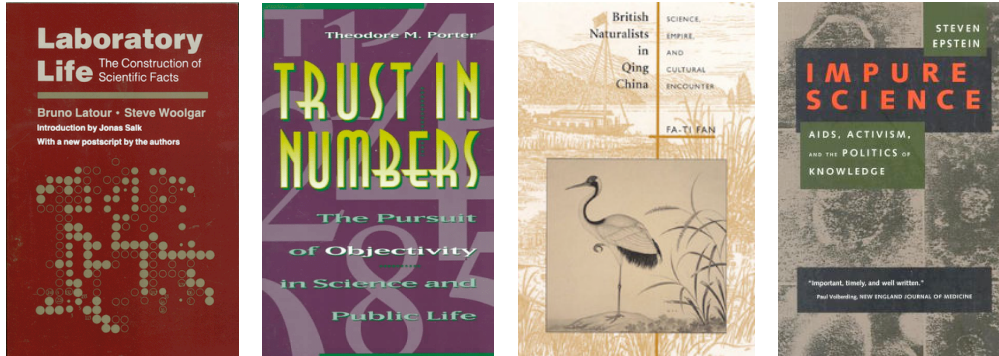


Topics in Science Studies: Science as Representation



From cabinets of curiosity to the charts and graphs that are central to scientific publications, science goes about the work of representation. Beginning with objects and models, two familiar forms of representation in science, this course will unpack science's multifaceted relationship with representation. In "Modes of Representation: Visualization and Quantification," we will consider the images of Fa-ti Fan's Chinese visual artists' representations of plants and birds for British naturalists and Theodore Porter's examination of quantification to take account of the ways scientists persuade one another using representations different types of representation. In "Places of Representation," we will analyze how representation takes place in laboratories and museums through demonstrations and publications. To conclude the course, we will take a look at those who are represented as the recipients of scientific knowledge—the public—and consider the citizen's role in the production and use of scientific knowledge.

Course Schedule

Science as Representation

- Week 1:** Hacking, Ian. 1983. *Representing and intervening: introductory topics in the philosophy of natural science*. Cambridge [Cambridgeshire]: Cambridge University Press.
- Week 2:** Golinski, Jan. 1998. *Making natural knowledge: constructivism and the history of science*. Cambridge: Cambridge University Press.
- Week 3:** Chadarevian, Soraya de, and Nick Hopwood. 2004. *Models: the third dimension of science*. Stanford, Calif: Stanford University Press.

Modes of Representation: Visualization and Quantification

- Week 4:** Fan, Fa-ti. 2004. *British naturalists in Qing China: science, empire, and cultural encounter*. Cambridge, Mass: Harvard University Press.
- Latour, Bruno. 1986. Visualization and Cognition: Thinking with Eyes and Hands. Ed. Henrika Kuklick and Elizabeth Long. *Knowledge and Society* 6, no. 6: 1-40.
- Week 5:** Lynch, Michael. 1985. "Discipline and the Material Form of Images: An Analysis of Scientific Visibility". *Social Studies of Science*. 15 (1): 37-66.
- Stafford, Barbara Maria. 1994. *Artful science: enlightenment, entertainment, and the eclipse of visual education*. Cambridge, Mass: MIT Press.

- Week 6:** Porter, Theodore M. 1995. *Trust in numbers: the pursuit of objectivity in science and public life*. Princeton, N.J.: Princeton University Press.
- Lynch, Michael. 1988. "The Externalized Retina: Selection and Mathematization in the Visual Documentation of Objects in the Life Sciences". *Human Studies*. 11 (3): 201-234.

Places of Representation: The Laboratory and The Museum

- Week 7:** Latour, Bruno, and Steve Woolgar. 1979. *Laboratory life: the social construction of scientific facts*. Beverly Hills: Sage Publications.
- Latour, Bruno. 1987. *Science in action: how to follow scientists and engineers through society*. Cambridge, Mass: Harvard University Press.
- Week 8:** Daston, Lorraine, and Katharine Park. 1998. *Wonders and the order of nature, 1150-1750*. New York: Zone Books: 67-100.
- Prakash, Gyan. 1992. "Science "Gone Native" in Colonial India". *Representations*. (40): 153-178.
- Week 9:** Shapin, Steven, Simon Schaffer, and Thomas Hobbes. 1985. *Leviathan and the air-pump: Hobbes, Boyle, and the experimental life*. Princeton, N.J.: Princeton University Press.

Who is Science for? Representing the Public in Science

- Week 10:** Epstein, Steven. 1996. *Impure science: AIDS, activism, and the politics of knowledge*. Berkeley: University of California Press.
- Week 11:** Yearley, Steven. 2000. "Making systematic sense of public discontents with expert knowledge: Two analytical approaches and a case study". *Public Understanding of Science*. 9 (2): 105-122.
- Irwin, Alan. 2001. "Constructing the scientific citizen: Science and democracy in the biosciences". *Public Understanding of Science*. 10 (1): 1-18.
- Wynne, B. 1996. "May the sheep safely graze? A reflexive view of the expert-lay knowledge divide." In S. Lash, B. Szerszynski & B. Wynne (Eds.), *Risk, Environment and Modernity: Towards a New Ecology* (pp. 44-83). London: Sage.