuries," *Business History Review* 79 (Spring 2005): 1–38.

¹⁸ Louis Galambos, "Reflections on Alfred D. Chandler, Jr.," *Enterprise and Society* 9 (Sept. 2008): 415–18.

¹⁹ For a more detailed critique of Galambos's stage model of American economic development, see Richard R. John, "Ruling Passions: Political Economy in Nineteenth-Century America," in *Ruling Passions: Political Economy in Nineteenth Century America*, ed. John (University Park, 2006), esp. 17n26.

—had yet to exist.¹⁹ Political considerations, Galambos concedes, loomed large in the emergence of the oligopolies that figured so prominently in the post-1880 period. Yet they were unimportant in the pre-1880 period, when the "dominant" organizational form remained the "atomistic, highly competitive alternative."²⁰ Like Galambos, the contributors are much impressed by the "organizational revolution" that, or so Galambos has posited in a series of essays and books, transformed the United States, beginning around 1880, into a "corporate commonwealth."²¹ And, like Galambos, the contributors read Schumpeter as a critic of big business, rather than, like Chandler, as its champion. "Schumpeter was suspicious of great corporate combines," Galambos declared in 2002, articulating a sentiment that he has long held, and with which the contributors concur—"not because they were monopolistic but because they tended to be organized along bureaucratic lines. Bureaucracy, Schumpeter said, was the enemy of the entrepreneur."²²

In a number of respects, Galambos's own writings on business and innovation are more capacious than those of the contributors to *Challenge*.²³ For Galambos, the post-1970 decades are a new frontier for historians of innovation; for the contributors, in contrast, the twentieth century is, at least implicitly, confined primarily to the decades that preceded the 1973 economic downturn. For Galambos, the recent history of innovation in the United States is best understood by widening the lens to underscore the connections between the United States and

²⁰ Louis Galambos, "The Triumph of Oligopoly," in *American Economic Development in Historical Perspective*, ed. Thomas Weiss and Donald Schaefer (Stanford, 2004), 244–45. It is perhaps worth noting that Galambos's characterization of the nineteenth-century American economy as "atomistic" and "highly competitive" is a locus classicus of a habit of mind that Schumpeter sagely warned against. To contend that the economy was once competitive, and is now monopolistic, Schumpeter reflected, involves the "creation" of an "entirely imagined golden age of perfect competition that at some time somehow metamorphosed itself into the monopolistic age, whereas it is quite clear that perfect competition has at no time been more of a reality than it is at present." Schumpeter, *Capitalism, Socialism, and Democracy*, 81.

²¹ Louis Galambos and Joseph Pratt, *The Rise of the Corporate Commonwealth: United States Business and Public Policy in the Twentieth Century* (New York, 1988).

²² Louis Galambos and Eric John Abrahamson, *Anytime, Anywhere: Entrepreneurship and the Creation of a Wireless World* (Cambridge, U.K., 2002), 6. See also Galambos, "Identity and the Boundaries of Business History," 16.

²³ My characterization of what one might—somewhat awkwardly—call Galambosian business history is informed by Galambos's three programmatic *Business History Review* essays on the "organizational synthesis," as well as by the following: Louis Galambos, "The Innovative Organization: Viewed from the Shoulders of Schumpeter, Chandler, Lazonick, et al.," *Business and Economic History* 21 (Fall 1993): 79–91; Galambos, "Identity and the Boundaries of Business History"; Galambos, "Myth and Reality in the Study of America's Consumer Culture," in *The Modern Worlds of Business and Industry: Cultures, Technology, Labor*, ed. Karen R. Merrill (Turnhout, Belgium, 1998), 183–203; and Galambos, "What Makes Us Think We Can Put Business Back into American History?" *Business and Economic History* 20 (1991): 1–11.

the rest of the world. For the contributors, in contrast, the United States remains on center stage.

For Galambos, a "powerful culture" that was often the byproduct of a disciplined and careerist professionalism was an indispensable precondition for the innovative enterprise. For the contributors, in contrast, culture constrains as often as it empowers, and management is conflated with the optimal utilization of information necessary to advantageously fix the boundary between the firm and the market. Even when the contributors focus specifically on professionalism—as, for example, Lipartito did in his essay on Bell Labs—they typically treat it in a narrowly instrumental fashion, rather than, as Galambos advocated, as a comprehensive mind-set that shaped personal identity as well as occupational roles.²⁴ And for Galambos, the absorption of the field of business history by a field that is more globally oriented and critically self-aware—such as, for example, the "history of capitalism"—is an outcome to be desired. For the contributors, in contrast, business history remains a field with few obvious links to the broader world of historical scholarship.²⁵

A final difference in perspective concerns the relationship between business and the state. For Galambos, the political economy has become in the twentieth century one of the three main "pillars" of his "organizational synthesis."²⁶ For the contributors, in contrast, the political economy is typically reactive, and almost never a structuring presence in its own right. To be sure, the contributors have at various points many perceptive things to say about patent rights, antitrust, and federal regulation. Yet, like Schumpeter—and, at least in part, because of their reliance on a Schumpeterian interpretative framework—they rarely characterize the political economy as an engine of innovation on a par with entrepreneurship. Conspicuously absent, for example, is any sustained discussion of the role of the state in the emergence of radio, the

²⁴ Galambos, "Innovative Organization," 87; Galambos, "Myth and Reality," esp. 190–94.

²⁵ Louis Galambos, "Identity and the Boundaries of Business History," 28–29. Harvard historian Sven Beckert urged historians to move in an analogous direction—that is, to subsume "business history" under the more capacious rubric, "history of capitalism"—during a state-of-the-field roundtable at the annual meeting of the Organization of American Historians in April 2010. Such a rebranding has the advantage of bringing business history into dialogue with a variety of related fields, including social history, cultural history, and labor history, and, in so doing, making it more explicitly contextualist. Even so, it is not without its problems. It would, for example, presumably exclude the study of business phenomena in times and places that are noncapitalistic. In addition, it might encourage tendentious and sterile theoretical debates about the dynamics of capitalism, and, conceivably, even the neglect of business institutions altogether. Nevertheless, it has the advantage of foregrounding a key concept—namely, "capitalism"—that business historians often take for granted, while opening up the field to historians who regard the identifier "business" as unduly constraining.

²⁶ Galambos, "Technology, Political Economy, and Professionalization."

airplane, the computer, or the Internet. Even major military conflicts—including, most notably, the Second World War—go unmentioned—despite their well-known role as engines of innovation.

The contributors depart from Galambos's example in two further ways. First, they include no case studies of innovation in pharmaceuticals or recent telecommunications, two topics that Galambos himself has written extensively about.²⁷ In fact, the pharmaceutical business makes but a single, decidedly inauspicious appearance: the failure of New Jersey pharmaceutical firms to invest in a proposed New Jersey-based research institute was, according to Adams, one reason this project failed (p. 185). Second, and more significantly, the contributors miss the opportunity to engage with any major twentieth-century social theorists other than Schumpeter—including, in particular, those social theorists who, like Manuel Castells, have strongly emphasized the influence on post-1970 American business of innovations in information technology. Nowhere, for example, do any of the contributors ponder the potential utility of constructs like Castells's "network enterprise," or, for that matter, any of the other constructs that Castells has devised to help make sense of the recent past. This is true even though Galambos himself has urged business historians to engage Castells's analysis, if only to underscore its limitations.²⁸ Indeed, for a book whose theme is innovation, it is a bit odd that its contributors have chosen an interpretative framework that is grounded in events that are almost a century old. Galambos moved on; so too did Chandler. To a considerable degree, the contributors have not.

The neglect of Castells has consequences that extend beyond the contributors' characterization of the recent past. Castells's undogmatic approach toward governmental activism contrasts sharply with Schumpeter's cranky negativism. For Castells, the state has always played a "decisive" role in mediating between technology and society; depending on the circumstances, it could stall, unleash, or lead technological

²⁷ Louis Galambos with Jane Eliot Sewell, *Networks of Innovation: Vaccine Development at Merck, Sharp & Dohme, and Mulford, 1895–1995* (Cambridge, U.K., 1995); P. Roy Vagelos and Louis Galambos, *Medicine, Science and Merck* (Cambridge, U.K., 2004); Galambos and Abrahamson, *Anytime, Anywhere*.

²⁸ Galambos, "Recasting the Organizational Synthesis," 3–4, 36. Galambos structured this essay—the third in his "organizational synthesis" trilogy—as a critical evaluation of the "Castells framework" (p. 4). Galambos is not alone in calling the attention of business historians to Castells, as well as to other social theorists who have tried to explain the distinctiveness of the post-1970 period. The neglect of Castells by the contributors of *Challenge* is puzzling, since business historians in recent years have repeatedly emphasized his relevance to the field. This is true even for one of the editors of *Challenge*. Scranton, "Beyond Chandler?" 426–29; Richard R. John, "Rendezvous with Information? Computers and Communications Networks in the United States," *Business History Review* 75 (Spring 2001): 1–7; Usseleman, "Still Visible," 592n12.

innovation. Castells is, in addition, a perceptive observer of the economic restructuring that began around 1970—and, in particular, of the role of information technology in creating the material foundation for new modes of coordination. For Castells, the primary engine of innovation in the pre-1970 period remained the large, hierarchical enterprise—whether public or private.²⁹ Only after 1970, in Castells's view, would this begin to change—largely because of technological innovations in microelectronics that no pre-1970 social theorist could possibly have foreseen.

Like many studies of innovation, *Challenge* downplays the influence on business strategy of the political economy. Yet just as the strategic decisions of entrepreneurs have shaped the organizational structure of the firm, so, too has the structuring presence of the state shaped the business strategy of innovative—and not so innovative—entrepreneurs, firms, and sectors.³⁰ This lacuna is perhaps to be expected. Until relatively recently, most business historians have focused primarily on the entrepreneur and the firm and, in so doing, have marginalized not only the political economy in which the entrepreneur and the firm evolved, but also the social and cultural context in which business decision-makers operated. Even so, it remains surprising for a collection of original essays that champion a new research agenda to remain in this respect so resolutely traditional. At the very least, it would seem to be worthwhile for business historians of the recent past to follow Galambos's lead and engage social theorists like Castells whose interpretative frameworks have been devised to explain the technological, political, and cultural developments that have occurred since 1970.

The editors' priorities are evident in the organizational scheme they have adopted. The first section deals with the firm; the second with interfirm relations; and the third with the relationship between the firm and the state. As a consequence, readers are implicitly led to assume that the influence of the state on American business has been primarily reactive, and is confined to the relatively recent past.³¹ The contributors are correct to challenge the all-too-common assumption, which they attribute to Schumpeter, that public policy has invariably favored weak

²⁹ Manuel Castells, *The Rise of the Network Society* (Oxford, 1996), 4, 13, ch. 3. See also Castells, *The Internet Galaxy: Reflections on the Internet, Business, and Society* (Oxford, 2001), ch. 1.

³⁰ For a related discussion, see Matthias Kipping, "Business-Government Relations: Beyond Performance Issues," in *Business History around the World*, ed. Franco Amatori and Geoffrey Jones (New York, 2003), 372–93.

³¹ The constitutive role of the state in shaping business strategy is, for example, a central theme in the original essays collected together in Richard R. John, ed., *Ruling Passions: Political Economy in Nineteenth-Century America* (University Park, Penn., 2006). These essays emphasize the influence of political structure on business strategy, rather than—as is, for example, typically the case in *Challenge*—the other way around.

enterprises that stifled innovation. In fact, if this is indeed what Schumpeter contended, he was mistaken: in many instances public policy has fostered competition that challenged incumbents. Unfortunately this insight is mostly overlooked in this collection. If, for example, one compares *Challenge* with the recent collection of essays on the business history of the Internet edited by William Aspray and Paul E. Ceruzzi, the neglect of the political economy is apparent. Aspray and Ceruzzi document the indispensable role of the state in spurring innovation.³² *Challenge*, in contrast, is more congenial to the neoliberal, antistatist ethos that has dominated political discourse in the United States since the 1970s. This is true even though one of the editors has himself published a pathbreaking monograph on the nineteenth-century railroad that is highly sensitive to the political economy in which the railroad business emerged.³³ Even Chandler hinted at times at a more avowedly progressive conception of the state as an agent of change.³⁴

One example makes my point. The contributors rightly credit federal antitrust legislation with shaping the business strategy of IBM and its rivals in the 1960s and 1970s. Yet they ignore the influence of anti-monopoly laws and court rulings on the business strategy of telegraph giant Western Union and its rivals a century before. This omission is revealing, since the editors hail Western Union as "probably" the most generous sponsor of "technological discovery" in its day (p. 5). For the contributors—as for Chandler—Western Union is presumed to be a "natural monopoly" whose business strategy was conditioned by technological imperatives and economic incentives, rather than a powerful corporation whose business strategy had been shaped in myriad ways by the state.³⁵ As a consequence, readers are mistakenly led to assume that the refusal of Western Union to internalize research and development was the result not of political fiat but, rather, of an instrumental calculus involving the choice of appropriate coordination mechanisms.

In fact, Western Union managers hired independent inventors to meet the challenge posed by an antimonopoly political economy that

³² William Aspray and Paul E. Ceruzzi, eds., *The Internet and American Business* (Cambridge, Mass., 2008).

³³ Steven W. Usselman, *Regulating Railroad Innovation: Business, Technology, and Politics in America, 1840–1920* (Cambridge, U.K., 2002).

³⁴ Richard R. John, "Turner, Beard, Chandler: Progressive Historians," *Business History Review* 82 (Summer 2008): 227–40.

³⁵ On the political economy of Western Union, see Richard R. John, *Network Nation: Inventing American Telecommunications* (Cambridge, Mass., 2010), chs. 4–5. For the historiographical context, see John, "Telecommunications," *Enterprise and Society* 9 (Sept. 2008): 507–20. Western Union's business strategy in the post-Civil War decades has long been something of an Achilles heel for business historians. It is, for example, probably not coincidental that the telegraph business was the specialty of Richard B. DuBoff, the coauthor of one of the earliest and most trenchant critiques of *The Visible Hand*.

empowered independent inventors while constraining the managers of huge corporate combines like Western Union. It was this challenge—rooted not in technology or economics but in politics and culture—that explained why Western Union managers made the decisions that they did. Structure shaped strategy. The structuring presence of the state encouraged Western Union managers to adopt a narrowly focused business strategy. The telephone, the phonograph, and the electric light all emerged in an entrepreneurial hothouse that had been spawned by an antimonopoly political economy. In this instance, as in many others, innovation was the product not of business alone, but of the dynamic interplay between business and the state.³⁶

Do these essays set the agenda for future historically oriented scholarship on business innovation? In certain respects, they do. The locus of innovation is likely to remain a major theme for historical inquiry, especially as business historians turn their attention, as they unquestionably will, to the recent past. Even so, the contributors' explanatory power is limited by their neglect of government spending—including, in particular, military spending—in combination with their implicit presumption that the regulatory apparatus is best understood as a consequence of business strategy, but not as a cause. Further questions are raised by the presumption that disruptive change is invariably a positive good. When, one wonders, is creative destruction merely destruction?³⁷

One final question is deserving of more extended discussion. Does it make sense, in a world haunted by poverty, global warming, and the specter of nuclear annihilation, to evaluate business innovation solely in terms of economic output, profitability, firm longevity, and national power? Might it not be time for business historians to examine more critically the ethical implications of business innovation for cherished civic ideals such as equal access, social justice, and environmental sustainability? The future of business innovation is not morally neutral, and neither should historical writing be impartial about its past. Napalm was a business innovation; so, too, was crack cocaine.

The essays in *Challenge* repay careful reading, and the editors' introductions have been prepared with intelligence and care. Yet, in the end, the whole is not greater than the sum of the parts. *Challenge* tells us more about where business history has been than where it ought to go, and does more to reinforce the insular internalism that has long kept business history at the margins of historical inquiry than to point it toward the cosmopolitan contextualism that has the potential to illuminate the relationship of business, innovation, and the political economy

³⁶ John, *Network Nation*, ch. 5.

³⁷ I am indebted to Edward J. Balleisen for this distinction.

in the making of the modern world. If American business is to remain innovative in the twenty-first century, it would seem prudent to examine critically not only business decision making, but also a constellation of other factors that included, but that were no means confined to, supportive governmental institutions and civic ideals—since these factors, too, have often proved indispensable in spawning the gales of “creative destruction” that the contributors rightly regard as a hallmark of innovation.

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