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A View from the Periphery, Thoughts on AI, and a Glance Backward

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First, let me begin with a confession. I initially thought that this “Fest” to honor Roe’s extraordinary accomplishments would be more informal, so I decided not to do a PowerPoint. I have no PowerPoint to show you. Walking around the MIT campus yesterday, however, I had second thoughts: “Why didn’t I do a PowerPoint? I think other people are going to be doing PowerPoints.” Then I realized that, over the last couple of decades, I myself have become a captive of technology. It’s been that long since I have actually *read* a paper, rather than talking it through with PowerPoint. Without PowerPoint to structure my presentation, it seems, I can no longer just talk. So I’m going to read my paper today.

A View from the Periphery

I also want to begin with a *caveat*. As many of you know, I think—and as Roe and other people have mentioned—I was one of the first students to work in the STS program in the history of technology. By way of establishing my seniority in the history of the program—seniority even over Lindy Biggs—I believe I was the first (or maybe the second) student to be *admitted* to the STS program to work with Roe in the history of technology (as well as with Suzanne Berger in political economy in the Political Science Department). Over the last couple of decades, however, my research interests have shifted away from the history of technology. We have had some conversations here over coffee about why that sort of thing may be happening to others. One reason, in my case, was that I had the good fortune to be hired as a historian of business and

technology by a history department. That meant that there were few departmental “guardrails” to keep me in the history of technology. And, over time, my research interests have shifted from railroads and political structures to corporations. So, as my research interests have evolved over the last decade or two, I have attended most annual meetings of the Business History Conference and very few meetings of the Society for the History of Technology.

But as my research interests were evolving—this was in the 1990s—I became increasingly disaffected with the history of technology because of the dominance of the “social construction of technology” paradigm. Particularly for someone like me, with my background in political science, its conception of power seemed impoverished, woefully outdated.¹ And so I just thought, “Hmm, I’m going to go somewhere else.” All that is to say that what I am offering today is a view from the periphery of the field.

Generative AI

Nonetheless, I have been thinking a lot about technology recently. Like many people around the world, I have been thinking about one technology in particular—generative artificial intelligence, or generative AI. In a shockingly short span of time, generative AI, most familiar in the form of ChatGPT, has gone mainstream in the academy. *The Chicago Manual of Style Online* offers guidance to students or scholars on how to cite “content developed or generated by artificial intelligence such as ChatGPT.”² If you search the web, you’ll find that the libraries of many, if not most, colleges and universities offer students guidance on how to cite ChatGPT in their research.³

With this symposium on the horizon, I got to wondering, on the one hand, what the implications of generative AI might be for our craft—the “craft of history”—and, on the other hand, why historians of technology have been less prominent than one would expect in contemporary debates about generative AI and its impact on historical research. The bulk of the conversation among historians to date, as far as I’ve been able to glean from the web, has focused on the history of AI itself, on the use of AI in history classrooms, and on AI tools as the functional equivalent of the traditional archive. In the classroom, the challenges presented by AI

¹ See Hans K. Klein and Daniel Lee Kleinman, “The Social Construction of Technology: Structural Considerations,” *Science, Technology, and Human Values* 27, no. 1 (Winter 2002): 28-52.

² Style Q&A, Chicago Manual of Style Online, <https://www.chicagomanualofstyle.org/qanda/data/faq/topics/Documentation/faq0422.html> (accessed May 31, 2024).

³ Google search: “how to cite ai” [AND] library, <https://www.google.com/search?q=%22how+to+cite+ai%22+library>.

seem somewhat analogous to those that teachers encountered when Wikipedia first came online—not completely different from that at least; while AI-as-archive also presents a not unfamiliar challenge: just as the traditional archive user needs to understand the construction of the collection of documents they’re using in the archive, so the historian needs to understand the construction of data models. The latter is, of course, a much more daunting task, involving as it does algorithms and a word I learned recently, backpropagation (one word).⁴

But very little is being said about the impact of generative AI on the core work of historians—on the writing of history.⁵ We know that AI is making deep inroads in other professions, in the legal profession, for example, writing briefs, sometimes error filled, and in medicine.⁶ The other day, the *New York Times* carried an article speculating about generative AI replacing CEOs and citing two companies that claim to have virtual CEOs.⁷ Will generative AI replace historians, too?

For an answer to this existential question, I went to the obvious source, ChatGPT 4.o. As a philosopher of technology argues in a fascinating new book, *The AI Mirror*, AI systems like ChatGPT simply “mirror our own intelligence back to us.”⁸ I won’t go into her reasons why that is, but I think is true. So asking ChatGPT 4.0 about the fate of historians is like talking to ourselves. “Will you replace historians?” I asked ChatGPT 4.o. “Will you replace historians as writers and researchers?” ChatGPT 4.o produced a rather sensible, detailed analysis of AI’s contributions to historical research and writing as well as its limitations, and it then concluded in the following reassuring terms:

AI, including myself [*that was my favorite part*], is a valuable asset in the field of historical research and writing, capable of augmenting the work of historians in various ways. However, the depth of understanding, critical thinking, ethical

⁴ Joshua Sternfeld, “AI-as-Historian,” *American Historical Review* 128, no. 3 (September 2023): 1372-77. On algorithms, I found Panos Louridas, *Algorithms* (Cambridge, MA: MIT Press, 2020) particularly helpful.

⁵ Only after the symposium did I read A. P. Leme Lopes’ illuminating article, “Artificial History? Inquiring ChatGPT on Historiography,” *Rethinking History* 27, no. 4 (2023): 709-49.

⁶ E.g., “Task Force on Law and Artificial Intelligence,” American Bar Association, https://www.americanbar.org/groups/leadership/office_of_the_president/artificial-intelligence/impact-of-ai-on-the-legal-profession/; “Augmented Intelligence in Medicine,” American Medical Association, April 5, 2024, <https://www.ama-assn.org/practice-management/digital/augmented-intelligence-medicine>.

⁷ David Streitfeld, “If A.I. Can Do Your Job, Maybe It Can Also Replace Your C.E.O.,” *New York Times*, May 28, 2024, <https://www.nytimes.com/2024/05/28/technology/ai-chief-executives.html>, <https://www.nytimes.com/2024/05/28/technology/ai-chief-executives.html>.

⁸ Shannon Vallor, *The AI Mirror: How to Reclaim Our Humanity in an Age of Machine Thinking*, Kindle ed. (New York: Oxford University Press, 2024), 2.

judgment, and narrative skill that human historians bring to their work cannot be replaced by AI. Instead, we can work together, with AI providing powerful tools to support and enhance the capabilities of historians.⁹

(Now, if anyone needs reminding that ChatGPT can make errors, I can report that when I asked it about myself—I know something about myself—it said in response to a sequence of queries that I did my PhD variously at Harvard, Berkeley, and Penn. Then when I nudged it a little further, it finally offered MIT as the answer, with an apology “for the previous errors.” But, when I nudged one more time—“Why did you tell me thus-and-such?”—it said Berkeley again. So there you are. Go figure.)

If ChatGPT is correct, however, in its summary of the value added that real, live historians can contribute to their profession in a generative AI world, then future proofing ourselves in the history of technology and in other fields of history means not only that we need to get up to speed on generative AI tools but that we also need to focus intensely on enhancing those vital skills of the real live historian—contextualization, critical thinking, ethical judgment, and the crafting of persuasive narratives. More on that in a moment.

Equally puzzling to me is that historians of technology have had a minimal presence in the ongoing discussions specifically about AI and the history profession. The history of science has been a little bit better represented. But still, shouldn’t historians of technology be at the forefront? The Leverhulme Centre for the Future of Intelligence at the University of Cambridge launched a series of projects on the implications of artificial intelligence, including one on the history of AI. But only a handful of its many affiliates are historians.¹⁰ An AHA forum on “Artificial Intelligence and the Practice of History” appeared in the September 2023 issue of the *American Historical Review*. But only one of its seven contributors is a historian (of early modern science

⁹ ChatGPT 4.o, June 2, 2024.

¹⁰ “About Us,” Leverhulme Centre for the Future of Intelligence, <https://www.lcfi.ac.uk/about>. Its affiliates include Jonnie Penn (<https://www.lcfi.ac.uk/people/jonnie-penn>), Ph.D. in the History and Philosophy of Science, Cambridge. A 2018 panel discussion hosted by the center on “The Future of Artificial Intelligence: Views from History” included Simon Shaffer, historian of science at Cambridge, and Nathan Ensmenger, Penn Ph.D. in the History and Sociology of Science, now at Indiana University (<https://www.youtube.com/watch?v=hjB35dRUhi4>). The center is funded by the Leverhulme Trust, which was created with a legacy from Lord Leverhulme of Lever Brothers, a forerunner of Unilever (<https://www.leverhulme.ac.uk/history-trust>). On the weak representation of historians of technology in a volume of essays from the Leverhulme project, see Ronald R. Kline, “Review of *AI Narratives: A History of Imaginative Thinking about Intelligent Machines*, ed. by Stephen Cave, Kanta Dihal, and Sarah Dillon,” *Technology and Culture* 64, no. 1 (January 2023): 223-225.

and recent information technology).¹¹ This summer, Britain's Royal Historical Society will convene an online panel discussion on AI, history, and historians. One of the questions the panel will discuss is "whether histories of previous technological change can better prepare us to accommodate AI alongside the established skills and practices of historical study." Good question. Yet its four panelists include only one historian (the same one who contributed to the AHA Forum).¹² Historians of technology, as far as I can tell, have been largely absent from these debates. Is this an instance of "chance and contingency," to borrow Bob Post's phrase describing Mel Kranzberg's career,¹³ that is, circles of entrepreneurial individuals, engaged in networking, gaining access to funding, circles that just happened not to include historians of technology? Or does it say something about the current state of the field?

A Model for the Future?

However we assess the current state of the field, it seems obvious that historians of technology *should* be at the forefront of these discussions. For a model of how to move in that direction—for inspiration in imagining a path towards a revitalized history of technology in an age of AI—I would propose that we look to the field's past. Not to the 1950s, the decade conventionally understood as its founding era, but further back—to the field's deep history at the turn of the twentieth century.

Like our own, this was a time of momentous change. In his 1911 AHA Presidential address, Frederick Jackson Turner assessed the new reality in words that resonate today: "The transformations through which the United States is passing in its own day, in our own day," he declared, "are so profound, so far-reaching that it is hardly an exaggeration to say that we are witnessing the birth of a new nation in America." Turner urged his colleagues, then still largely preoccupied with political and diplomatic history, to pay attention to the world around them and to "rework our history from the new points of view afforded by the present." The transformations Turner had in mind included, of course, the closing of the frontier, subject of his famous essay,

¹¹ "AHR History Lab: Artificial Intelligence and the Practice of History," *American Historical Review* 128, no. 3 (September 2023): 1345-89. The historian of early modern science and recent information technology is Matthew L. Jones at Princeton. He is co-author of *How Data Happened: A History from the Age of*

Reason to the Age of Algorithms (New York: W.W. Norton, 2023).

¹² Royal Historical Society, "AI, History and Historians: A Panel Discussion," July 17, 2024, <https://www.eventbrite.co.uk/e/ai-history-and-historians-a-panel-discussion-tickets-883282891907>.

¹³ Robert C. Post, "Chance and Contingency: Putting Mel Kranzberg in Context," *Technology and Culture* 50, no. 4 (October 2009): 839-872.

but equally important were “the worldwide forces of reorganization incident to the age of steam production and large-scale industry.”¹⁴

As Turner was surely aware, the very transformative forces that he highlighted had already spawned a massive project to encourage historians to pay attention to the world around them. In 1902, at the height of the great merger movement, Andrew Carnegie, having sold his steel company to a JP Morgan-led consortium, used a portion of his proceeds to endow a new foundation, the Carnegie Institution of Washington.¹⁵ The foundation quickly launched a series of advisory committees, mainly in the sciences, but including one devoted to economics. Chaired by U.S. Commissioner of Labor Carroll D. Wright, the committee immediately proposed what it characterized as “a monumental economic history of the United States.”¹⁶ Elevated to departmental status within the institution, it enjoyed an annual budget of \$30,000, which, as a share of 2023 GDP, translates into about \$31 million annually. In their collective topical breath, the new department’s twelve research divisions encompassed an expansive terrain that would later be plied by an array of separate, specialized historical associations.¹⁷

¹⁴ Frederick J. Turner, “Social Forces in American History,” *American Historical Review* 16, no. 2 (January 1911): 217-18.

¹⁵ In 1901 dollars, Carnegie’s proceeds (in 5% U.S. Steel bonds) totaled \$480 million. As a share of 2023 GDP, this was equivalent to \$573 billion. Larry Schweikart, “Carnegie Steel,” in *Encyclopedia of American Business History and Biography: Iron and Steel in the Nineteenth Century*, ed. Paul F. Paskoff (New York: Facts On File, 1989), 78; Measuring Worth (<https://measuringworth.com>). Carnegie endowed the foundation initially with \$10 million in U.S. Steel bonds, the equivalent of \$11.1 billion in 2023 dollars. Carnegie Institution of Washington, *Year Book No. 1, 1902* (Washington, DC: Carnegie Institution, January, 1903), xi. Carnegie gave the foundation another \$2 million in 1907 (\$1.6 billion in 2023 dollars) and \$10 million in 1911 (\$7.9 billion). “Report of the President,” Carnegie Institution of Washington, *Year Book No. 7, 1908* (Washington, DC: Carnegie Institution, February, 1909), 18; “Report of the President,” Carnegie Institution of Washington, *Year Book No. 10, 1911* (Washington, DC: Carnegie Institution, January, 1912), 7.

¹⁶ “Proceedings of Executive Committee,” Carnegie Institution of Washington, *Year Book No. 1*, xxxii; Carroll D. Wright, “An Economic History of the United States,” *Publications of the American Economic Association* 6 (3rd ser.), no. 2, Papers and Proceedings of the Seventeenth Annual Meeting, Part II (May 1905): 160. On Walker’s career, see Carroll D. Wright, “Francis Amasa Walker,” *Publications of the American Statistical Association* 5, no. 38 (June 1897): 245-275. The economics committee’s other members were professors of political economy (Henry W. Farnam at Yale and John B. Clark at Columbia).

¹⁷ Carroll D. Wright, “Report of Department of Economics and Sociology,” Carnegie Institution of Washington, *Year Book No. 3, 1904* (Washington, DC: Carnegie Institution, January, 1905), 55. The divisions were devoted to population and immigration, agriculture and forestry, mining, manufacturing, transportation, domestic and foreign commerce, money and banking, the labor movement, industrial organization, social legislation, federal and state finance, and, from 1906, “The Negro in Slavery and Freedom.” Wright’s report gave division-by-division details on individual scholars, research assistants, and their projects.

Tapping percolating interest among economists and historians, the Carnegie Institution literally created American economic history as a field of academic study.¹⁸ By 1904, 75 scholars were at work under its supervision, a number that grew to 204 by 1908.¹⁹ The result in little more than a decade was an extraordinary outpouring of Carnegie-supported publications on American economic history, many remaining classics in their field for decades.²⁰ They included W.E.B. Du Bois's *Economic Cooperation Among Negro Americans* (1907), Ulrich Phillips's *History of Transportation in the Eastern Cotton Belt* (1908), and Edith Abbott's *Women in Industry* (1910). Among its most prominent products was John R. Common's 10-volume *Documentary History of American Industrial Society* (1910-1911), most of it devoted to labor history. Even after the project ended in 1916, Carnegie-supported publications continued to appear, notably Victor S. Clark's *History of Manufactures in the United States* (1919-1928)—my personal favorite—and Bidwell and Falconer's *History of Agriculture in the United States, 1620-1860* (1925).

Although the Carnegie Institution's economists had spawned the project to promote the study of American economic history, it quickly became the province of historians. The divisions between the two were not very large at the time, but, as economists turned towards "scientism," to use Dorothy Ross's word, in the 1910s,²¹ their interest in economic history waned,²² while

Chapters in Kirkland's *Industry Comes of Age*

- I. Business Vicissitudes
- II. Government Finance, Banking, and Currency
- III. Railroads: Building and Finance
- IV. Railroad Pricing Policy
- V. Railroad Reform
- VI. Railroad Commissions: Breakthrough or Stalemate?
- VII. Natural Resources: Finding and Development
- VIII. The Transformation of Industry
- IX. Tariffs, Patents, and Other Intangibles
- X. The Organization of Production
- XI. Financing Expansion
- XII. Building American Cities
- XIII. Serving and Controlling the Domestic Market
- XIV. The American Menace Abroad
- XV. The Attack on Wealth
- XVI. Recruiting and Training Workers
- XVII. The Employer and the Conditions of Labor
- XVIII. Workers' Organizations and Their Weapons
- XIX. Programs and Philosophy of Organized Labor
- XX. Multiplication, Division, Materialism

¹⁸ As Dorothy Ross notes, "foundation money could not create something that lacked support within the disciplines, but it could greatly strengthen some things rather than others." Dorothy Ross, *The Origins of American Social Science* (Cambridge: Cambridge University Press, 1991), 402.

¹⁹ Wright, "An Economic History of the United States," 177; Carroll D. Wright, "Department of Economics and Sociology," Carnegie Institution of Washington, *Year Book No. 7*, 74.

²⁰ Henry W. Farnam, ed., *Bibliography of the Department of Economics and Sociology of the Carnegie Institution of Washington*, 3d ed. (New Haven: Tuttle, Morehouse & Taylor Co., 1914).

²¹ Ross, *Origins*, 390-427.

²² See, for example, Henry W. Farnam, "The Economic Utilization of History: Annual Address of the President," *American Economic Review* 2, no. 1, Supplement, Papers and Proceedings (March 1912): 16-

historians' interest blossomed.²³ By the 1930s, economic history was widely represented in the curricula of American universities.²⁴ The high point of this fulsome vision of economic history came in the decade and a half after World War II with the publication of *The Economic History of the United States*, a series of synthetic studies that appeared in two waves between 1945 and 1962. Authored by historians, its eight volumes included landmarks very familiar to historians of technology: Paul Gates' *The Farmer's Age* (1960), George Rogers Taylor's *The Transportation Revolution* (1951), and another of my favorites: Edward C. Kirkland's *Industry Comes of Age* (1961). Each of the volumes engaged an array of topics (*see sidebar*) that, in our own time, are taken up by separate contingents of historians—e.g., the “new” economic historians, historians of technology, business historians, environmental historians, legal historians, urban historians, and labor historians.

Even as these classic studies were appearing in print, however, a confluence of factors was fracturing economic history. The resulting shards—one of which was the history of technology—were reorganizing into an array of specialized fields that lacked a common mooring, a story for another day.²⁵

In what ways might the Carnegie Institution project and this “old” economic history serve as a model for future proofing the history of technology? Obviously, if you are personally acquainted with any of today's titans of AI, comparable in stature to Carnegie in his time, now would be the time to approach them about funding a project of similar magnitude—at, say, \$31 million a year. Its goal would be to lead the way in contemplating the impact of generative AI on the craft of history, on the writing of history.

But, barring such good fortune, we can at least seek to shore up the vital skills of historians that ChatGPT 4.0 highlighted. To my mind, our ability to *contextualize*—to grasp the big picture and to situate events and individuals in the larger context of their times—is the historian's paramount skill. This is, to my mind, the essential skill that Roe Smith deploys so effectively in

17; Guy S. Callender, "The Position of American Economic History," *American Historical Review* 19, no. 1 (October 1913): 80, 87; Steven A. Sass, *Entrepreneurial Historians and History: Leadership and Rationality in American Economic Historiography, 1940-1960* (New York: Garland, 1986), 21-23.

²³ See Farnam, "The Economic Utilization of History," and Callender, "The Position of American Economic History," as well as William Ashley, "The Place of Economic History in University Studies," *Economic History Review* 1, no. 1 (January 1927): 1-2, 5-6.

²⁴ J. de L. Mann, "The Teaching of Economic History in Universities [Part 1]," *Economic History Review* 3, no. 2 (October 1931): 197-218; J. de L. Mann, "The Teaching of Economic History in Universities [Part 2]," *Economic History Review* 3, no. 3 (April 1932): 325-345.

²⁵ Colleen A. Dunlavy, "Whatever Happened to (American) Economic History—and Could the 'History of Capitalism' Become the 'Newer' Economic History?" (May 15, 2014), 17-24. Available at SSRN: <https://ssrn.com/abstract=4275660> or <http://dx.doi.org/10.2139/ssrn.4275660>

his work. Effective contextualization requires a fount of historical knowledge that is deep and broad, bolstered by discernment in tracing linkages across multiple domains of history. While retaining their distinctive focus on technology, historians of technology would do well, I believe, to aspire to emulate the fulsome vision that marked the old economic history, born as it was amidst a similar era of transformation.