

University of Wisconsin-Madison
Department of History
Semester II, 1988-89

History 571
Prof. Dunlavy

4116 Humanities, 3-1854
Ofc. Hrs. W10-11am/R11-12pm

**TECHNOLOGY AND POLITICS
IN AMERICAN HISTORY**

In this seminar, we will explore the historical relationship between politics and American technology in two distinct ways: on the one hand, we will examine the ways in which politics, broadly construed, shaped the direction of technological change in the 19th and 20th centuries; on the other hand, we will investigate the impact of new technologies on American political life. As a secondary goal, the seminar is designed to improve your analytical skills. Over the course of the semester, students should expect to improve both their powers of critical analysis (reading and thinking) and their writing skills. It will be an intensive and challenging experience but ultimately should prove rewarding.

COURSE REQUIREMENTS

1. When a small group meets weekly for two hours of discussion, as we will in this seminar, faithful attendance is absolutely essential, and so is regular and thoughtful participation in the discussions.
2. Thoughtful participation requires adequate preparation. Therefore, all students will write a brief analysis of the assigned readings (2-3 pages, double-spaced) every week. The reading load has been kept relatively light so that you will have additional time for the written analyses. You should therefore expect to do all of the assigned reading each week, to give it a close reading, and then to spend some time pulling together a succinct but comprehensive analysis. Do the readings in the order that they are listed on the syllabus each week; they generally build on one another, so they will make more sense when read in the given order. The written analyses are due at the beginning of each seminar. They will be given a letter grade and you will receive detailed editorial comments (which you should heed in your subsequent analyses). For more instructions, see the handout.
3. Each student will also take charge of the discussion the equivalent of once during the semester. That is, the students will be paired in twos, and each team will lead discussion twice during the semester. For advice, see the relevant handout. Each team should plan to meet with me in advance to go over plans for the discussion.

Course Requirements, cont'd.

Course grades will be based on: leadership of class discussion (25%), weekly analyses (60%), and seminar participation (15%).

READING MATERIALS

Most of the reading material is contained in a reading packet that may be purchased at Bob's Copy Shop (56 University Square). A copy will also be put on reserve at Helen C. White Library but, given the intensive reading that you will be doing, you should plan to buy your own copy. The following books should also be purchased; they have been ordered at the University Bookstore.

Required Books:

John F. Kasson, Civilizing the Machine: Technology and Republican Values in America, 1776-1900 (Penguin Books, 1976).

Walter A. McDougall, . . . the Heavens and the Earth: A Political History of the Space Age (New York: Basic Books, 1985).

Harley Shaiken, Work Transformed: Automation and Labor in the Computer Age (New York: Holt, Rinehart and Winston, 1984).

Merritt Roe Smith, ed., Military Enterprise and Technological Change: Perspectives on the American Experience (Cambridge, Mass.: M.I.T. Press, 1985).

Langdon Winner, The Whale and the Reactor: A Search for Limits in an Age of High Technology (Chicago: University of Chicago Press, 1986).

Recommended Reading. In addition, you may wish to consult the following recommended books as aids to improving your writing and analytical skills. These are indispensable for a fruitful college education; I would strongly urge you to buy your own copies (available at the University Bookstore and elsewhere) and to develop the habit of consulting them regularly. (Later editions of the last three works may be available.)

David Hackett Fischer, Historians' Fallacies: Toward a Logic of Historical Thought (New York: Harper & Row, 1970).

Jacques Barzun and Henry F. Graff, The Modern Researcher, 3d ed. (New York: Harcourt Brace Jovanovich, 1977).

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Recommended Reading, cont'd.

William Strunk, Jr., and E. G. White, The Elements of Style, 3d ed. (New York: Macmillan, 1979).

Kate Turabian, A Manual for Writers of Term Papers, Theses, and Dissertations, 4th ed. (Chicago: University of Chicago Press, 1973).

Background Reading. Some of you may also wish to do some background reading. This is entirely optional. If you do, however, you should consult the handout, "What is the History of Technology," or see me for further recommendations. Please note, however, a brand new text that looks very good:

Alan I. Marcus and Howard P. Segal, Technology in America: A Brief History (New York: Harcourt Brace Jovanovich, 1989).

Standard economic history texts such as the following are also useful:

W. Elliot Brownlee, Dynamics of Ascent: A History of the American Economy, 2d ed. (New York: Alfred A. Knopf, 1979).

Jonathan Hughes, American Economic History, 2d ed. (Glenview, Ill.: Scott, Foresman and Co., 1987).

SEMINAR TOPICS AND READING ASSIGNMENTS

*Books to be purchased
(unmarked readings will be found in the reading packet)

January 24. INTRODUCTION

January 31. EARLY OPPOSITION TO TECHNOLOGICAL CHANGE

Why does technological change generate political conflict? These readings give us an introduction to the issues by providing examples of early technologies--dams and railroads--that became the focus of political controversy.

Readings

1. Gary Kulik, "Dams, Fish, and Farmers: Defense of Public Rights in Eighteenth-Century Rhode Island," in Steven Hahn and Jonathan Prude, eds., The Countryside in the Age of Capitalist Transformation: Essays in the Social History of Rural America (Chapel Hill and London: University of North Carolina Press, 1985), pp. 25-50.
2. Colleen A. Dunlavy, "Politics and Industrialization: Early Railroads in the United States and Prussia," Ph.D. Thesis, Massachusetts Institute of Technology, 1988, pp. 37-109 (Ch. 2, "The Railroad: A Worrisome New Technology").

February 7. THINKING ABOUT THE POLITICS OF TECHNOLOGIES

This week's reading suggests some ways to think about the political impact of technology. What kinds of technologies have what kinds of impact, according to Winner? Why do or should we care?

Readings

1. *Winner, The Whale and the Reactor, Chs. 1-6 (Part I, "A Philosophy of Technology," and Part II, "Technology: Reform and Revolution").

February 14. TECHNOLOGY AND REPUBLICAN VALUES: THE ANTEBELLUM DEBATE

The prospect of the United States' developing its own manufacturing capability provides an early example of widespread concern about the impact of technology on American politics. What were the issues at stake? How was the conflict ultimately resolved--or was it?

February 14, cont'd.

Readings

1. James Swan, "Address on the Question for an Inquiry into the State of Agriculture, Manufactures and Commerce (1817)," in Michael Brewster Folsom and Steven D. Lubar, eds., The Philosophy of Manufactures: Early Debates over Industrialization in the United States (Cambridge, Mass.: M.I.T. Press, 1982), pp. 225-40.
2. *Kasson, Civilizing the Machine, pp. 3-106 (Chs. 1-2).
3. John Ashworth, "Agrarians" and "Aristocrats": Party Political Ideology in the United States, 1837-1846 (Cambridge: Cambridge University Press, 1987; orig. pub. 1983), pp. 1-4, 7-34, 52-73 (Introduction and parts of Chs. 1-2; scan pp. 35-51 and 73-84).

February 28. THE MILITARY AND ANTEBELLUM TECHNOLOGICAL CHANGE

Now we turn last week's question around and ask: In what ways has politics shaped the direction of technological change in the United States? The essays by Smith and O'Connell take a first cut at the subject by exploring the early influence of that most important of political institutions, the military. Licht's essay provides insight into the fruits of its work.

Readings

1. *Merritt Roe Smith, "Army Ordnance and the 'American System' of Manufacturing, 1815-1861," in idem, ed., Military Enterprise and Technological Change, pp. 39-86.
2. *Charles F. O'Connell, Jr., "The Corps of Engineers and the Rise of Modern Management, 1827-1856," in Smith, ed., Military Enterprise and Technological Change, pp. 87-116.
3. Walter Licht, Working for the Railroad: The Organization of Work in the Nineteenth Century (Princeton: Princeton University Press, 1983), pp. 79-124 (Ch. 3, "Working to Rule").

February 21. FEDERALISM, LEGISLATIVE POLITICS, AND 19TH-CENTURY TECHNOLOGY

This week we take second look at the impact of politics on technological change. The American political structure is a federal-legislative system. In what ways did this simple fact of American political life shape technology policy (and,

February 21, cont'd.

hence, technological change) in the 19th-century? These case studies suggest some answers. (The pieces by Carlson and Dunlavy are in manuscript form so there is less reading than the page numbers suggest.)

Readings

1. W. Bernard Carlson, "The Pennsylvania Society for the Promotion of Internal Improvements: A Case Study in the Political Uses of Technological Knowledge, 1824-1826," Canal History and Technology Proceedings 8 (1988): 175-206 (manuscript version).
2. Dunlavy, "Politics and Industrialization," pp. 110-13, 118-212 (most of Ch. 3, "Mirror Images: State Structure and Railroad Policy"; skim the parts on Prussia).
3. Wallace D. Farnham, "'The Weakened Spring of Government': A Study in Nineteenth-Century American History," American Historical Review 68 (April 1963): 662-80.

March 7. THE IMPACT OF 19TH-CENTURY TECHNOLOGY ON AMERICAN POLITICS

Now we return to the question of technology's impact on politics and ask: how did technological change in the 19th century actually affect the American political system? Scheiber's piece provides an overview of the 19th and 20th centuries; the Burke's essay and Miller's chapters present case studies.

Readings

1. Harry N. Scheiber, "The Impact of Technology on American Legal Development, 1790-1985," in Joel Colton and Stuart Bruchey, eds., Technology, The Economy, and Society: The American Experience (New York: Columbia University Press, 1987), pp. 83-125.
2. James Burke, "Technology and Government," in Edwin T. Layton, Jr., ed., Technology and Social Change in America (New York: Harper and Row, 1973), pp. 99-119.
3. George H. Miller, Railroads and the Granger Laws (Madison: University of Wisconsin Press, 1971), pp. 3-58 (Chs. 1-3).

March 14. THE RISE OF BIG BUSINESS AND POLITICS WITHIN THE FIRM

By the end of the 19th century, large-scale industry--especially science-based mass production--had become a prominent feature of the technological landscape. These readings outline the changes that had taken place and explore what it all meant for engineers and workers alike.

Readings (continued on next page)

1. Alfred D. Chandler, Jr., "The United States: Seedbed of Managerial Capitalism," in Chandler and Herman Daems, eds., Managerial Hierarchies: Comparative Perspectives on the Rise of the Modern Industrial Enterprise (Cambridge, Mass.: Harvard University Press, 1980), pp. 9-40.
2. David F. Noble, America By Design: Science, Technology, and the Rise of Corporate Capitalism (Oxford: Oxford University Press, 1977), pp. 3-49 (The Wedding of Science to the Useful Arts, I-III).
3. Melvin Dubofsky, "Technological Change and American Worker Movements, 1870-1970," in Technology, The Economy, and Society: The American Experience, ed. by Joel Colton and Stuart Bruchey (New York: Columbia University Press, 1987), pp. 162-85.

March 21. SPRING RECESS**March 28. THE CULTURAL RESPONSE TO LARGE-SCALE INDUSTRY**

This week's readings build on the background knowledge garnered from the previous week's readings. Kasson's essays provide insight into the range of cultural response to late-19th century industrialization.

Readings

1. *Kasson, Civilizing the Machine, pp. 107-234 (Chs. 3-5).

April 4. TECHNOCRACY IN THE EARLY 20TH CENTURY

The "technocracy movement" in the early 20th-century advocated a leading role for engineers in American politics. Should engineers run society? Why did the "technocrats" think so? What difference would it make?

Readings: See next page.

Readings

1. Howard Scott and others, Introduction to Technocracy (New York: Technocracy, Inc. 1936), pp. 7-36.
2. William E. Akin, Technocracy and the American Dream: The Technocrat Movement, 1900-1941 (Berkeley: University of California Press, 1977), pp. ix-xiii, 27-45, 64-96, 131-48.

April 11. 20TH-CENTURY MOVERS AND SHAKERS: THE MILITARY (AGAIN)

This week we return to the military and its impact on technological development. Already significant in the antebellum period, its influence became even more pervasive in the 20th century. In what ways, according to these essays, has this political institution shaped technological change in the 20th century? When all is said and done, what difference does it really make?

Readings

1. *Smith, ed., Military Enterprise and Technological Change, pp. 1-38, 117-174, 253-346. (Introduction and Chs. 3, 6-8).

April 18. THE POLITICS OF SPACE TECHNOLOGY (OR THE TECHNOLOGY OF SPACE POLITICS?)

As the 20th century comes to a close, politics and technology seem ever more closely intertwined. McDougall sees the launching of Sputnik as the turning point, indeed, as the point of no return. Why? In what ways did politics shape technological change in this case--and vice versa?

Readings

1. *McDougall, . . . the Heavens and the Earth, pp. 3-230 and 436-61 (Introduction, Chs. 1-10 and 21-22). This is well-written and all from the "pen" (computer) of a single author, so it should go relatively quickly.

April 25. POLITICS FOR LABORING FOLKS IN THE AGE OF AUTOMATION

In the 1980s new technologies--above all, computers and microelectronics--are radically changing the nature of work. Harley Shaiken (himself a former machinist) explores the politics of this transformation, in effect, returning us to the antebellum debate about domestic manufactures and republican values. What are the issues at stake this time?

April 25, cont'd.

Readings

1. *Shaiken, Work Transformed, complete.

May 2. COULD IT ALL HAVE HAPPENED DIFFERENTLY?

How inevitable was the rise of large-scale industry (from mass production to computerized manufacturing)? This week's readings present several opposing viewpoints on this vexing question. What do you think?

Readings

1. Alfred D. Chandler, Jr., "Technology and the Transformation of Industrial Organization," in Joel Colton and Stuart Bruchey, eds., Technology, The Economy, and Society: The American Experience (New York: Columbia University Press, 1987), pp. 56-82. (Read quickly--it covers the same terrain as the earlier essay by Chandler--but pay attention to the [sometimes only implicit] causal argument.)
2. Charles Sabel and Jonathan Zeitlin, "Historical Alternatives to Mass Production: Politics, Markets and Technology in Nineteenth-Century Industrialization," Past and Present, No. 108 (August 1985): 133-76. (Skim Sections VII-VIII.)
3. Paul A. David, "Understanding the Economics of QWERTY: the Necessity of History," in William N. Parker, ed., Economics and Economic History (1988?), pp. 30-49.

May 9. PROGRESS? FOR WHOM?

We end our exploration of the relationship between technology and politics in American history by pausing to reflect on the pervasive notion of technological "progress."

Readings

1. *Winner, The Whale and the Reactor, Chs. 7-10.
2. Merritt Roe Smith, "Technology, Industrialization, and the Idea of Progress in America," in Kevin Byrne, ed., Responsible Science: The Impact of Technology on Society (San Francisco: Harper & Row, 1986), pp. 1-30.