TECHNOLOGIES AS CULTURAL PRACTICE AND PRODUCTION

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Some thirty years ago I was reading an anthology of American tall tales, and it struck me that the folk heroes celebrated could be categorized in various ways: by sex, by race, by century, by their occupations and the scenes of their incredible feats.[1] Three in particular shared a striking convergence. In the story of Old Stormalong, the whaling captain with the over-sized sailing ship is becalmed in mid-Atlantic when he sees what he thinks is a possible rain cloud on the horizon. It turns out to be not a cloud but the smoke from an early steamship bearing down on him. As it passes he swears to beat it into the harbor of Boston, and when a wind does rise, he lays on a prodigious amount of sail. Eventually his ship does indeed win the race for port, but when it arrives the masts and rigging are a tangle and the captain himself is slumped dead over the wheel.

In a second, perhaps more familiar story, Mike Fink is celebrated as the best of the rivermen who poled keelboats up the Mississippi River and its tributaries. Mike was renowned for his ability to shoot and fight but, as the story has it, he finally lost his biggest fight—against Robert Fulton when the latter's steamboats drove the rivermen off the waters. With his livelihood destroyed, Mike migrated to the Rocky Mountains where

[1] Adrien Stoutenburg, *American Tall Tales* (New York: Viking Press, 1966).

he hunted and trapped until, being driven mad by having to live in an alien environment, he killed his best friend in what may or may not have been an accident.

And finally there was John Henry, the most celebrated of them all. In his familiar story he pitted his skill as an iron-driving man against a new steam-drill the railroad wanted to introduce. He beat the new machine but his great heart broke under the effort and he died with his hammer in his hands.

It occurred to me at the time that if these were indeed authentic folk tales (and that could not be safely assumed) they might represent a deep tide of artisanal unease which ran against the flood of national self-congratulation over that technological "Progress" of the 19th century which was deskilling a large number of workers with social and political, as well as personal, costs that could hardly be calculated. I never followed up that hunch, but sometime later I found the tools with which I might have done so.

It has been almost two decades since the collection of essays, *The New Cultural History,* edited by Lynn Hunt, first appeared, and the scholarly landscape she explored has changed since then.[2] But the book then, as now, seemed full of methodological insights and exciting case studies describing a kind of history which, while not entirely novel, promised new works and understandings. I, for one, wanted to read the landscapes and artifacts of the history of technology the way Mary Ryan read 19th century American parades. "The parade," she wrote, "presents historians with a kind of cultural performance from which anthropologists have extracted rich meaning," and I imagined that tools and machines might present similar opportunities.[3]

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[2] Lynn Hunt, ed., *The New Cultural History* (Berkeley: University of California Press, 1989).

[3] Marty Ryan, ""The American Parade: Representations of the Nineteenth-Century Social Order," in Hunt, p. 132.

Cultural history has been around long enough now that one does not need to explain it in detail, but I want to emphasize three aspects of it which still promise to expand and enrich the way we do the history of technology. First, as Hunt explains, "the deciphering of meaning,…rather than the inference of causal laws of explanation, is taken to be the central task of cultural history."[4] One can ask many questions of a tool or machine: where did it come from (the traditional search for an inventor or designer), how does it work, what does it do, and so forth.[5] But one can also ask what does it mean—to the designer, the builder, the consumer, the casual observer and so forth. It is in this sense that one can read parades—or drag races, or Project Apollo.

Second, again as Hunt points out, cultural history takes seriously the use of language as metaphor and pays close attention to how words are deployed. Perhaps our own best example is the recent attempt, most notably by Leo Marx, to track the word technology: a project which is certainly close to the center of our work. To understand that this word is contested and historically contingent is critical to what we all do. As Hunt bluntly asserts, "words did not just reflect social and political reality; they were instruments for transforming reality."[6]

Third, cultural history encourages us to see such terms as race, class and gender not as fixed categories, but as things that have been "created in the course of human relationships, mediated through shared culture." E. P. Thompson's magisterial *The Making of the English Working Class* is a classic example of how powerful this insight

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[4] Hunt, p. 12.

[5] See also my essay, "Seeing the Invisible: New Perceptions in the History of Technology," *Icon*, 1 (1995), 9-15.

[6] Leo Marx, "The Idea of 'Technology' and Postmodern America," *Does Technology Drive History? The Dilemma of Technological Determinism*, ed. Merritt Roe Smith and Leo Marx (Cambridge: MIT Press, 1994), pp. 237-257.

can be, but we also have Carolyn Marvin's provocative reading of the ways in which those little jokes used as filler in electrical journals work to help define a technical elite.[7] We have Bruce Seely to thank for unearthing the wonderful words of an engineer in 1903 warning that "we have the man who fires the boiler and pulls the throttle dubbed a locomotive engineer; we have the woman who fires the stove and cooks the dinner dubbed the domestic engineer, and it will not be long before the barefooted African, who pounds the mud into brick molds, will be calling himself a ceramic engineer."[8] It appears that the mantra of race, class and gender are not so recent as some cultural warriors might believe. Along similar lines, age (itself an aspect of life neglected in the history of technology) can be seen to be constructed. "Boy" is not a fixed category, but one variously defined, not least by questions of technical proficiency or disability.

And finally, I personally am drawn to cultural history by Hunt's description of her own work. In her "story line," she admits, she tells "the perpetual romance, the quest without end, the ironic doubling back over territory already presumably covered. By implication, history has been treated here as a branch of aesthetics rather than as the hand-maiden of social theory."[9] It is a startling claim, akin to that of Paul Goodman that technology is a branch of moral philosophy, not science.

If much of this sounds familiar it is because the history of technology as a field has been served by a significant number of scholars who have done at least some of what Hunt suggests. Most of us have been lucky enough to have spent our careers drawing

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[7] E.P. Thompson, *The Making of the English Working Class* (New York: Pantheon Books, 1964); Carolyn Marvin, *When Old Technologies Were New: Thinking About Electric Communication in the Late Nineteenth Century* (New York: Oxford University Press, 1988).

[8] Quoted in Bruce Seely, "SHOT, the History of Technology, and Engineering Education," *Technology and Culture*, 36 (October, 1995), 744.

[9] Hunt, p. 21.

inspiration from Leo Marx's 1964 book, *The Machine in the Garden*.[10] The shameless appropriation of variations on its title, from my own *The Machine in America* to Stanley Joel Reiser and Michael Anbar"s *The Machine at the Bedside* attest to its influence.[11] A steady stream of books flowing from the American Studies tradition have greatly enriched our field. Cecilia Tichi's *Shifting Gears* studied representations of modernist technology in early 20th century American literature and film while her *Electronic Hearth* described the introduction and influence of television in the American home. Martha Banta's *Taylored Lives* studied, as her subtitle has it, *Narrative Fictions in the Age of Taylor, Veblen, and Ford*.[12] David Nye has given us numerous studies in this tradition, and Michael Smith has produced a number of articles teasing out the meanings of everything from Planetary Engineering to the race for the moon, EPCOT and the Roadrunner cartoons.[13] That mix of American history and American literature with which the field began has proven to be an important way in which we define and read texts in our own field.

American Studies, of course, has not been the only source of such work. One of the books widely read outside the field, and universally admired, is *The Railroad Journey:*

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[10] Leo Marx, *The Machine in the Garden: Technology and the Pastoral Ideal in America* (New York: Oxford University Press, 1964).

[11] Carroll Pursell, *The Machine in America: A Social History of Technology* (rev. ed., Baltimore: Johns Hopkins University Press, 2007); Stanley Joel Reiser and Michael Anbar, *The Machine at the Bedside: Strategies for Using Technology in Patient Care* (Cambridge: Cambridge University Press, 1984).

[12] Cecelia Tichi, *Shifting Gears: Technology, Literature, Culture in Modernist America* (Chapel Hill: University of North Carolina Press, 1987) and *Electronic Hearth: creating an American Television Culture* (New York: Oxford University Press, 1991); Martha Banta, *Taylored Lives: Narrative Productions in the Age of Taylor, Veblen, and Ford* (Chicago: University of Chicago Press, 1993).

[13] See for example David E. Nye, *American Technological Sublime* (Cambridge: MIT Press, 1994). For Smith see for example "Selling the Moon: The U.S. Manned Space Program and the Triumph of Commodity Scientism," *The Culture of Consumption: Critical Essays in American History, 1880-1980*, ed. Richard Wightman Fox and T.J. Jackson Lears (New York Pantheon Books, 1983), pp. 175-209 and "'Planetary Engineering': The Strange Career of Progress in Nuclear America," *Possible Dreams: Enthusiasm for Technology in America*, ed. John L. Wright (Dearborn: Henry Ford Museum & Greenfield Village, 1992), pp. 110-123.

The Industrialization of Time and Space in the 19th Century by Wolfgang Schivelbusch. In his Foreward to the book Alan Trachtenberg, himself a major figure in American Studies, says Schivelbusch "suggests that we look for evidence of culture at those minute points of contact between new things and old habits, and that we include in our sense of history the power of things themselves to impress and shape and evoke a response within consciousness."[14]

We could just as easily look at those "minute points" of contact between *old* things and *new* habits. David Edgerton's recent book *The Shock of the Old: Technology and Global History Since 1900* argues for greater attention to what he calls "use-centered" technologies, to the end that our field can, in Trachtenberg's words, "include in our sense of history the power of things themselves to impress and shape and evoke." Such a strategy would allow us to see the significance of what Edgerton calls "creole" technologies which appear at precisely those junctions where what the rich world considered old things are used, and sometimes modified, by the poor world to foster new habits. Edgerton makes no claim for cultural history as such, but he does insist that his notion of a "history of technology-in-use" has the power to create a "radically different picture of technology" and "give us a history which does not fit the usual schemes of modernity."[15]

Many of us working in the history of American technology, whether we have been members of the American Studies Association or not, have been in some ways influenced by that field. Bruce Sinclair has given us nuanced readings of mid-20th century

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[14] Wolfgang Schivelbusch, *The Railway Journey: The Industrialization of Time and Space in the 19th Century* (Berkeley: University of California Press, 1986), p. xv.

[15] David Edgerton, *The Shock of the Old: Technology and Global History Since 1900* (New York: Oxford University Press, 2007), pp. xi, 43.

engineering pageants and ballets with mechanistic themes. Rachael Maines has lifted the social disguise which allowed the electric vibrator to find acceptance as a medical treatment, and Rosalind Williams provided a brilliant reading of the meanings of the underground.[16] Let me quickly mention four works in progress, with which I am familiar, which I think show something of the promise of a cultural turn in our field.

During the first half of the 20th century airplanes seemed to herald the future, and so, of course, did children. The prospect of airmindedness, especially among boys, seemed like a natural convergence: good for both the technological future and for the boys themselves. As one postwar slogan had it, "building models builds model boys." Aaron Alcorn is currently studying the world of boy modelers: the commercial expectations built around them, the spaces they negotiated for their activities, and the technological hopes they engendered.

Arwen Mohun is investigating risk, both the industrial dangers of expanding and under-regulated technological workplaces and the manufactured pseudo-risks of "fun factories" from Coney Island to Disneyland. She has looked at advertisements for prosthetic devices aimed at workers, the add-on safety devices which were marketed, for an additional cost, along with production machinery, and at literary representations, high and low, of the ways in which the body is inscribed with the marks of technological violence.

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[16] Bruce Sinclair, "Local History and National Culture: Notions on Engineering Professionalism in America," *Technology and Culture*, 27 (October, 1986), 683-693 and "Technology on Its Toes: Late Victorian Ballets, Pageants, and Industrial Exhibitions," *In Context: History and the History of Technology. Essays in Honor of Melvin Kranzberg*, ed. Stephen H. Cutcliffe and Robert C. Post (Bethlehem: Lehigh University Press, 1989), pp. 71-87; Rachel P. Maines, *The Technology of Orgasm: 'Hysteria,' the Vibrator, and Women's Sexual Satisfaction* (Baltimore: Johns Hopkins University Press, 1999); Rosalind Williams, *Not6es on the Underground: An Essay on Technology, Society, and the Imagination* (Cambridge: MIT Press, 1990).

Bernie Jim has studied demolition both as technological practice and as sublime spectacle. Long before the nation was mesmerized by the graphic tragedy of 9/11 it had become accustomed to the strange and terrifying beauty of buildings imploded, the process captured on film for mass entertainment. If capitalism is characterized by its creative destruction, demolition is its technological instrument. From sidewalk superintendents to wrecking parties, at which guests, fueled by cocktails, were encouraged to smash condemned apartments, people were encouraged to participate at least vicariously in the process.[17]

In a short story by Saki, a hotel chef slips quietly into the dining room at lunchtime to see the reaction of diners to his signature soup. Just as the soup is served, however, the bandmaster lifts his baton and the diners jump up to dance. Enraged, the chef kills the conductor. It is a violent moment brought about by the inappropriate collision of two worlds otherwise kept deliberately separate: the industrial kitchen carefully designed for the efficient production of meals, and the separate and distinct pre-industrial dining room, just as carefully designed for their gracious consumption.

This artful separation of the production and consumption of food, of industrial work and domestic pleasure, is just one aspect of the modern hotel studied by Molly Berger. Picking up a remark by Daniel Boorstin that many people in the 19th century probably saw new technologies, like flush toilets, electric illumination and elevators, in hotels, she investigated these new landmarks as contested spaces, mixing masculine and feminine,

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[17] See for example Bernard L. Jim, "'Wrecking the Joint': The Razing of City Hotels in the First Half of the Twentieth Century," *The Journal of Decorative and Propaganda Arts*, 25 (2005), 288-315.

public and private, luxury and democracy, the newest technology and the most traditional décor.[18]

These examples of ongoing work in our field reinforce, I think, the notion that it is at the same time possible, useful, and even delightful to put cultural considerations near the center of our studies. It is important to remember that technology is both a cultural practice and a cultural production, to use Lynn Hunt's characterization. One can be misled by the way our journal title states the relationship: technology *and* culture, as though the two were, if certainly not antagonistic, at least separate. It's unlikely that anyone has been led astray by this pairing (though some simplistic dichotomies may have been left undisturbed), but it is important to remind ourselves that, as Hunt said, "economic and social relations are not prior to or determining of cultural ones." [19] Technology is not simply embedded in our culture, it is a distinctive part of it. I sometimes fear that it is too easy to construct cultural history, especially of technology, as somehow feminine in contrast to the manly interrogation of the economic, political, and social relationships of technology: that a focusing on culture is a kind of intellectual consumption of the understandings produced by a more masculine scholarship. In fact, cultural history poses profound political analytical and epistemological questions. David Edgerton begins his *Shock of the Old* with the words: "much of what is written on the history of technology is for boys of all ages. This book is a history for grown-ups of all genders."[20] I would suggest that the same might be said for a cultural history of technology.

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[18] Molly W. Berger, "The Magic of Fine Dining: Invisible Technology and the Hotel Kitchen," *Icon*, 1 (1995), 106-119.
[19] Hunt, p. 7.
[20] Edgerton, p. ix.

Finally, I think that as we contemplate the future of our field, we should keep in mind the cautionary remarks of our colleague Joe Corn, written twenty years ago in his study of *Imagining Tomorrow: History, Technology, and the American Future.* He warned us of the three "common fallacies" that have dogged technological prediction: "the fallacy of total revolution, the fallacy of social continuity, and the fallacy of the technological fix."[21]

Cautioned by Joe's warnings, I feel safe in making three predictions. First, that the application of insights and understandings from cultural history to our field will not sweep away all the other ways in which we have studied our subjects over the years. Those who prefer another research paradigm will have ample encouragement and reward from their peers: there will be no total revolution. Second, other ways of looking at the technological past will not be immune from the insights provided by cultural history. For those who choose to accept them, the latter can offer nuanced insights that can add delights and understandings to enhance studies undertaken in another mode. And third, cultural history cannot serve as a silver bullet, solving all problems, answering (or even framing) all questions, and satisfying every curiosity. If it suggests more topics than it exhausts that surely is a good thing, and a result for which we must all be grateful.

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[21] Joseph J. Corn, "Epilogue," *Imagining Tomorrow: History, Technology, and the American Future* (Cambridge: MIT Press, 1986), p. 219.