

Hist 280S.001/280D.004

American Science

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Fall 2005, W 10-12

Purpose

American science is a Johnny-come-lately. Historically, it was long in a position of backwardness. Historiographically, it has remained relatively unself-conscious. And yet the American way of doing science, for better and for worse, has become a global model. Its historians may not have kept up.

This reading seminar serves as both an introduction to the field and a consciousness-raising exercise. It looks for ways in which historians of U.S. science have contributed innovatively to the writing of history of science in general, as well as approaches to the history of U.S. science that have been revitalized by developments in related fields.

While we will aim for some breadth of coverage, we will mostly follow our noses to interesting or original work. We will pick out readings that have set agendas, offered synoptic views, or formulated new problems. The point is to read scholarship with implications that go beyond its subject matter. Along the way, we will highlight prospects for innovative future study.

The seminar includes studies that take their lead from “regular” U.S. history and from science studies. My own specialty is the history of German science, but I regularly teach and direct dissertations on the U.S. The seminar is meant to be relevant to students interested in the present (i.e., science studies / STS).

Readings

The backbone of the reading list is monographs. We will typically read one or two books a week. The texts are available in the bookstores — with four exceptions: one book that is being published this fall, and three more that are out of print or unavailable in paperback. (You may want to check Amazon for second-hand copies.) In any case, all are on 1-day reserve in Graduate Services in the main library. For a list, see the detailed calendar.

Some weeks will have articles (in one case, a dissertation) as well. They can be printed from the photocopier in the Office for History of Science and Technology, 543 Stephens Hall. You can pay for the photocopies as you go, or arrange to be billed at the end of the semester (speak with Kate Moser in OHST). If you have difficulty getting up to OHST, we can make other arrangements.

Assignments and expectations

Discussion

Each week's reading assignment is meant as preparation for discussion. Doing the reading is a sine qua non. So is active, engaged participation in seminar. If you are not contributing relevantly to discussion, miss too many meetings, or miss without good cause, you will not be permitted to continue or will fail the course. I expect you to contact me by e-mail whenever you are absent.

Each week you should come with general questions for discussion. As I may ask you to read them aloud or give them to someone else, you should write them down. I will also ask each of you to launch us on discussions of particular readings. You will have a choice of which weeks you present. We will work out the details in the second class meeting, so look over the schedule and see what interests you most. *Preparation for and participation in discussions will be one-half of your course grade.*

Book reviews

During the semester, you will pick any three books from the reading list about which to write professional-style reviews. These should be 750 words long. The purpose of a review is first and foremost to make plain the book's approach, thesis, construction, and evidence. The audience is interested scholars who have not read the book. You may and must work your assessment of its success into this framework. For models look in *Isis* or the *American historical review*. Turn in each review at the class meeting when we discuss the book; late reviews will not be accepted. *The book reviews will be one-sixth of your grade.*

Final essay

Taking off from the seminar's theme, you will follow up with reading on a topic of your choice. This should be a related literature (most likely U.S., but possibly not) that you would like to get acquainted with on your own. Primary historical research is not the goal; familiarity with a literature is — in the service of primary research that you may do later.

To pick your topic, come see me in office hours in the first half of the semester. I have notes on dozens of possibilities and will be glad to help brainstorm. On Wednesday, December 14, you will turn in an essay of 20 to 25 pages (double spaced, standard fonts and margins, etc.). How exactly you construct the essay will depend on your topic. If you have questions, ask. *The essay will be one-third of your grade.*

Schedule

A general overview is provided below. For details see the calendar.

Week 1 (8/31)	INTRODUCTION
Week 2 (9/7)	The man of science: Slotten, Walls
Week 3 (9/14)	Cultural meanings: Menand, Hollinger
Week 4 (9/21)	Biological thinking: Pauly
Week 5 (9/28)	Institutionalization: Gerson
Week 6 (10/5)	Practicing science: Kohler
Week 7 (10/12)	Science and the corporation: Reich, articles
Week 8 (10/19)	The national security state: Bird/Sherwin, articles
Week 9 (10/26)	Postwar faith: "In science we trust": McDougall, Rudolph
Week 10 (11/2)	Science policy, technology, and the economy: Hart, articles
Week 11 (11/9)	Political economy in the local setting: Lowen, Lécuyer or other
Week 12 (11/16)	Expertise and activism: Epstein
Week 13 (11/23)	The nature of nature: Haraway
Week 14 (11/30)	Popular culture: Tomes, Mitman
Week 15 (12/7)	TO BE DECIDED; WRAP-UP DISCUSSION
Week 16 (12/14)	NO MEETING; PAPER DUE

Week 15 is left open, with readings to be decided by consensus. I will consider just about any topic, as long as there is a big-picture question and a good book (or books) to read. Options could include:

- Big science: Galison/Hevly, Heilbron/Seidel, Westwick, McCray
- Science advising: Jasanoff, Hilgartner
- Environment/ecology: Smith, Buhs
- The social/human sciences: Pandora, Hermann
- Sciences of sex: Clarke

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Calendar

Week 1 (8/31): Introduction

Week 2 (9/7): The man of science

Before there were “scientists,” there were “men of science.” But they were not just proto-scientists. We use two biographies (more or less) as entry points into the antebellum period, when oppositions like science-and-literature, science-and-politics, and scientists-and-amateurs had not yet solidified.

Slotten, Hugh Richard. *Patronage, practice, and the culture of American science: Alexander Dallas Bache and the U.S. Coast Survey*. Cambridge: Cambridge University Press, 1994.

On reserve, print from photocopier in OHST, or get your own copy.

Walls, Laura Dassow. *Seeing new worlds: Henry David Thoreau and nineteenth-century natural science*. Madison, WI: University of Wisconsin Press, 1995.

Week 3 (9/14): Cultural meanings

Historians of science talk a great deal about situating science in culture. In their own way, intellectual historians have been doing this for a while. One strand of intellectual history picks up on the cultural meanings of science in its specifically American resonances from the post-Civil-War period through the Progressive Era and beyond.

Menand, Louis. *The metaphysical club: A story of ideas in America*. New York: Farrar, Straus and Giroux, 2002.

Hollinger, David A. *Science, Jews, and secular culture: Studies in mid-twentieth-century American intellectual history*. Princeton: Princeton University Press, 1996.

Read ch. 5, 6, 8.

Week 4 (9/21): Biological thinking

Human beings are animals: this much was accepted by many American intellectuals by the early 20th century. As a result, the life sciences carried a powerful charge, interfacing time and again with debates about human origins, behavior, and social order. What would U.S. history look like if we took this seriously?

Pauly, Philip. *Biologists and the promise of American life: From Meriwether Lewis to Alfred Kinsey*. Princeton: Princeton University Press, 2000.

Week 5 (9/28): Institutionalization [RESCHEDULE?]

Institutions channel scientific activity: scores of institutional histories have taught us that, at least. Many studies have singled out the decades around 1900 as an era of flux — after which a recognizably modern set of institutions is in place. What can we say about the whole process of institutionalization? What drove it, and what systematic changes did it bring? What consequences did it have for how science worked?

Gerson, Elihu M. “The American system of research: Evolutionary biology, 1890-1950.” Ph.D. dissertation, University of Chicago, 1998.

On reserve, or print from photocopier in OHST. (Warning: 500+ pages.)

Week 6 (10/5): Practicing science

What went on inside the early twentieth century’s new laboratories? Alongside accounts of disciplines and institutions, scholars have tried to capture scientific practice: the ways of acting and living that produce experimental knowledge, anchored in material culture and social order.

Kohler, Robert E. *Lords of the fly: Drosophila genetics and the experimental life*. Chicago: University of Chicago Press, 1994.

Week 7 (10/12): Science and the corporation

Transformations in American capitalism drove the creation of private research laboratories, sited within corporations. How did science find a home in this setting? What difference did it make? And how did corporate and other actors manage the boundary between private and public?

Reich, Leonard S. *The making of American industrial research: Science and business at GE and Bell, 1876-1926*. Cambridge: Cambridge University Press, 1985.

Servos, John W. "The industrial relations of science: Chemical engineering at MIT, 1900-1939." *Isis* 71 (1980): 531-549.

Lécuyer, Christophe. "MIT, Progressive reform, and 'industrial service,' 1890-1920." *Historical studies in the physical and biological sciences* 26:1 (1995): 35-88.

Print articles from photocopier in OHST.

Week 8 (10/19): The national security state

World War II, the Korean War, and the Cold War transformed the relationship between science and the state. The nature of the state changed along with it. The mid-century national security state is one of the milestones in the history of science (not just in the U.S.). Saying this is easy; understanding what it really meant is hard.

Bird, Kai, and Martin J. Sherwin. *American prometheus: The triumph and tragedy of J. Robert Oppenheimer*. New York: Knopf, 2005.

Forman, Paul. "Behind quantum electronics: National security as a basis for physical research in the United States, 1940-1960." *Historical studies in the physical and biological sciences* 18:1 (1987): 149-229.

Kevles, Dan. "Cold war and hot physics: Science, security, and the American state, 1945-1956." *Historical studies in the physical and biological sciences* 20:2 (1990): 239-264.

Print articles from photocopier in OHST.

Week 9 (10/26): Postwar faith: “In science we trust”

By the 1950s, the smart people were thought to be the “eggheads,” popularly labeled “nuclear physicists” or “rocket scientists.” (“He’s no rocket scientist ...”) What could it mean to build a society that put its faith (and its money) on science?

McDougall, Walter A. ... *The heavens and the earth: A political history of the space age*. Baltimore: Johns Hopkins University Press, 1997.

Rudolph, John L. *Scientists in the classroom: The Cold War reconstruction of American science education*. New York: Palgrave, 2002.

Week 10 (11/2): Science policy, technology, and the economy

The history of science and technology policy is usually decontextualized and depoliticized: Here are the demands of the age, and here is how the actors satisfied them (or failed to do so). How can we tell the history of science policy in a more thoroughly historical fashion?

Hart, David M. *Forged consensus: Science, technology, and economic policy in the United States, 1921-1953*. Princeton: Princeton University Press, 1998.

On reserve, print from photocopier in OHST, or get your own.

Hughes, Sally Smith. “Making dollars out of DNA: The first major patent in biotechnology and the commercialization of molecular biology, 1974-1980.” *Isis* 92 (2001): 541-575.

Print article from photocopier in OHST.

Week 11 (11/9): Political economy in the local setting

Broad national narratives may miss the idiosyncratic pragmatism of local actors in their daily lives. Local and institutional studies can make grand stories concrete -- as long as they are written as something more than ends in themselves.

Lowen, Rebecca S. *Creating the Cold War university: The transformation of Stanford*. Berkeley: University of California Press, 1997.

On reserve, print from photocopier in OHST, or get your own.

Lécuyer, Christophe. *Making Silicon Valley: Innovation and the growth of high tech, 1930-1970*. Cambridge, MA: MIT Press, 2005.

Lécuyer is supposed to be published this fall. If it's not available in time, we will read articles instead.

Week 12 (11/16): Expertise and activism

Expertise has occupied an uncomfortable place in post-1960s America. Experts are trusted to deliver authoritative knowledge; they are reviled for anti-democratic, narrow-minded exclusiveness. Noticing this is a good start. But what more can we say? How can we go beyond the glib posing of paradoxes to get a grip on the negotiated nature of scientific expertise?

Epstein, Steven. *Impure science: AIDS, activism, and the politics of knowledge*. Berkeley: University of California Press, 1996.

Week 13 (11/23): The nature of nature

In twentieth-century America, science has become the most powerful way in which "nature" itself is constituted. What is at stake in scientific constructions of "nature"? How do the sciences do it, and what means do they use?

Haraway, Donna. *Primate visions: Gender, race, and nature in the world of modern science*. New York: Routledge, 1990.

Week 14 (11/30): Popular culture

Back in the bad old days (the story goes), the popularization model framed science's relation to the rest of society in this way: scientists came up with knowledge, and the public received it, typically with more or less comprehension. Since the 1980s, this model has been under attack. What ought to replace it?

Tomes, Nancy. *The gospel of germs: Men, women, and the microbe in American life*. Cambridge, MA: Harvard University Press, 1998.

Mitman, Gregg. *Reel nature: America's romance with wildlife on film*. Cambridge, MA: Harvard University Press, 1999.

Week 15 (12/7): TO BE DECIDED; WRAP-UP DISCUSSION

PAPER DUE 12/14