

History of Science 180 - Fall 2010
Visions of Technology in Western Culture, 1800 to the Present

202 Bradley Memorial, 1:20-3:15 Wednesday

Professor:	Eric Schatzberg	Office Hrs:	2:30-3:30 Tue or by appt.
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Description: This first-year honors seminar introduces students to advanced modes of reading, analysis and writing common in humanities and social science courses. This semester's topic focuses on the place of technology in the Western imagination over roughly the last 200 years. The seminar examines ideas about technology in history, literature, social sciences, philosophy, and popular culture in the United State and Europe. Subtopics include the early industrial revolution, railroads, electric light and communication, the atomic bomb, digital computers, and the rise of environmental critiques. The course draws on a wide variety of materials, in addition to works by historians. Also included are writings by observers at the time, works of fiction, and a film. Special attention is given to works that portray technology in terms of an ideal world (utopia) or a coming disaster (dystopia). Requirements for the course include regular short writing assignments and active participation in discussion.

The course is organized as a small seminar devoted almost entirely to discussion. The seminar is a classic form of education that promotes learning as a cooperative enterprise rather than as a one-way transmission of information from instructor to student. This course does not aim to give you mastery of a well-established set of historical facts, by rather to show you different ways to think about historical questions.

But I do have specific pedagogical goals. The main goal is learning how to read. Of course, you all know how to read already, but in this seminar we will learn how to read different types of sources critically, from nineteenth-century speeches to academic research articles. Reading critically is about learning to assess the strengths and weaknesses of a particular piece of writing in light of the purposes for which it was written. Reading critically also means making connections between readings, connections often unnoticed by the authors themselves.

The second pedagogical goal is to introduce you to some of the scholarly research skills required for advanced undergraduate work in the humanities and social sciences. We will learn how to find relevant sources using the rich electronic resources of the UW libraries.

My third pedagogical goal is to help each of you develop better skills in scholarly writing. Although this is not a writing-intensive course, it does require a fair amount of written work, at least a little every week.

Requirements: Read, write, watch and talk. These are the only requirements for the course.

Reading. Every week there will be a reading assignment, often a mix of different types of sources. I have tried to choose well-written, accessible works, but a few of the readings are rather difficult. You need to give yourself enough time to read carefully.

Writing. Each week we will also have a writing assignment. There is no better way to develop critical reading skills than by writing about what you read. Most assignments will be no more than a page, though a few will be longer. I will send out the assignment weekly by email.

Watching. We will watch one classic German silent film, *Metropolis*. I will arrange for a screening of the film in the evening.

Discussion. Participation in class discussions is essential to the overall success of the seminar. Every seminar participant should try to make at least one substantive contribution to each week's discussion. You will, of course, need to be fully prepared for every class in order to participate. If you are ill or are just having trouble coping, please talk to me about it before class, and I'll give you a break. If you don't understand what you have read, come prepared with specific questions to clarify the reading for you.

Email list. I use the class email list as the principal means for providing the class with the weekly assignments and other important information; please check it regularly. Students should also feel free to contribute comments to the list, for example when there is not sufficient time to raise a point that you wanted to make during discussion. The address of the list is: <mailto:histsci180-1-f10@lists.wisc.edu>.

Course Readings: Most of the course readings are available in a photocopied course reader. The reader is available for purchase in the History of Science Department office, 210 Bradley Memorial, 262-1406. The cost of the reader is \$34, cash or check. **The reader is not returnable, even if you drop the class.**

I will place a copy of the reader on reserve at College Library, if anyone wishes to use the reserve copy. Please let me know by email if you would like me to do so.

There are also three required books for use in the second half of the semester. At the first class meeting, we will discuss whether to order these through a local bookstore or to let you order them yourselves online.

Karel Capek, *R.U.R. (Rossum's Universal Robots)*, trans. Claudia Novack-Jones (New York: Penguin USA, 2004);
Marge Piercy, *He, She and It* (New York: Ballantine Books, 1991);
Jaron Lanier, *You are Not a Gadget: A Manifesto* (New York: Knopf, 2010).

Religious Holidays and ADA Notice: You may take off any religious holidays you want, as long as you let me know in advance and make up the work. I try not to schedule tests on the more popular religious holidays. Contrary to popular belief, Wednesday before Thanksgiving is not holiday, but if you must leave early, I'll help you find an alternative assignment.

If you have a disability that might adversely affect your performance in this course, let me know, and I'll do my best to accommodate you. For more information, contact the McBurney Disability Resource Center, 263-2741.

Freaking Out: College life often involves a lot of stress. If you feel like things are getting out of hand, either for personal or academic reasons, please contact the Counseling and Consultation Service, part of the University Health Service, 333 East Campus Mall, 265-5600. For more information, see <http://www.uhs.wisc.edu/ex/counseling/>.

Academic Integrity and Plagiarism: Each student is responsible for knowing the rules about academic misconduct, that is, what counts as cheating. A good overview is here: <http://www.wisc.edu/students/saja/misconduct/UWS14.html>.

For this course, the most important rules concern written work done outside of class. Here's a quick summary. Don't copy stuff without 1) citing the original source you used for the ideas, and 2) putting it in quotation marks if you use the exact words. For more details, see <http://www.wisc.edu/writing/Handbook/QuotingSources.html>.

Wikipedia is not a reliable source, but it can sometimes be useful for an overview. If you insist on using Wikipedia or other web sites in your work, you must cite them.

You can study and discuss things with your classmates and friends, but your writing must be your own. Once you start writing, stop talking with classmates. You can, however, ask friends outside the class to check your written work for clarity and grammar.

Course Outline

Week 1 (9/8) - What is Technology? Idea of Technological Determinism

Overview of the course and introduction to key themes. Examples of recent enthusiasm for and critiques of technology.

Readings (in class): Langdon Winner, "Prophets of Inevitability," 1-2;

"Exxon Mobil Meets Amazon.com," *Business Week*, 14 Dec. 1998, 178; reprinted in *New York Times*, 5 Dec. 1998, A13.

Week 2 (9/15) - Early Industrialization in Britain and the United States

The readings for this week provide general background about the technological development of modern industrial society in the late 18th and early 19th centuries, the "industrial revolution."

Readings: Thomas J. Misa, "Geographies of Industry," chap. 3 in *Leonardo to the Internet* (Baltimore: Johns Hopkins University Press, 2004), 59-96;

Carroll Pursell, "Importing the Industrial Revolution," chap. 2 in *The Machine in America: A Social History of Technology* (Baltimore: Johns Hopkins University Pr., 1995), 35-63.

Assignment: reading response (see email for details); complete the Campus Library User Education (CLUE) online tutorial at <http://clue.library.wisc.edu/>.

Week 3 (9/22) - Embracing the Industrial Revolution: The American Response

Most Americans embraced the new technologies with enthusiasm, especially transportation technologies.

Reading: John F. Kasson, "The Emergence of Republican Technology," chap. 1 in *Civilizing the Machine: Technology and Republican Values in America, 1776-1900* (New York: Grossman, 1976), 3-51;

Edward Everett, "Opening of the Railroad to Springfield," Oct. 3, 1839, *Orations and Speeches on Various Occasions*, 8th ed. (Boston: Little, Brown & Co., 1870), 263-273;

Daniel Webster, "Opening of the Northern Railroad to Grafton, N. H." and "Opening of the Northern Railroad to Lebanon, N. H.," in *Speeches on Various Occasions*, vol. 4 of *The Writings and Speeches of Daniel Webster* (Boston: Little, Brown & Co., 1903), 107-117.

Assignment: reading response.

Week 4 (9/29) - Questioning Industrial Progress: Carlyle and Thoreau

Some writers were not so excited by industrialization, both in Britain and the United States. Carlyle and Thoreau are two of the best known of these critics.

Reading: Thomas Carlyle, "Signs of the Times." *Edinburgh Review* 49 (1829): 439-459;
Henry David Thoreau "Economy" and "Sounds," in *Walden, or Life in the Woods* (Oxford: Oxford University Press, 1997 [1854]), 5-72, 102-117, 311-329, 336-339;
Leo Marx, *Machine in the Garden: Technology and the Pastoral Ideal in America* (London: Oxford University Press, 1964), 169-180, 242-265.

Assignment: reading response.

Week 5 (10/6) - Debating the Factory: Apologists versus Critics

The most enduring symbol of the industrial revolution was the textile mill, where raw fibers were spun into thread and woven into cloth. The working conditions in these factories were both lauded and condemned. We will read example of contrasting rhetoric about the factory.

Readings: Steve Edwards, "Factory and Fantasy in Andrew Ure," *Journal of Design History* 14 (2001): 17-33;
Andrew Ure, "Moral Economy of the Factory System," in *The Philosophy of Manufactures, or an Exposition of the Scientific, Moral, and Commercial Economy of the Factory System of Great Britain* (London: Charles Knight, 1835; repr. 1967), 277-316;
John Fielden, *The Curse of the Factory System* (1836; repr. London: Frank Cass & Co., 1969), iii-iv, 31-74.

Assignment: short essay.

Week 6 (10/13) - Railroads and the Technological Sublime

New technologies like the railroad inspired awe, which is a combination of fear and wonder. We will examine the public response to the railroad, and compare differences between the United States and Britain.

Reading: David E. Nye, "Introduction" and "'The Railroad: The Dynamic Sublime,'" in *American Technological Sublime* (Cambridge: MIT Press, 1994), xi-xx, 45-76;
Julie Wosk, "The Traumas of Transport in Nineteenth-Century Art," chap. 1 in *Breaking Frame: Technology and the Visual Arts in the Nineteenth Century* (New Brunswick, NJ: Rutgers University Press, 1992), 30-66.

Assignment: short essay comparing British irony with American perception of the sublime.

Week 7 (10/20) - Building an Electrified Society

Electricity was the most magical of the new technologies of the so-called "second industrial revolution" of the late 19th and early 20th centuries. Americans not only created the new physical technologies, but also constructed new meanings to help integrate electricity into their world.

Readings: David E. Nye, *Electrifying America: Social Meanings of a New Technology* (Cambridge: MIT Press, 1990), 1-84.

Assignment: reading response.

Week 8 (10/27) - Technology and World War I: Roots of Disillusionment

Modern military technologies did not promote peace, but rather intensified destruction. For many observers, World War I demonstrated the potential for evil in modern technology.

Readings: Hugh R. Slotten, "Humane Chemistry or Scientific Barbarism? American Responses to World War I Poison Gas, 1915-1930," *Journal of American History* 77 (1990): 476-498;

John Ellis, "The Trauma: 1914-18," chap. 5 in *The Social History of The Machine Gun* (Baltimore: Johns Hopkins University Press, 1986), 111-147.

Assignment: reading response on horrors of modern technology.

Week 9 (11/3) - Technology Out of Control

A common theme in the literature of modern technology is the idea of technology out of control, of machines taking over from humans. We will look at two statements of this idea, first the play that introduced the term "robot," and second a classic film of German Expressionist cinema.

Reading: Karel Čapek, *R.U.R. (Rossum's Universal Robots)*, trans. Claudia Novack (New York: Penguin, 2004; orig. Prague, 1921); *Metropolis*, directed by Fritz Lang (1927; restored 2002);

Julie Wosk, "Metropolis," *Technology and Culture* 51 (2010): 403-408.

Film viewing: *Metropolis*, along with the Madonna video of "Express Yourself." Time TBA.

Assignment: short essay comparing *Metropolis* and *R.U.R.*

Week 10 (11/10) - Utopian Visions and the Atomic Bomb

The atomic bomb simultaneously symbolized the greatest achievements and the darkest horrors of modern technology. We'll read about how Americans coped with this contradiction.

Reading: Paul Boyer, *By the Bomb's Early Light: American Thought and Culture at the Dawn of the Atomic Age*, repr. ed. (Chapel Hill: University of North Carolina Press, 1994), 3-45, 109-50 (chaps. 1-3, 10-13).

Assignment: examine a primary source used by Boyer, and discuss how he used it in the reading.

Week 11 (11/17) - Technology and Environmentalism

The modern environmental movement is better understood as a critique of technology than a defense of pure nature. But some environmentalists also embraced technology as a solution to environmental ills.

Reading: Barry Commoner, *The Closing Circle: Man, Nature and Technology* (New York: Knopf, 1971), 5-65, 140-177.

Assignment: reading response; does Commoner blame technology for environmental harm?

Week 12 (11/24) – A Feminist Cyberpunk Dystopia

This brilliant novel weaves together the story of a cyborg (a humanoid robot) and the golem of Prague (from 16th-century Jewish folklore) in a post-apocalyptic, globally warmed, corporate-dominated world. The book falls within the genre of science-fiction known as "cyberpunk," but with a feminist edge.

Reading: Marge Piercy, *He, She and It*, 1-236.

Assignment: answer emailed discussion questions.

Week 13 (12/1) – Feminist Cyberpunk, concluded

The exciting conclusion of the book.

Reading: Piercy, *He, She and It*, 236-432.

Assignment: short essay on Piercy's vision of technology.

Week 14 (12/8) - Questioning the Networked World 1

Lanier, a virtual reality pioneer, has become a leading critique of the leveling effects of the World Wide Web. His high-tech background lends credence to his critique.

Reading: Jaron Lanier, *You are Not a Gadget: A Manifesto*, first half.

Assignment: answer emailed discussion questions.

Week 15 (12/15) - Questioning the Networked World 2

Finishing Lanier and course wrap up.

Reading: Lanier, *You are Not a Gadget*, second half.

Assignment: find at least two reviews of the book, and assess them in relation to the book.