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

History 901 Prof. Dunlavy

READINGS IN THE HISTORY OF AMERICAN TECHNOLOGY

This seminar is intended to acquaint students with the major issues that have occupied historians of technology in recent years and to provide an introduction to recent research. The emphasis is not on the "nuts and bolts" of American technology development; students pursuing their own research in the history of technology, as a rule, acquire the necessary "hardware" knowledge on their own. Instead, we will focus a) on the forces that have shaped the direction of technological change in the 19th and 20th centuries and b) on the socio-political consequences of technological change.

As a secondary goal, the seminar is designed to hone analytical skills. The weekly reading load has been kept to a minimum for two reasons. First, most of the assigned readings consist of essays or chapters from larger works rather than entire books, and making sense of this kind of reading necessarily demands more of the reader. Second, all students will be required to make sense of the readings--by writing a brief analysis of the readings each week (more below). 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 evaluation.

Course Requirements. Each student will be required to lead class discussion once during the semester, and all students will be required to write a brief analysis of the assigned readings each week (ca. two pages, double-spaced). These are due at the beginning of each seminar and will be graded on a "satisfactory plus/minus" scale. Course grades will be based on: leadership of class discussion (25%), weekly analyses (50%), and seminar participation (25%).

Reading Materials. Most of the reading material is contained in a reading packet that may be purchased at Kinko's on University Avenue; a copy will also be put on reserve at the Historical Society. The following books are available for purchase at the University Bookstore.

David Hounshell, From the American System to Mass Production (Johns Hopkins University Press, 1984).

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

Nathan Rosenberg, Technology and American Economic Growth (White Plains, N.Y.: M. E. Sharp, Inc., 1972).

SEMINAR TOPICS AND READING ASSIGNMENTS

September 8. Introduction

September 15. Conceptual Aids: Technology, Industrialization, Capitalism, the State . . .

David S. Landes, "Introduction," in idem, ed., The Rise of Capitalism (New York: Macmillan Company), pp. 1-25.

David S. Landes, Prometheus Unbound: Technological Change and Industrial Development in Western Europe from 1750 to the Present (Cambridge: Cambridge University Press, 1969), pp. 1-40 (Ch. 1, "Introduction").

Rondo Cameron, "A New View of European Industrialization," Economic History Review, 2d ser., 38 (February 1985): 1-23.

P. K. O'Brien, "Do We Have a Typology for the Study of European Industrialization in the XIXth Century," Journal of European Economic History 15 (Fall 1986): 291-333.

Geoff Eley and Keith Nield, "Why Does Social History Ignore Politics?" Social History 5 (May 1980): 249-71.

William E. Leuchtenburg, "The Pertinence of Political History: Reflections on the Significance of the State in America," Journal of American History 73 (December 1986): 585-600.

September 22. What is the History of Technology?

George Daniels, "The Big Questions in the History of Technology," Technology and Culture 11 (January 1970): 1-21.

Thomas P. Hughes, "The Order of the Technological World," History of Technology 5 (1980): 1-16.

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.

John M. Staudenmaier, S. J., "What SHOT Hath Wrought and What SHOT Hath Not: Reflections on Twenty-Five Years of the History of Technology" Technology and Culture 25 (1984): 707-30.

Melvin Kranzberg, "Let's Not Get Wrought Up About It," Technology and Culture 25 (1984): 735-49.

Mark H. Rose, "Machine Politics: The Historiography of Technology and Public Policy," Public Historian 10 (Spring 1988): 27-47.

September 29. Antebellum Mechanization: Saving Labor or Saving Capital?

Rosenberg, Technology and American Economic Growth, pp. 1-116 (Chs. 1-4).

Peter Temin, "Labor Scarcity and the Problem of American Industrial Efficiency in the 1850s," Journal of Economic History 26 (September 1966): 277-98.

Peter Temin, "Steam and Waterpower in the Early Nineteenth Century," Journal of Economic History 31 (June 1966): 187-205.

Harlan Halsey, "The Choice Between High-Pressure and Low-Pressure Steam Power in America in the Early Nineteenth Century," Journal of Economic History 41 (December 1980): 723-44.

Alexander Field, "Land Abundance, Interest/Profit Rates, and Nineteenth-Century American and British Technology," Journal of Economic History 43 (June 1983): 405-31.

October 6. The Military and the Origins of Mass Production.

Hounshell, From the American System to Mass Production, pp. 1-187 (Introduction and Chs. 1-4).

Merritt Roe Smith, "Army Ordnance and the 'American System' of Manufacturing, 1815-1861," in idem, ed., Military Enterprise and Technological Change: Perspectives on the American Experience (Cambridge, Mass.: M.I.T. Press, 1985), pp. 39-86.

Robert A. Howard, "Interchangeable Parts Reexamined: The Private Sector of the American Arms Industry on the Eve of the Civil War," Technology and Culture 19 (1978): 633-49.

Barton C. Hacker and Sally L. Hacker, "Military Institutions and the Labor Process: Noneconomic Sources of Technological Change, Women's Subordination, and the Organization of Work," Technology and Culture 28 (October 1987): 743-75.

October 13. The Origins of Big Business: The Chandler Thesis.

Hounshell, From the American System to Mass Production, pp. 189-261 (Chs. 5-6).

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.

Richard B. Duboff and Edward S. Herman, "Alfred Chandler's New Business History: A Review," Politics and Society 10 (1980): 87-110.

Jeremy Atack, "Industrial Structure and the Emergence of the Modern Industrial Corporation," Explorations in Economic History 22 (January 1985): 29-52.

October 20. Managerial Hierarchies: The "What-Do-Bosses-Do" Debate.

Stephen A. Marglin, "What Do Bosses Do? The Origins and Functions of Hierarchy in Capitalist Production," Review of Radical Political Economics 6 (1974): 33-60 (reprinted in The Division of Labor, pp. 13-54).

Katherine Stone, "The Origins of Job Structures in the Steel Industry," Review of Radical Political Economics 6 (Summer 1974): 61-97.

Oliver E. Williamson, The Economic Institutions of Capitalism: Firms, Markets, Relational Contracting (New York: Free Press, 1985), pp. 206-72 (Ch. 9, The Organization of Work, and Ch. 10, The Organization of Labor).

David S. Landes, "What Do Bosses Really Do?" Journal of Economic History 46 (September 1986): 585-623.

Philip J. Leahey, "Skilled Labor and the Rise of the Modern Corporation: The Case of the Electrical Industry," Labor History 27 (Winter 1985-86): 31-53.

October 27. The Science-Technology Relationship: A Debate Worth Reviving?

Edwin T. Layton, Jr., "Mirror-Image Twins: The Communities of Science and Technology," Technology and Culture 12 (October 1971): 562-80.

Edwin T. Layton, Jr., "Technology as Knowledge," Technology and Culture 15 (January 1974): 31-41.

Otto Mayr, "The Science-Technology Relationship as a Historiographic Problem," Technology and Culture 17 (October 1976): 663-73.

John M. Staudenmaier, S.J., Technology's Storytellers: Reweaving the Human Fabric (Cambridge, Mass.: Society for the History of Technology and M.I.T. Press, 1985), pp. 83-120 (Ch. 3, "Science, Technology, and the Characteristics of Technological Knowledge").

Michael Fores, "Transformations and the Myth of 'Engineering Science': Magic in a White Coat," Technology and Culture 29 (January 1988): 62-81.

Edwin T. Layton, "Science as a Form of Action: The Role of the Engineering Sciences," Technology and Culture 29 (January 1988): 82-97.

David F. Channell, "Engineering Science as Theory and Practice," Technology and Culture 29 (January 1988): 98-103.

November 3. From Mechanics to . . . Engineers? Managers? Technocrats?

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).

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November 3. From Mechanics to . . . (continued).

Terry S. Reynolds, "Defining Professional Boundaries: Chemical Engineering in the Early 20th Century," Technology and Culture 27 (October 1986): 694-716.

Peter Meiksins, "The 'Revolt of the Engineers' Reconsidered," Technology and Culture 29 (April 1988): 219-46.

Donald Stabile, Prophets of Order: The Rise of the New Class, Technocracy and Socialism in America (Boston: South End Press, 1984), pp. 1-56 (Introduction and Chs. 1-2).

November 10. Labor's Power and Technological Change.

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.

David F. Noble, "Social Choice in Machine Design: The Case of Automatically Controlled Machine Tools," in Andrew Zimbalist, ed., Case Studies in the Labor Process (New York: Monthly Review Press, 1979?), pp. 18-50.

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.

Isaac Cohen, "Workers' Control in the Cotton Industry: A Comparative Study of British and American Mule Spinning," Labor History 26 (Winter 1985): 53-85.

Mary Freifeld, "Technological Change and the 'Self-Acting' Mule: A Study of Skill and the Sexual Division of Labor," Social History 2 (October 1986): 319-43.

November 17. Mass Production: Inherent Limits and Historical Alternatives?

Hounshell, From the American System to Mass Production, pp. 263-330 (Chs. 7-8).

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

I. B. Holley, Jr., "A Detroit Dream of Mass-Produced Fighter Aircraft: The XP-75 Fiasco," Technology and Culture 28 (January 1987): 578-93.

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.

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November 17. Inherent Limits and Historical Alternatives, continued.

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?").

Karel Williams, Tony Cutler, John Williams, and Colin Haslam, "Review Article: The End of Mass Production?" Economy and Society 16 (August 1987): 405-39.

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.

December 1. Technology and Republican Values: The Nineteenth-Century Debate.

Kasson, Civilizing the Machine, pp. 3-180 (Chs. 1-4).

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.

John Ashworth, "Agrarians" and "Aristocrats": Party Political Ideology in the United States, 1837-1846 (Cambridge: Cambridge University Press, 1987; orig. pub. 1983), pp. 1-84 (Introduction and Chs. 1-2).

December 8. Technology and the Political Sphere: The View from Both Sides.

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.

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.

Wallace D. Farnham, "'The Weakened Spring of Government': A Study in Nineteenth-Century American History," American Historical Review 68 (April 1963): 662-80.

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).

Lewis Mumford, "Authoritarian and Democratic Technics," Technology and Culture 5 (1964): 1-8.

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

John G. Gunnell, "The Technocratic Image and the Theory of Technocracy," Technology and Culture 23 (July 1982): 392-416.

December 15. Progress For Whom?

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.