

SEMINAR:
SCIENCE IN AMERICA

History of Science/Medical History & Bioethics 915

Spring, 2012

INSTRUCTOR: Ronald L. Numbers, 1432 MSC, 1300 University Ave.

TIME & PLACE: Mondays, 10:00-12:00 a.m., 1406 MSC, 1300 University Ave.

BOOKS

Joyce E. Chaplin, *The First Scientific American: Benjamin Franklin and the Pursuit of Genius* (New York: Basic Books, 2006).

A. Hunter Dupree, *Science in the Federal Government: A History of Policies and Activities to 1940* (Cambridge, Mass.: Harvard University Press, 1957).

Charles E. Rosenberg, *The Cholera Years: The United States in 1832, 1849, and 1866* (Chicago: University of Chicago Press, 1962).

Peter Harrison, Ronald L. Numbers, and Michael H. Shank, eds., *Wrestling with Nature: From Omens to Science* (Chicago: University of Chicago Press, 2011).

Robert V. Bruce, *The Launching of Modern American Science, 1846-1876* (New York: Knopf, 1987).

David N. Livingstone, *Adam's Ancestors: Race, Religion and the Politics of Human Origins* (Baltimore: Johns Hopkins University Press, 2008).

Ronald L. Numbers, *Darwinism Comes to America*, by Ronald L. Numbers (Cambridge, Mass.: Harvard University Press, 1998).

Edward J. Larson, *Summer for the Gods: The Scopes Trial and America's Continuing Debate over Science and Religion* (New York: Basic Books, 1997).

Daniel J. Kevles, *The Physicists: A History of a Scientific Community in Modern America* (New York: Knopf, 1977).

Nathan G. Hale, Jr., *Freud and the Americans: The Beginnings of Psychoanalysis in the United States, 1876-1917* (New York: Oxford University Press, 1971).

Richard Rhodes, *The Making of the Atomic Bomb* (New York: Simon and Schuster, 1986).

Susan M. Reverby, *Examining Tuskegee: The Infamous Syphilis Study and Its Legacy* (Chapel Hill: University of North Carolina Press, 2009).

Naomi Oreskes and Erik M. Conway, *Merchants of Doubt: How a Handful of Scientists Obscured the Truth on Issues from Tobacco Smoke to Global Warming* (New York: Bloomsbury Press, 2010).

SCHEDULE

Jan. 23	Introduction
Jan. 30	Colonial Science
Feb. 6	Science in the New Nation
Feb. 13	Science and Medicine
Feb. 20	Science and Technology
Feb. 27	Science and Religion
Mar. 5	[Individual meetings]
Mar. 12	Biological and Social Darwinism
Mar. 19	Antievolutionism
Mar. 26	The Rise to World Scientific Power
	SPRING BREAK
Apr. 9	The Social and Behavioral Sciences
Apr. 16	Science and the World Wars
Apr. 23	Cold War Science
Apr. 30	Science and Human Values
May 7	Science at the Turn of the Millennium

Introduction

Required Reading:

Richard H. Shryock, "The Need for Studies in the History of American Science," *Isis* 35 (1944): 10-13.

Arthur M. Schlesinger, "An American Historian Looks at Science and Technology," *Isis* 36 (1946): 162-66.

I. Bernard Cohen, "Some Reflections on the State of Science in America during the Nineteenth Century," *Proceedings of the National Academy of Sciences* 45 (1959): 666-77.

A. Hunter Dupree, "The History of American Science—A Field Finds Itself," *American Historical Review* 71 (1966): 863-74.

Nathan Reingold, "The Peculiarities of the Americans or Are There National Styles in the Sciences?" *Science in Context* 4 (1991): 347-66.

Clark A. Elliott, "Forum for the History of Science in America: Identity and Organization," *Isis* 90 (1999): S226-S239.

Ronald L. Numbers, "The Americanization of the History of Science Society," *History of Science Society Newsletter*, April, 2000, pp. 1-2.

Thomas F. Gieryn, "Boundary-Work and the Demarcation of Science from Non-Science: Strains and Interests in Professional Ideologies of Scientists," *American Sociological Review* 48 (1983): 781-795.

Colonial Science

Required Reading:

Joyce E. Chaplin, *The First Scientific American: Benjamin Franklin and the Pursuit of Genius* (New York: Basic Books, 2006).

James Delbourgo, "The Electrical Machine in the American Garden," in *Science and Empire in the Atlantic World*, ed. James Delbourgo and Nicholas Dew (London: Routledge, 2007), 255-80.

Related Literature:

Perry Miller, "The Judgment of the Smallpox" and "The Experimental Philosophy," in *The New England Mind: From Colony to Province* (Cambridge, Mass.: Harvard University Press, 1953), pp. 345-66, 437-46.

Otho T. Beall and Richard H. Shryock, *Cotton Mather: First Significant Figure in American Medicine* (Baltimore: Johns Hopkins Press, 1954).

Brooke Hindle, *The Pursuit of Science in Revolutionary America, 1735-1789* (Chapel Hill: University of North Carolina Press, 1956).

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Raymond P. Stearns, *Science in the British Colonies of America* (Urbana: University of Illinois Press, 1970).

Silvio A. Bedini, *Thinkers and Tinkers: Early American Men of Science* (New York: Charles Scribner's Sons, 1975)

Henry F. May, *The Enlightenment in America* (New York: Oxford University Press, 1976).

Herbert Leventhal, *In the Shadow of the Enlightenment: Occultism and Renaissance Science in Eighteenth-Century America* (New York: New York University Press, 1976).

Ronald L. Numbers, ed., *Medicine in the New World: New Spain, New France, and New England* (Knoxville: University of Tennessee Press, 1987).

David D. Hall, *Worlds of Wonder, Days of Judgment: Popular Religious Belief in Early New England* (New York: Knopf, 1989).

David Jaffee, "The Village Enlightenment in New England, 1760-1820," *William and Mary Quarterly* 47 (1990): 327-46.

I. Bernard Cohen, *Benjamin Franklin's Science* (Cambridge, Mass.: Harvard University Press, 1990).

William R. Newman, *Gehennical Fire: The Lives of George Starkey, an American Alchemist in the Scientific Revolution* (Cambridge, MA: Harvard University Press, 1994).

Paul Semonin, *American Monster: How the Nation's First Prehistoric Creature Became a Symbol of National Identity* (New York: New York University Press, 2000).

Joyce E. Chaplin, *Subject Matter: Technology, the Body, and Science on the Anglo-American Frontier, 1500-1676* (Cambridge, MA: Harvard University Press, 2001).

Joyce E. Chaplin, "Nature and Nation: Natural History in Context," in *Stuffing Birds, Pressing Plants, Shaping Knowledge: Natural History in North America, 1730-1860* (Philadelphia: American Philosophical Society, 2003), pp. 75-95.

Michael Brian Schiffer, *Draw the Lightning Down: Benjamin Franklin and Electrical Technology in the Age of Enlightenment* (Berkeley and Los Angeles: University of California Press, 2003).

Neil Kamil, *Fortress of the Soul: Violence, Metaphysics, and Material Life in the Huguenots' New World, 1517-1751* (Baltimore: Johns Hopkins University Press, 2005).

James Delbourgo, *A Most Amazing Scene of Wonders: Electricity and Enlightenment in Early America* (Cambridge, MA: Harvard University Press, 2006).

Susan Scott Parrish, *American Curiosity: Cultures of Natural History in the Colonial British Atlantic World* (Chapel Hill: University of North Carolina Press, 2006).

Sara S. Gronim, *Everyday Nature: Knowledge of the Natural World in Colonial New York* (New Brunswick, NJ: Rutgers University Press, 2007).

Walter W. Woodward, *Prospero's America: John Winthrop, Jr., Alchemy, and the Creation of New England Culture, 1606-1676* (Chapel Hill: University of North Carolina Press, 2010).

Science in the New Nation

Required Reading:

A. Hunter Dupree, *Science in the Federal Government: A History of Policies and Activities to 1940* (Cambridge, Mass.: Harvard University Press, 1957), pp. 1-148.

Nathan Reingold, ed., *Science in Nineteenth-Century America: A Documentary History* (Chicago: University of Chicago Press, 1985), pp. 59-62.

George H. Daniels, "The Process of Professionalization in American Science: The Emergent Period, 1820-1860," *Isis* 58 (1967): 151-66.

Nathan Reingold, "Definitions and Speculations: The Professionalization of Science in American in the Nineteenth Century," in *The Pursuit of Knowledge in the Early American Republic: American Scientific and Learned Societies from Colonial Times to the Civil War*, ed. Alexandra Oleson and Sanborn C. Brown (Baltimore: Johns Hopkins University Press, 1976), 33-69.

Paul Lucier, "The Professional and the Scientist in Nineteenth-Century America," *Isis* 100 (2009): 699-732.

Related Literature:

John D. Davies, *Phrenology--Fad and Science: A 19th-Century American Crusade* (New Haven, Yale University Press, 1955).

William H. Goetzmann, *Exploration and Empire: The Explorer and the Scientist in the Winning of the West* (New York: Knopf, 1966).

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Howard S. Miller, *Dollars for Research: Science and Its Patrons in Nineteenth-Century America* (Seattle: University of Washington Press, 1970).

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William Stanton, *The Great United States Exploring Expedition of 1838-1842* (Berkeley and Los Angeles: University of California Press, 1975).

Stanley M. Guralnick, *Science and the Anti-Bellum American College* (Philadelphia: American Philosophical Society, 1975).

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Sally Gregory Kohlstedt, "In from the Periphery: American Women in Science, 1830-1880," *Signs* 4 (1979): 81-96.

John C. Greene, *American Science in the Age of Jefferson* (Ames: Iowa State University Press, 1984).

Charlotte M. Porter, *The Eagle's Nest: Natural History and American Ideas, 1812-1842* (University: University of Alabama Press, 1986).

Mary Ann James, *Elites in Conflict: The Antebellum Clash over the Dudley Observatory* (New Brunswick, NJ: Rutgers University Press, 1987).

Ronald L. Numbers and Todd L. Savitt, eds., *Science and Medicine in the Old South* (Baton Rouge: Louisiana State University Press, 1989).

Silvio A. Bedini, *Thomas Jefferson: Statesman of Science* (New York: Macmillan, 1990).

Joel J. Orosz, *Curators and Culture: The Museum Movement in America, 1740-1870* (Tuscaloosa: University of Alabama Press, 1990).

Elizabeth B. Keeney, *The Botanizers: Amateur Scientists in Nineteenth-Century America* (Chapel Hill: University of North Carolina Press, 1992).

Todd Shallat, *Structures in the Stream: Water, Science, and the Rise of the U.S. Army Corps of Engineers* (Austin: University of Texas Press, 1994).

Hugh Richard Slotten, *Patronage, Practice, and the Culture of American Science: Alexander Dallas Bache and the U.S. Coast Survey* (Cambridge: Cambridge University Press, 1994).

R. J. Hoage and William A. Deiss, *New Worlds, New Animals: From Menagerie to Zoological Park in the Nineteenth Century* (Baltimore: Johns Hopkins University Press, 1996).

Albert E. Moyer, *Joseph Henry: The Rise of an American Scientist* (Washington, DC: Smithsonian Institution Press, 1997).

Sally Gregory Kohlstedt, Michael M. Sokal, and Bruce V. Lewenstein, *The Establishment of Science in America: 150 Years of the American Association for the Advancement of Science* (New Brunswick, N.J.: Rutgers University Press, 1999).

Michele L. Aldrich, *New York State Natural History Survey, 1836-1842: A Chapter in the History of American Science* (Ithaca, N.Y.: Paleontological Research Institution, 2000).

Kim Tolley, *The Science Education of American Girls: A Historical Perspective* (New York: RoutledgeFalmer, 2003).

Richard Rhodes, *John James Audubon: The Making of an American* (New York: Knopf, 2004).

Miriam R. Levin, *Defining Women's Scientific Enterprise: Mount Holyoke Faculty and the Rise of American Science* (Hanover, N.H.: University Press of New England, 2005).

Helen M. Rozwadowski, *Fathoming the Ocean: The Discovery and Exploration of the Deep Sea* (Cambridge, MA: Harvard University Press, 2005).

Fred Nadis, *Wonder Shows: Performing Science, Magic, and Religion in America* (New Brunswick, N.J.: Rutgers University Press, 2005).

Andrew J. Lewis, "Gathering for the Republic: Botany in Early Republic America," in *Colonial Botany: Science, Commerce, and Politics in the Early Modern World*, ed. Londa Schiebinger and Claudia Swan. (Philadelphia: University of Pennsylvania Press, 2005), pp. 66-80, 295-96.

D. Graham Burnett, *Trying Leviathan: The Nineteenth-Century New York Court Case That Put the Whale on Trial and Challenged the Order of Nature* (Princeton, NJ: Princeton University Press, 2007).

Keith Stewart Thomson, *The Legacy of the Mastodon: The Golden Age of Fossils in America* (New Haven: Yale University Press, 2008).

Laura Dassow Walls, *The Passage to Cosmos: Alexander von Humboldt and the Shaping of America* (Chicago: University of Chicago Press, 2009).

Marlana Portolano, *The Passionate Empiricist: The Eloquence of John Quincy Adams in the Service of Science* (Albany: State University of New York Press, 2009).

Richard William Judd, *The Untilled Garden: Natural History and the Spirit of Conservation in America, 1740-1840* (Cambridge: Cambridge University Press, 2009).

Katherine Pandora, "Popular Science in National and Transnational Perspective: Suggestions from the American Context," *Isis* 100 (2009): 346-58.

Andrew J. Lewis, *A Democracy of Facts: Natural History in the Early Republic* (Philadelphia: University of Pennsylvania Press, 2011).

Science and Medicine

Required Reading:

Charles E. Rosenberg, *The Cholera Years: The United States in 1832, 1849, and 1866* (Chicago: University of Chicago Press, 1962).

Ronald L. Numbers, "Science and Medicine," in *Wrestling with Nature: From Omens to Science*, ed. Peter Harrison, Ronald L. Numbers, and Michael H. Shank (Chicago: University of Chicago Press, 2011), pp. 201-24.

Related Literature:

George W. Corner, *A History of the Rockefeller Institute, 1901-1953: Origins and Growth* (New York: Rockefeller Institute Press, 1964).

Charles E. Rosenberg, *The Trial of the Assassin Guiteau: Psychiatry and Law in the Gilded Age* (Chicago: University of Chicago Press, 1968).

Gerald L. Geison, "Divided We Stand: Physiologists and Clinicians in the American Context," in *The Therapeutic Revolution: Essays in the Social History of American Medicine*, ed. Morris J. Vogel & Charles E. Rosenberg (Philadelphia: University of Pennsylvania Press, 1979), pp. 67-90.

Ronald L. Numbers, "William Beaumont and the Ethics of Human Experimentation," *Journal of the History of Biology* 12 (1979): 113-35; Ronald L. Numbers and William J. Orr, Jr., "William Beaumont's Reception at Home and Abroad," *Isis* 72 (1981): 590-612.

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Todd L. Savitt, "The Use of Blacks for Medical Experimentation and Demonstration in the Old South," *Journal of Southern History* 48 (1982): 331-48.

Robert E. Kohler, *From Medical Chemistry to Biochemistry: The Making of a Biomedical Discipline* (Cambridge: Cambridge University Press, 1982).

Judith Walzer Leavitt, "'Science' Enters the Birthing Room: Obstetrics in America since the Eighteenth Century," *Journal of American History* 70 (1983): 281-304.

Gerald N. Grob, *Mental Illness and American Society, 1875-1940* (Princeton, N.J.: Princeton University Press, 1983).

Regina Markell Morantz-Sanchez, *Sympathy and Science: Women Physicians in American Medicine* (New York: Oxford University Press, 1985).

Kenneth M. Ludmerer, *Learning to Heal: The Development of American Medical Education* (New York: Basic Books, 1985).

Victoria A. Harden, *Inventing the NIH: Federal Biomedical Research Policy, 1887-1937* (Baltimore: Johns Hopkins University Press, 1986).

John Harley Warner, *The Therapeutic Perspective: Medical Practice, Knowledge, and Identity in America, 1820-1885* (Cambridge, Mass.: Harvard University Press, 1986).

Ronald L. Numbers and John Harley Warner, "The Maturation of American Medical Science," in *Scientific Colonialism, 1800-1930: A Cross-Cultural Comparison*, ed. Nathan Reingold and Marc Rothenberg (Washington: Smithsonian Institution Press, 1987), pp. 191-214.

W. Bruce Fye, *The Development of American Physiology: Scientific Medicine in the Nineteenth Century* (Baltimore: Johns Hopkins University Press, 1987).

James C. Mohr, *Doctors and the Law: Medical Jurisprudence in Nineteenth-Century America* (New York: Oxford University Press, 1993).

Steven C. Martin, "'The Only Truly Scientific Method of Healing': Chiropractic and American Science, 1895-1990," *Isis* 85 (1994): 207-27.

W. F. Bynum, *Science and the Practice of Medicine in the Nineteenth Century* (Cambridge: Cambridge University Press, 1994).

Judith Walzer Leavitt, *Typhoid Mary: Captive to the Public's Health* (Boston: Beacon Press, 1996).

Joel Braslow, *Mental Ills and Bodily Cures, Psychiatric Treatment in the First Half of the Twentieth Century* (Berkeley and Los Angeles: University of California Press, 1997).

Nancy Tomes, *The Gospel of Germs: Men, Women, and the Microbe in American Life* (Cambridge, Mass.: Harvard University Press, 1998).

John Harley Warner, *Against the Spirit of System: The French Impulse in Nineteenth-Century American Medicine* (Princeton, N.J.: Princeton University Press, 1998).

Michael Bliss, *William Osler: A Life in Medicine* (New York: Oxford University Press, 1999).

Richard J. Wolfe, *Tarnished Idol: William Thomas Green Morton and the Introduction of Surgical Anesthesia: A Chronicle of the Ether Controversy* (San Anselmo, Calif.: Norman Publishing, 2001).

David McBride, *Missions for Science: U. S. Technology and Medicine in America's African World* (New Brunswick, NJ: Rutgers University Press, 2002).

Susan D. Jones, *Valuing Animals: Veterinarians and Their Patients in Modern America* (Baltimore: Johns Hopkins University Press, 2002).

Conevery Bolton Valenčius, *The Health of the Country: How American Settlers Understood Themselves and Their Land* (New York: Basic Books, 2002).

Michael Sappol, *A Traffic of Dead Bodies: Anatomy and Embodied Social Identity in Nineteenth-Century America* (Princeton, N.J.: Princeton University Press, 2002).

Rennie B. Schoepflin, *Christian Science on Trial: Religious Healing in America* (Baltimore: Johns Hopkins University Press, 2003).

Michael Bliss, *Harvey Cushing: A Life in Surgery* (New York: Oxford University Press, 2005).

James Colgrove, “‘Science in a Democracy’: The Contested Status of Vaccination in the Progressive Era and the 1920s,” *Isis* 96 (2005): 167-91.

Judith Houck, *Hot and Bothered: Women, Medicine, and Menopause in Modern America* (Cambridge, Mass.: Harvard University Press, 2006).

Arleen Tuchman, *Science Has No Sex: The Life of Marie Zakrzewska, M.D.* (The University of North Carolina Press, 2006).

Philip Cash, *Dr. Benjamin Waterhouse: A Life in Medicine and Public Service (1754-1846)* (Sagamore Beach, MA: Science History Publications, 2006).

Gregg Mitman, *Breathing Space: How Allergies Shape Our Lives and Landscapes* (New Haven: Yale University Press, 2007).

John Parascandola, *Sex, Sin, and Science: A History of Syphilis in America* (Westport, CT: Praeger, 2008).

Susan E. Lederer, *Flesh and Blood: Organ Transplantation and Blood Transfusion in Twentieth-Century America* (New York: Oxford University Press, 2008).

Bert Hansen, *Picturing Medical Progress from Pasteur to Polio: A History of Mass Media Images and Popular Attitudes in America* (New Brunswick, NJ: Rutgers University Press, 2009).

John Harley Warner and James M. Edmonson, *Dissection: Photographs of a Rite of Passage in American Medicine: 1880-1930* (New York: Blast Books, 2009).

Jeffrey M. Jentzen, *Death Investigation in America: Coroners, Medical Examiners, and the Pursuit of Medical Certainty* (Cambridge, MA: Harvard University Press, 2009).

Science and Technology

Required Reading:

Robert V. Bruce, *The Launching of Modern American Science, 1846-1876* (New York: Knopf, 1987).

Ronald Kline, "Science and Technology," in *Wrestling with Nature: From Omens to Science*, ed. Peter Harrison, Ronald L. Numbers, and Michael H. Shank (Chicago: University of Chicago Press, 2011), pp. 225-52.

W. Bernard Carlson, "Innovation and the Modern Corporation: From Heroic Invention to Industrial Science," in *Science in the Twentieth Century*, ed. John Krige and Dominique Pestre (Amsterdam: Harwood Academic Publisher, 1997), pp. 203-26.

Related Literature:

Edwin Layton, "Mirror-Image Twins: The Community of Science and Technology," in *Nineteenth-Century American Science: A Reappraisal*, ed. George H. Daniels (Evanston, Ill.: Northwestern University Press, 1972), pp. 210-30.

Charles E. Rosenberg, "Science, Technology, and Economic Growth: The Case of the Agricultural Experiment Station Scientist, 1875-1914," in *Nineteenth-Century American Science: A Reappraisal*, ed. George H. Daniels (Evanston, Ill.: Northwestern University Press, 1972), pp. 181-209.

Robert V. Bruce, *Bell: Alexander Graham Bell and the Conquest of Solitude* (Boston: Little, Brown, 1973).

Nathan Reingold and Arthur P. Molella, "Theorists and Ingenious Mechanics: Joseph Henry Defines Science," *Science Studies* 3 (1973): 323-51.

Bruce Sinclair, *Philadelphia's Philosopher Mechanics: A History of the Franklin Institute, 1824-1865* (Baltimore: Johns Hopkins University Press, 1974).

Reese V. Jenkins, *Images and Enterprise: Technology and the American Photographic Industry, 1839-1925* (Baltimore: Johns Hopkins University Press, 1975).

Margaret W. Rossiter, *The Emergence of Agricultural Science: Justus Liebig and the Americans, 1840-1880* (New Haven, Conn.: Yale University Press, 1975).

Robert C. Post, *Physics, Patents, and Politics: A Biography of Charles Grafton Page* (New York: Science History Publications, 1976).

David Noble, *America by Design: Science, Technology, and the Rise of Corporate Capitalism* (New York: Alfred A. Knopf, 1977).

Margaret W. Rossiter, "The Organization of the Agricultural Sciences," in *The Organization of Knowledge in Modern America, 1860-1920*, ed. Alexandra Oleson and John Voss (Baltimore: Johns Hopkins University Press, 1979), pp. 211-48.

Linda O. McMurry, *George Washington Carver: Scientist and Symbol* (New York: Oxford University Press, 1981).

George Wise, "Ionists in Industry: Physical Chemistry at General Electric, 1900-1915," *Isis* 74 (1983): 7-21.

Leonard S. Reich, *The Making of American Industrial Research: Science and Business at GE and Bell, 1876-1926* (Cambridge: Cambridge University Press, 1985).

George Wise, *Willis R. Whitney, General Electric, and the Origins of U.S. Industrial Research* (New York: Columbia University Press, 1985).

Alan I. Marcus, *Agricultural Science and the Quest for Legitimacy: Farmers, Agricultural Colleges, and Experiment Stations, 1870-1890* (Ames: Iowa State University Press, 1985).

Jonathan Liebenau, *Medical Science and Medical Industry: The Formation of the American Pharmaceutical Industry* (Baltimore: Johns Hopkins University Press, 1986).

John Alfred Heitmann, *The Modernization of the Louisiana Sugar Industry, 1830-1910* (Baton Rouge: Louisiana State University Press, 1987).

John P. Swann, *Academic Scientists and the Pharmaceutical Industry: Cooperative Research in Twentieth-Century America* (Baltimore: Johns Hopkins University Press, 1988).

David A. Hounshell and John K. Smith, Jr., *Science and Corporate Strategy: Du Pont R & D, 1902-1980* (Cambridge: Cambridge University Press, 1988).

Deborah Fitzgerald, *The Business of Breeding: Hybrid Corn in Illinois, 1890-1940* (Ithaca, NY: Cornell University Press, 1990).

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Todd Shallat, *Structures in the Stream: Water, Science, and the Rise of the U.S. Army Corps of Engineers* (Austin: University of Texas Press, 1994).

Edward W. Stevens, Jr., *The Grammar of the Machine: Technical Literacy and Early Industrial Expansion in the United States* (New Haven: Yale University Press, 1995).

Ronald C. Tobey, *Technology as Freedom: the New Deal and the Electrical Modernization of the American Home* (Berkeley and Los Angeles: University of California Press, 1996).

Richard C. Sawyer, *To Make a Spotless Orange: Biological Control in California* (Ames: Iowa State University Press, 1996).

Paul Israel, *Edison: A Life of Invention* (New York: John Wiley, 1998).

Ronald R. Kline, *Consumers in the Country: Technology and Social Change in Rural America* (Baltimore: Johns Hopkins University Press, 2000).

Emily Thompson, *The Soundscape of Modernity: Architectural Acoustics and the Culture of Listening in America, 1900-1933* (Cambridge, MA: MIT Press, 2002).

Kenneth Silverman, *Lightning Man: The Accursed Life of Samuel F. B. Morse* (New York: Alfred A. Knopf, 2003).

Alfred D. Chandler, Jr., *Inventing the Electronic Century: The Epic Story of the Consumer Electronic and Computer Industries* (New York: Free Press, 2003).

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Eric Schatzberg, "Technik Comes to America: Changing Meanings of *Technology* before 1930," *Technology and Culture* 47 (2006): 486-512.

Pap A. Ndiaye, *Nylon and Bombs: DuPont and the March of Modern America* (Baltimore: Johns Hopkins University Press, 2007).

Paul Lucier, *Scientists and Swindlers: Consulting on Coal and Oil in America, 1820-1890* (Baltimore: Johns Hopkins University Press, 2008).

Science and Religion

Required Reading:

David N. Livingstone, *Adam's Ancestors: Race, Religion and the Politics of Human Origins* (Baltimore: Johns Hopkins University Press, 2008).

John C. Greene, "Science and Religion," in *The Rise of Adventism: Religion and Society in Mid-Nineteenth-Century America*, ed. Edwin S. Gaustad (New York: Harper & Row, 1974), pp. 50-69.

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Related Literature:

Donald Fleming, *John William Draper and the Religion of Science* (Philadelphia: University of Pennsylvania Press, 1950).

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Morgan B. Sherwood, "Genesis, Evolution, and Geology in America before Darwin: The Dana-Lewis Controversy, 1856-1857," in *Toward a History of Geology*, ed., Cecil J. Schneer (Cambridge, Mass.: MIT Press, 1969), pp. 304-316.

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E. Brooks Holifield, "Science and Theology in the Old South," in *Science and Medicine in the Old South*, ed. Ronald L. Numbers and Todd L. Savitt (Baton Rouge: Louisiana State University Press, 1989), pp. 127-46.

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Lester D. Stephens, *Science, Race, and Religion in the American South: John Bachman and the Charleston Circle of Naturalists, 1815-1895* (Chapel Hill: University of North Carolina Press, 2000).

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G. Blair Nelson, "'Men before Adam!': American Debates over the Unity and Antiquity of Humanity," in *When Science and Christianity Meet*, ed. Lindberg and Numbers (Chicago: University of Chicago Press, 2003), pp. 161-81.

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