

Introduction to Science Studies
HIGR 238; SOCG 255A; PHIL 209A; COGR 225A
Autumn 2012

Professor Naomi Oreskes

Tuesdays, 9:30 a.m.–12:20 p.m.

Science Studies Seminar Room (3rd Floor, H&SS)

Office Hours: Wed. 1:00–:3:00 (4072 H&SS); or by appointment

• Indicates Sourcebook (available only from www.universityreaders.com)

Objectives and Requirements: This seminar is a historical introduction to a selection of the main problems of Science Studies up to the 1990s. It is required for all first-year students in the Science Studies Program; other interested students only by special permission of the instructor.

October 2

Some Opening Ideas: *Science, Scientist, Objectivity, Technicality.*

Sydney Ross, “*Scientist: The Story of a Word*,” *Annals of Science*, 1962, 18:65–85.
Lorraine Daston and Peter Galison, “The Image of Objectivity,” *Representations*, 1992, 40:81–128. [Note: This article has now been expanded into a substantial book entitled, *Objectivity* (New York: Zone Books, 2007).

Peter Dear, “What is the History of Science the History *Of?*” *Isis*, 2005, 96:390–406.

Paul Lucier, “The Professional and the Scientist in Nineteenth-Century America,” *Isis*, vol. 100, 2009:699–732.

Theodore M. Porter, “How Science Became Technical,” *Isis*, 2009, 100:292–309.

October 9

Logical Positivists, Popper, and Cold War Philosophy of Science.

Robert Klee, *Introduction to the Philosophy of Science: Cutting Nature at its*

Seams (New York: Oxford UP, 1997), pp. 28–61.

Karl Popper, *Conjectures and Refutations: The Growth of Scientific Knowledge*. (New York: Harper Torchbooks, 1965; first pub. 1962), pp. 33–65.

George Reisch, *How the Cold War Transformed Philosophy of Science: To the Icy Slopes of Logic* (Cambridge UP, 2005), pp. 1–26; 118–135; 369–388.

October 16

Underdetermination and Anti-Realism: the Duhem-Quine Thesis

Pierre Duhem, “Some Reflections on the Subject of Experimental Physics,” tr. Roger Ariew and Peter Barker in *Pierre Duhem: Essays in the History and Philosophy of Science* (Indianapolis: Hackett Pub., 1996), pp. 75–111 (“Quelques réflexions au sujet de la physique expérimentale,” *Revue des questions scientifiques*, 1894, 36:179–229).

Pierre Duhem, From: “*To Save the Phenomena: Essay on the Concept of Physical Theory from Plato to Galileo*,” tr. Ariew and Barker, pp. 131–156 (*SOZEIN TA PHAINOMENA: essai sur la notion de théorie physique de Platon à Galilée* [Paris: Hermann, 1908], chap. 7 and Conclusion).

Pierre Duhem, “The English School and Physical Theories: On a Recent Book by W. Thomson,” (1908), pp. 50–74.

W. V. O. Quine: “Two Dogmas of Empiricism”

The Philosophical Review, Vol. 60, No. 1 (Jan., 1951), pp. 20–43

October 23

Marxist and Non-Marxist Sociology of Scientific Knowledge, ca. 1930s–70s.

Robert K. Merton, “Motive Forces of the New Science (1938),” from *Science, Technology and Society in Seventeenth Century England* (New York: Howard Fertig, 1970; repr. in I. Bernard Cohen ed., *Puritanism and the Rise of Modern Science* (New Brunswick and London: Rutgers Univ. Press, 1990), pp.112–131; repr. from 1938).

Robert K. Merton, “The Normative Structure of Science,” (1942) in Robert K.

Merton, *The Sociology of Science*, ed. and intro. N.W. Storer (Chicago: Univ. of Chicago Press, 1973), pp. 267–78.

Boris Hessen, *The Social and Economic Roots of Newton's 'Principia'*, (New York: Howard Fertig, 1971), pp. 1–62.

Loren Graham, “The Socio–Political Roots of Boris Hessen: Soviet Marxism and the History of Science,” *Social Studies of Science*, 1985, 15: 705–722.

October 30

The Scientific Fact as Locus of History, Philosophy and Sociology of Science.

Ludwik Fleck, *Genesis and Development of a Scientific Fact*. Tr. Fred Bradley and Thaddeus J. Trenn; ed. Thaddeus J. Trenn and Robert K. Merton. Foreword by Thomas S. Kuhn. Chicago: Univ. of Chicago Press, 1979 (first pub. as *Entstehung und Entwicklung einer wissenschaftlichen Tatsache: Einführung in die Lehre vom Denkstil und Denkkollektiv* [Basel, Switzerland: Benno Schwabe, 1935]).

November 6 Scientific Change as Revolution

Thomas S. Kuhn. *The Structure of Scientific Revolutions*. Chicago: Univ. of Chicago Press, 1996; first pub. 1962.

Struan Jacobs, “J.B. Conant’s Other Assistant: Science as Depicted by Leonard K. Nash, including Reference to Thomas Kuhn,” *Perspectives on Science*, 2010, vol. 18, pp. 328–351.

November 13 In the Wake of Kuhn

David Bloor, “The Strong Programme in the Sociology of Knowledge,” *Knowledge and Social Imagery*, (London: Routledge and Kegan Paul, 1976), pp. 1–19.

Trevor Pinch, “Kuhn—The Conservative and Radical Interpretations: Are Some Mertonians ‘Kuhnians’ and Some Kuhnians ‘Mertonians’?” *Social Studies of Science*, 1997, 27:465–482; first pub., *4S Newsletter*, 1982, 78.1, pp.10–25).

Robert S. Westman, “The Melanchthon Circle, Rheticus, and the Wittenberg Interpretation of the Copernican Theory,” *Isis*, 1975, 66:164–193.

November 20 The Localist Turn and the Problem of Rule-Following

Peter Winch, *The Idea of a Social Science and Its Relation to Philosophy* (Atlantic Highlands, NJ: Humanities Press, 1958), pp. 21–39.

Clifford Geertz, “‘From the Native’s Point of View’: On the Nature of Anthropological Understanding,” pp. 55–70.

Clifford Geertz, “Common Sense as a Cultural System,” in *Local Knowledge* (New York: Basic Books, 1983), pp. 73–93.

John Zammito: “How Kuhn Became a Sociologist,” *A Nice Derangement of Epistemes*, (Univ. of Chicago Press, 2004), pp. 123–150 + 318–331(endnotes).

Michael Friedman, “On the Sociology of Scientific Knowledge and Its Philosophical Agenda,” *Studies in History and Philosophy of Science*, 1998, 29:215–265.

NOTE CLASS ENDS EARLY THIS DAY FOR PROFESSOR TO CATCH A FLIGHT

November 27

The Experimental Fact at the Origins of Modern Science

Steven Shapin and Simon Schaffer. *Leviathan and the Air Pump*. Princeton: Princeton Univ. Press, 1985.

December 4 Science as Practice and Culture.

Bruno Latour. “Postmodern? NO, Simply Amodern! Steps Towards an Anthropology of Science,” *Studies in History and Philosophy of Science*, vol. 21, 1, pp. 145–171.

Bruno Latour. *Science in Action: How to Follow Scientists and Engineers through Society*. Cambridge, MA: Harvard Univ. Press, 1987.

Requirements

- Weekly Reports (1 page summary of key points of text(s))
- Final Paper (approx. 25 pp.)

Required Books: To be purchased at UCSD bookstore, under HIGR 238, or your favorite book outlet.

Ludwik Fleck, *Genesis and Development of a Scientific Fact*. Tr. Fred Bradley and Thaddeus J. Trenn; ed. Thaddeus J. Trenn and Robert K. Merton. Foreword by Thomas S. Kuhn. Chicago: Univ. of Chicago Press, 1979

Thomas S. Kuhn. *The Structure of Scientific Revolutions*. Chicago: Univ. of Chicago Press, 1996; first pub. 1962.

Steven Shapin and Simon Schaffer. *Leviathan and the Air Pump*. Princeton: Princeton Univ. Press, 1985.

Bruno Latour. *Science in Action*. Harvard Univ. Press, 1987.

The UCSD Science Studies Reader. Available only from University Readers (universityreaders.com).