

University of Wisconsin-Madison
Department of History
Semester II, 1987-88

History 411
History of American Technology
C. A. Dunlavy

4116 Humanities, 3-1854
Ofc. hrs. Tues. 4 p.m. and
Wed. 9 a.m. (or by appt.)

REQUIRED BOOKS

(marked with an * in the reading assignments)

- Hugh G. J. Aitken, Scientific Management in Action: Taylorism at Watertown Arsenal, 1980-1915.
John F. Kasson, Civilizing the Machine: Technology and Republican Values in America, 1776-1900.
Merritt Roe Smith, Harpers Ferry Armory and the New Technology: The Challenge of Change.
Glenn Porter, The Rise of Big Business.

LECTURE TOPICS AND READING ASSIGNMENTS

- Jan. 19 Introduction: Technology in American History
Jan. 21 Production and Distribution in a Colonial Economy

SUGGESTED READING

- Victor S. Clark, History of Manufactures in the United States, 3 vols. (Carnegie Institute, 1929; reprint ed., New York: Peter Smith, 1949). Chs. 1-9.
George Louis Beer, The Commercial Policy of England Toward the American Colonies (Columbia College, 1893; reprint ed., New York: Peter Smith, 1948).

- Jan. 26 No Class
Jan. 28 Technology's Challenge to Republican Values

REQUIRED READING

- *Kasson, Civilizing the Machine, pp. 3-51 (Ch. 1).
Hugo A. Meier, "The Ideology of Technology," in Technology and Social Change in America, ed. by Edwin T. Layton, Jr. (New York: Harper & Row, 1973), pp. 79-97.

- Feb. 2 The War of 1812: Economic Independence
Feb. 4 The "American System": Protecting Infant Industry and Promoting Internal Improvements

REQUIRED READING

- Thomas C. Cochran, Frontiers of Change: Early Industrialism in America (Oxford: Oxford University Press, 1981), pp. 50-100 (Ch. 4, New Methods of Production, 1785-1825, and Ch. 5, Industrial Upsurge, 1825-1840).
Henry Clay, "In Defense of the American System," speech in the U.S. Senate, Feb. 1832, in The Life and Speeches of Henry Clay, vol. 2 (Philadelphia, 1855), pp. 9-67.

Feb. 8 **DISCUSSION SECTION** (Required Reading)

David A. Hounshell, "Commentary: On the Discipline of the History of American Technology," Journal of American History 67 (March 1981): 854-65.

Darwin Stapleton and David A. Hounshell, "The Discipline of the History of Technology: An Exchange," Journal of American History 68 (March 1982): 897-902.

Feb. 9 The Industrial Revolution: An Overview

Feb. 11 Borrowed Technology: European Technology in the New Nation

REQUIRED READING

Nathan Rosenberg, Technology and American Economic Growth (White Plains, N.Y.: M. E. Sharp, Inc., 1972), pp. 59-116 (Ch. 3, The Nineteenth Century: America as Borrower, and Ch. 4, The Nineteenth Century: America as Initiator).

David J. Jeremy, "British Textile Technology Transmission to the United States: The Philadelphia Experience, 1770-1820," Business History Review 47 (Spring 1973): 24-52.

Feb. 16 Two Paths to Industrialization: Textiles in Lowell and Philadelphia

Feb. 18 The Internal Improvements Debate: Canals or Railroads?

REQUIRED READING

*Kasson, Civilizing the Machine, Ch. 2 (pp. 55-106).

Philip Scranton, Proprietary Capitalism: The Textile Manufacture at Philadelphia, 1800-1885 (Cambridge: Cambridge University Press, 1983), pp. 75-134 (Ch. 4, The Philadelphia Textile Manufacture in the Early Republic).

Feb. 22 **DISCUSSION SECTION** (Required Reading)

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.

Feb. 23 A Second "American System": Interchangeable-Parts Manufacturing

Feb. 25 Mechanizing Agriculture

REQUIRED READING

*Smith, Harpers Ferry Armory and the New Technology, Introduction and Chs. 1-3, 5.

Mar. 1 Sectors of Change: Steam Power and Heavy Industry

Mar. 3 Labor in American Industrialization

REQUIRED READING

*Smith, Harpers Ferry Armory and the New Technology, Chs. 8-9, 11.
Paul Faler, "Cultural Aspects of the Industrial Revolution: Lynn, Massachusetts. Shoemakers and Industrial Morality, 1826-1860," Labor History 15 (Summer 1974): 367-94.

March 7 **DISCUSSION SECTION** (Required Reading)

Morton Rothstein, "Technological Change and American Farm Movements," in Technology, The Economy, and Society: The American Experience, ed. by Joel Colton and Stuart Bruchey (New York: Columbia University Press, 1987), pp. 186-211.

Mar. 8 The Impact of the Civil War

Mar. 10 MIDTERM EXAM

REQUIRED READING

Clark, History of Manufactures, 3:14-53.

Thomas C. Cochran, "Did the Civil War Retard Industrialization?" in The Economic Impact of the American Civil War, ed. by Ralph Andreano (Cambridge, Mass.: Schenkman Publishing, 1962), pp. 148-60.

Stephen Salisbury, "The Effect of the Civil War on American Industrial Development," in *ibid.*, pp. 161-68.

A. Hunter Dupree, "Science and Technology," in Economic Change in the Civil War Era, ed. by David T. Gilchrist and W. David Lewis (Greenville, Del.: Eleutherian Mills-Hagley Foundation, 1965), pp. 117-22.

SPRING BREAK: MARCH 12-20

Mar. 22 From "Mechanics" to "Engineers": Professionalization of Engineering

Mar. 24 Celebrating Technology: International Industrial Exhibitions

REQUIRED READING

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, II).

*Kasson, Civilizing the Machine, pp. 183-234.

Mar. 29 Rise of Big Business and Big Labor

Mar. 31 The Mass-Production and -Distribution Technologies

REQUIRED READING

*Porter, The Rise of Big Business, pp. 1-84 (pp. 85-101 recommended).

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.

Apr. 4 **DISCUSSION SECTION** (Required Reading)

William H. Lazonick, "Production Relations, Labor Productivity, and Choice of Technique: British and U.S. Cotton Spinning," Journal of Economic History 41 (September 1981): 491-516.

Apr. 5 Rationalizing the Workplace: Scientific Management

Apr. 7 Technology and the Great War

REQUIRED READING

*Aitken, Scientific Management in Action, pp. 3-48, 85-185.

- Apr. 12 Motorizing America: The Rise of the Automobile Industry
 Apr. 14 The Great Depression: Technology at Fault?

REQUIRED READING

- David Hounshell, From the American System to Mass Production (Johns Hopkins University Press, 1984), pp. 216-301 (Ch. 6, The Ford Motor Company and the Rise of Mass Production in America; Ch. 7, Cul-de-Sac: The Limits of Fordism and the Coming of 'Flexible Mass Production').
 Henry Ford, Moving Forward (1930), pp. 62-79 (Ch. 5, "Unemployment or Leisure?).
 Daniel Kevles, The Physicists: The History of a Scientific Community in Modern America (New York: Random House, Vintage Books, 1979), pp. 235-51 (Ch. 16, Revolt Against Science).

Apr. 18 **DISCUSSION SECTION** (Required Reading)

- David Hounshell, "Ford Eagle Boats and Mass Production during World War I," in Military Enterprise and Technological Change: Perspectives on the American Experience, ed. Merritt Roe Smith (Cambridge, Mass.: M.I.T. Press, 1985), pp. 176-202.

- Apr. 19 Technology in World War II
 Apr. 21 The Military-Industrial Complex

REQUIRED READING

- Kent C. Redmond, "World War II, a Watershed in the Role of the National Government in the Advancement of Science and Technology," in The Humanities in the Age of Science, ed. Charles Angoff (Fairleigh Dickinson University Press, 1968), pp. 166-80.
 Richard P. Hewlett, "The Beginnings of Development in Nuclear Technology," Technology and Culture 17 (July 1976): 465-78.
 Thomas P. Smith, "Project Whirlwind," Technology and Culture 17 (July 1976): 447-64.
 Seymour Melman, The Permanent War Economy: American Capitalism in Decline (New York: Simon and Schuster, 1974), pp. 15-26 and 128-57 (Ch. 1, War Economy and Prosperity; Ch. 6, Reality Contradicts Ideology).

- Apr. 26 Sputnik and the Space Race
 Apr. 28 Modern Technology and Its Critics: The Alternative Technology Movement

REQUIRED READING

- Lloyd S. Swenson, Jr., et al., This New Ocean: A History of Project Mercury (Washington, D.C.: NASA, 1966), pp. 3-31 (Ch. 1, The Lure, the Lock, the Key).
 Frank W. Anderson, Jr., Orders of Magnitude: History of NACA and NASA, 1915-1976 (Washington, D.C.: NASA, 1976), pp. 21-48.
 David Dickson, Alternative Technology and the Politics of Technical Change (Fontana, 1974), pp. 15-40 (Ch. 1, The Case Against Contemporary Technology).

- RECOMMENDED READING (included in reading packet): Leo Marx, "American Literary Culture and the Fatalistic View of Technology," Alternative Futures (Spring 1980): 45-70.

May 2 **DISCUSSION SECTION** (Required Reading)

Langdon Winner, "Do Artifacts Have Politics?" Daedalus 109 (Winter 1980): 121-136.

May 3 The Information Revolution: Computerizing Production and Distribution
May 5 Crisis and International Competition: The Limits of Mass Production

REQUIRED READING

David F. Noble, "Social Choice in Machine Design: The Case of Automatically Controlled Machine Tools." in Case Studies in the Labor Process, ed. Andrew Zimbalist, (New York: Monthly Review Press), pp. 18-50.

Charles F. Sabel, Work and Politics: The Division of Labor in Industry (Cambridge: Cambridge University Press, 1982), pp. 194-231 (Ch. 5, "The End of Fordism?").