**Colloquium in the History of Technology: Technologies & Cultures | 510:535**
Fall 2014
Thurs. 1:10-4:10 PM
Van Dyck 011

Prof. Jamie Pietruska
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Van Dyck 101D
Office hours: Mon. 11:45-1:45, Thurs. 11:45-12:45, or by appointment

## Course Description

       This course will provide an introduction to the scholarly literature in the history of technology and will examine how the historiography has changed from the late twentieth century to the present.  We will read across time and place, considering classic texts in the field as well as more recent works, some of which adopt global or comparative frameworks.  We will explore the intellectual foundations of the field as well as intersections with other fields, including the history of science, environmental history, business history, and the history of capitalism.  (Our reading list is not comprehensive but rather designed to introduce a range of approaches and topics that students may pursue in more depth in their qualifying exam lists and/or their own research.)

       Major questions will include the following: How has the "social construction of technology" shaped the scholarship of the past twenty years?  How have histories of race, class, and gender intersected with histories of technology?  How do national, comparative, and global frameworks shape narratives of technological change?  How does the "the dilemma of technological determinism" account for structure and agency?  How have politics and technologies shaped each other historically?  How do networks, systems, and infrastructures allow us to conceptualize technological change?  How do historiographical critiques of ideologies of progress relate to historical considerations of technological enthusiasm?  What is the relationship between aesthetics and materiality in the history of technology?

       The course is divided into four thematic units (on infrastructures, environments, economies, and representations), and specific topics will include communication and transportation networks, automobility, electrification, nuclear power, industrial agriculture, climate modeling, technologies of war and empire, invention and innovation, domestic labor and household technologies, commodity futures trading, timekeeping, acoustics, and photography.

## Course Requirements

       Coursework consists of weekly readings, weekly discussion questions (to be posted to our course Sakai blog by 7 PM each Wednesday), a short book review (3-5 pages), and a final historiographical essay (12-15 pages) on a topic of your choosing.  In addition, students will take turns introducing the readings each week.  Required books will be available for purchase at the Rutgers Bookstore and online at Amazon, etc. Additional articles, essays, and book chapters will be available on Sakai.

**Required books**

Michael Adas, *Dominance by Design: Technological Imperatives and America's Civilizing Mission* (Belknap Press, 2009).  Paperback.

Jimena Canales, *A Tenth of a Second: A History* (Chicago, 2009).  Paperback.

Paul Edwards, *A Vast Machine: Computer Models, Climate Data, and the Politics of Global Warming* (MIT Press, 2013).  Paperback.

Deborah Fitzgerald, *Every Farm a Factory: The Industrial Ideal in American Agriculture* (Yale, 2010.)  Paperback.

Rayvon Fouché, *Black Inventors in the Age of Segregation* (Johns Hopkins, 2005).  Paperback.

Gabrielle Hecht, *The Radiance of France: Nuclear Power and National Identity after World War II* (MIT Press, 2009).  Paperback.

Richard R. John, *Network Nation: Inventing American Telecommunications* (Belknap Press, 2010).  Hardcover.

Emily Thompson, *The Soundscape of Modernity: Architectural Acoustics and the Culture of Listening in America, 1900-1933* (MIT Press, 2004).  Paperback.

Richard White, *Railroaded: Transcontinentals and the Making of Modern America* (W. W. Norton, 2012).  Paperback.

**Grading**
> 50% Participation
> 10% Book review
> 40% Historiographical essay

**Schedule**

4 September: Definitions and Debates  *(**No discussion questions due this week**)*

Leo Marx, "*Technology*: The Emergence of a Hazardous Concept," *Technology and Culture* 51, no. 3 (2010): 561-77. [Sakai]

John M. Staudenmaier, S. J., "Rationality, Agency, Contingency: Recent Trends in the History of Technology," *Reviews in American History* 30, no. 1 (2002): 168-81. [Sakai]

Philip Scranton, "Determinism and Indeterminacy in the History of Technology," in Merritt Roe Smith and Leo Marx, eds., *Does Technology Drive History? The Dilemma of Technological Determinism* (MIT Press, 1994), 143-68. [Sakai]

Thomas P. Hughes, "The Evolution of Large Technological Systems," in *The Social Construction of Technological Systems: New Directions in the Sociology and History of Technology*, ed. Wiebe E. Bijker, Thomas P. Hughes, and Trevor Pinch (MIT Press, 1987), 51-82. [Sakai]

Edmund P. Russell, "Can Organisms be Technology?" in Stephen Cutcliffe and Martin Reuss, eds., *The Illusory Boundary* (UVA Press, 2010), 249-262. [Sakai]

Trevor J. Pinch and Wiebe E. Bijker, "The Social Construction of Facts and Artifacts: Or How the Sociology of Science and the Sociology of Technology Might Benefit Each Other," in *The Social Construction of Technological Systems: New Directions in the Sociology and History of Technology*, ed. Wiebe E. Bijker, Thomas P. Hughes, and Trevor Pinch (MIT Press, 1987), 17-50. [Sakai]

Recommended: Bruno Latour, *Reassembling the Social: An Introduction to Actor-Network-Theory* (Oxford, 2005), introduction. [Sakai]

Eric Schatzberg, "*Technik* Comes to America: Changing Meanings of Technology Before 1930," *Technology and Culture* 47, no. 3 (2006): 486-512. [Sakai]


## Part I: Infrastructures

11 Sept: Networks and Connectivity

Richard R. John, *Network Nation: Inventing American Telecommunications* (Belknap Press, 2010).

Venus Green, *Race on the Line: Gender, Labor, and Technology in the Bell System, 1880-1980* (Duke UP, 2001), introduction & chap. 2. [Sakai]

Paul N. Edwards, "Infrastructure and Modernity: Force, Time, and Social Organization in the History of Sociotechnical Systems," in *Modernity and Technology*, ed. Thomas J. Misa and Philip Bray (MIT Press, 2003), 185-226.

Recommended: Robert MacDougall, "The Wire Devils: Pulp Thrillers, the Telephone, and Action at a Distance in the Wiring of the Nation," *American Quarterly* 58, no. 3 (2006): 715-41. [Sakai]


18 Sept: Mobility and Large Sociotechnical Systems

Richard White, *Railroaded: Transcontinentals and the Making of Modern America* (W. W. Norton, 2011).

Ronald Kline and Trevor Pinch, "Users as Agents of Technological Change: The Social Construction of the Automobile in the Rural United States," *Technology and Culture* 37, no. 4 (1996): 763-95. [Sakai]

Thomas Zeller, "Building and Rebuilding the Landscape of the Autobahn, 1930-1970" in Christof Mauch and Thomas Zeller, eds., *The World Beyond the Windsheld: Roads and Landscapes in the United States and Europe* (Ohio UP, 2008), 125-42. [Sakai]

Recommended: Christopher Wells, *Car Country: An Environmental History* (University of Washington Press, 2013), prologue & chap. 4. [Sakai]


25 Sept: Power, Technopolitics, and Culture

Gabrielle Hecht, *The Radiance of France: Nuclear Power and National Identity after World War II* (MIT Press, 2009 edition).

Thomas P. Hughes, *Networks of Power: Electrification in Western Society, 1880-1930* (Johns Hopkins UP, 1983), introduction & chap. 7. [Sakai]

Eden Medina, "Designing Freedom, Regulating a Nation: Socialist Cybernetics in Allende's Chile," *Journal of Latin American Studies* 38 (2006): 571-606. [Sakai]

Langdon Winner, "Do Artifacts Have Politics?" in *The Whale and the Reactor: A Search for Limits in an Age of High Technology*, ed. Langdon Winner (Chicago: University of Chicago Press, 1986), 19-39. [Sakai]

Recommended: David E. Nye, *Electrifying America: Social Meanings of a New Technology, 1880-1940* (MIT Press, 1992), chap. 4. [Sakai]


## Part II: Environments

2 Oct: Industrial Agriculture in the U.S. and the World
Deborah Fitzgerald, *Every Farm a Factory: The Industrial Ideal in American Agriculture* (Yale, 2010).
Roger Horowitz, "Making the Chicken of Tomorrow: Reworking Poultry as Commodities and Creatures, 1945-1990" in *Industrializing Organisms: Introducing Evolutionary History*, ed. Susan R. Schrepfer and Philip Scranton (Routledge, 2003), 215-36. [Sakai]
Nick Cullather, "Miracles of Modernization: The Green Revolution and the Apotheosis of Technology," *Diplomatic History* 28, no. 2 (April 2004): 227-54. [Sakai]

Recommended: Nick Cullather, "The Foreign Policy of the Calorie," *American Historical Review* 122, no. 2 (April 2007): 337-64. [Sakai]


9 Oct: Climate Modeling and Geoengineering
Paul Edwards, *A Vast Machine: Computer Models, Climate Data, and the Politics of Global Warming* (MIT Press, 2010).
James Rodger Fleming, *Fixing the Sky: The Checkered History of Weather and Climate Control* (Columbia UP, 2012), introduction & chap. 8. [Sakai]

Recommended: Samuel Randalls, "Weather Profits: Weather Derivatives and the Commercialization of Meteorology," *Social Studies of Science* 40, no. 5 (2010): 705-30. [Sakai]


16 Oct: Technologies of War & Empire
Michael Adas, *Dominance by Design: Technological Imperatives and America's Civilizing Mission* (Belknap Press, 2009).
Edmund P. Russell, "'Speaking of Annihilation': Mobilizing for War against Human and Insect Enemies, 1914-1945," *Journal of American History* 82, no. 4 (1996): 1505-1529. [Sakai]
Gabrielle Hecht, "On the Fallacies of Cold War Nostalgia: Capitalism, Colonialism, and South African Nuclear Geographies," in *Entangled Geographies: Empire and Technopolitics in the Global Cold War*, ed. Gabrielle Hecht (MIT Press, 2011), 75-100. [Sakai]

Recommended: Donald A. MacKenzie (with Graham Spinardi), "Tacit Knowledge and the Uninvention of Nuclear Weapons," in *Knowing Machines: Essays on Technical Change*, ed. Donald A. MacKenzie (MIT Press, 1998), 215-260. [Sakai]


## Part III: Economies


23 Oct: Innovation and Inventors

Rayvon Fouché, *Black Inventors in the Age of Segregation* (Johns Hopkins UP, 2005).

Paul B. Israel, "Inventing Industrial Research: Thomas Edison and the Menlo Park Laboratory," *Endeavour* 26, no. 2 (2002): 48-54. [Sakai]

Clapperton Mavhunga, "Firearms Diffusion, Exotic and Indigenous Knowledge Systems in the Lowveld Frontier, South Eastern Zimbabwe 1870-1920," *Comparative Technology Transfer and Society* 1, no. 2 (2003): 201-31. [Sakai]

Recommended: Kenneth Lipartito, "Picturephone and the Information Age: The Social Meaning of Failure," *Technology and Culture* 44, no. 1 (2003): 50-81. [Sakai]


30 Oct: Gender, Production, and Consumption

Francesca Bray, *Technology and Gender: Fabrics of Power in Late Imperial China* (UC Press, 1997), introduction & chaps. 4 & 6. [Sakai]

Ruth Schwartz Cowan, *More Work for Mother: The Ironies of Household Technology from the Open Hearth to the Microwave* (Basic Books, 1985), introduction & chap. 5. [Sakai]

Nelly Oudshoorn and Trevor Pinch, "Introduction: How Users and Non-Users Matter," in *How Users Matter: The Co-Construction of Users and Technology*, ed. Nelly Oudshoorn and Trevor Pinch (MIT Press, 2005), 1-25. [Sakai]

Ruth Oldenziel, "Boys and Their Toys: The Fisher Body Craftsmen's Guild, 1930-1968, and the Making of a Male Technical Domain," in *Boys and Their Toys?: Masculinity, Class, and Technology in America*, ed. Roger Horowitz (Routledge, 2001), 139-168. [Sakai]

Recommended: Joseph J. Corn, *User Unfriendly: Consumer Struggles with Personal Technologies, from Clocks and Sewing Machines to Cars and Computers* (Johns Hopkins, 2011), introduction & chap. 5. [Sakai]

Kathleen Franz, *Tinkering: Consumers Reinvent the Early Automobile* (Penn, 2005), introduction & chap. 2. [Sakai]

6 Nov: Information and Markets  ***Book reviews due on or before 6 Nov.***

David Hochfelder, "'Where the Common People Could Speculate': The Ticker, Bucket Shops, and the Origins of Popular Participation in Financial Markets, 1880–1920," *Journal of American History* 93, no. 2 (2006): 335-58. [Sakai]

William Cronon, *Nature's Metropolis: Chicago and the Great West* (W. W. Norton, 1991), chap. 3 ("Pricing the Future: Grain"). [Sakai]

Caitlin Zaloom, "Markets and Machines: Work in the Technological Sensoryscapes of Finance," *American Quarterly* 58, no. 3 (2006): 815-37. [Sakai]
Josh Lauer, "From Rumor to Written Record: Credit Reporting and the Invention of Financial Identity in Nineteenth-Century America," *Technology & Culture* 49, no. 2 (2008): 301-24. [Sakai]

Recommended: Paul Edwards, "Some Say the Internet Should Never Have Happened," in *Media, Technology, and Society: Theories of Media Evolution*, ed. W. Russell Neuman (University of Michigan Press, 2010). [Sakai]


## Part IV: Representations

13 Nov: Temporalities
Jimena Canales, *A Tenth of a Second: A History* (Chicago, 2009).
Mark M. Smith, *Mastered by the Clock: Time, Slavery, and Freedom in the American South* (UNC Press, 1997), introduction & chap. 4. [Sakai]
Alexis McCrossen, *Marking Modern Times: A History of Clocks, Watches, and Other Timekeepers in American Life* (Chicago, 2013), introduction [Sakai]

Recommended: Stephen Kern, *The Culture of Time and Space, 1880-1918* (Harvard,1983), chap. 1 ("The Nature of Time"), 10-35. [Sakai]
Alexis McCrossen, *Marking Modern Times: A History of Clocks, Watches, and Other Timekeepers in American Life* (Chicago, 2013), chap. 5 [Sakai]

20 Nov: Aesthetics
Emily Thompson, *The Soundscape of Modernity: Architectural Acoustics and the Culture of Listening in America, 1900-1933* (MIT Press, 2002).
Emily Thompson, "The Roaring 'Twenties: An Interactive Exploration of the Historical Soundscape of New York City," *Vectors* multimedia journal http://vectors.usc.edu/projects/index.php?project=98&thread=AuthorsStatement
David E. Nye, *American Technological Sublime* (MIT Press, 1994), introduction [to be posted on Sakai]

Recommended: David Stradling, *Smokestacks and Progressives: Environmentalists, Engineers, and Air Quality in America, 1881-1951* (Johns Hopkins UP, 1999), chap. 3. [Sakai]
David E. Nye, *American Technological Sublime* (MIT Press, 1994), chap. 7. [Sakai]

**Tues 25 Nov**: NO CLASS—READING WEEK

4 Dec: Conclusions and Future Directions in the History of Technology
Rebecca Herzig, "Removing Roots: 'North American Hiroshima Maidens' and the X
Ray," *Technology and Culture*, 40, no. 4 (1999): 723-45. [Sakai]
Rebecca Herzig, "The Matter of Race in Histories of American Technology," in Bruce
Sinclair, ed., *Technology and the African-American Experience: Needs and
Opportunities for Study* (MIT Press, 2004), pp. 155-170. [Sakai]
Carolyn de la Peña, "The History of Technology, the Resistance of Archives, and the
Whiteness of Race," *Technology & Culture* 51, no. 4 (2010): 919-37. [Sakai]
Keith Wailoo, *Drawing Blood: Technology and Disease Identity in Twentieth-Century
America* (Johns Hopkins UP, 1997), chap. 5 ("Detecting 'Negro Blood': Black and
White Identities and the Reconstruction of Sickle Cell Anemia"). [Sakai]
Evgeny Morozov, "The Planning Machine: Project Cybersyn and the Origins of the Big
Data Nation," *The New Yorker*, October 13, 2014.
http://www.newyorker.com/magazine/2014/10/13/planning-machine
Greg Grandin, "The Anti-Socialist Origins of Big Data," *The Nation* blog post, October
23, 2014.
http://www.thenation.com/blog/185017/anti-socialist-origins-big-data#


Recommended: Elspeth Brown, *The Corporate Eye: Photography and the
Rationalization of American Commercial Culture, 1884-1929* (Johns Hopkins
UP, 2005), introduction & chap. 2. [Sakai]
Tanya Sheehan, *Doctored: The Medicine of Photography in Nineteenth-Century
America* (Penn State, 2011), introduction & chap. 3. [Sakai]
Richard J. Noakes, "Telegraphy is an Occult Art: Cromwell Fleetwood Varley and the
Diffusion of Electricity to the Other World," *BJHS* 32 (1999): 421-59. [Sakai]


**Final papers due on or before 15 Dec (to be submitted in hard copy to my
mailbox in Van Dyck)**