

# *Science from the Enlightenment to the Present: Science, Technology, and Social Order*

HOS 593/HIS 593

*Problems in the History of Science since the Scientific Revolution*  
*Autumn 2006; Thursdays, 1:30-4:20*

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This course will focus on a sequence of significant primary source texts written since 1750 that have used assertions about scientific findings and/or technological circumstances to argue for particular social and political arrangements. Does the proper development of science require a free society? Produce such a society? Are there technological systems that are inherently totalitarian, or that conduce to the centralization of political power? In what ways can nature be understood to instruct human beings in the principles and practices of government? What roles have particular systems for the production of knowledge played in changing norms for organized coexistence? These are large questions to which major thinkers in the modern period have presented divergent answers. The aim of this class will be to assemble, and consider historically, a variety of commentators on these problems.

## **WEEK 1: Introductory and Organizational Meeting (no reading)**

## **WEEK 2: The Nature of Modernity**

Read:

Latour, Bruno. *We Have Never Been Modern*. Cambridge, MA: Harvard University Press, 1993.

Toulmin, Stephen. *Cosmopolis: The Hidden Agenda of Modernity*. Chicago: University of Chicago Press, 1999.

Review/examine/be aware of:

Mayr, Otto. *Authority, Liberty, and Automatic Machinery in Early Modern Europe*. Baltimore: Johns Hopkins University Press, 1986.

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

### **WEEK 3: Matter and Morals**

#### Read:

- Rousseau, Jean-Jacques. *Discourse on the Sciences and the Arts* (a.k.a. “The First Discourse”). Paris, 1750. There are various editions, including some on-line. The Hackett one is useful.
- La Mettrie, Julien Offray. *Man a Machine* and *Man a Plant*. Paris, circa 1750. There are various editions; I am again partial to the Hackett.
- Diderot, Denis. *D’Alembert’s Dream*. Paris, circa 1769. There is a Penguin edition, in addition to numerous electronic texts.

#### Review/examine/be aware of:

- Williams, Elizabeth A. *The Physical and the Moral: Anthropology, Physiology, and Philosophical Medicine in France, 1750-1850*. Cambridge: Cambridge University Press, 1994.
- Riskin, Jessica. *Science in the Age of Sensibility*. Chicago: University of Chicago Press, 2002.

### **WEEK 4: Science, Liberty, Statecraft**

#### Read:

- Condorcet, Antoine Nicolas de. *Sketch for a Historical Picture of Progress of the Human Mind*. Westport, CT: Greenwood Press, 1979 (this is a reprint of the 1955 translation); there is also currently in print a Flammarion paperback of the French text.
- Fitzpatrick, Martin. “Science and Society in the Enlightenment.” *Enlightenment and Dissent* 4 (1985): 83-106.

#### Review/examine/be aware of:

- Brian, Eric. *La Mesure de L’Etat: Administrateurs et Géomètres au XVIIIe Siècle*. Paris: Albin Michel, 1994.
- Gillispie, Charles. *Science and Polity in France: The End of the Old Regime*. Princeton: Princeton University Press, 1980.
- Cohen, I.B. *Science and the Founding Fathers*. New York: Norton, 1997.

### **WEEK 5: Utopia, Learning, Dissent**

#### Read:

- Clayes, Gregory, ed. *Utopias of the British Enlightenment*. Cambridge: Cambridge University Press, 1994. (We will probably just read a few excerpts from this).
- Owen, Robert. *A New View of Society*. London, 1813. There are numerous recent editions, including reprints of the original.
- Hazlitt, William. “A New View of Society – Robert Owen.” London, 1816. A review essay widely available online.

Review/examine/be aware of:

Priestley, Joseph. *Political Writings*. Edited by Peter Miller. Cambridge: Cambridge University Press, 1993.

Anderson, R.G.W, and Christopher Lawrence, eds. *Science, Medicine and Dissent*. London: Wellcome Trust, 1987.

Coleridge, Samuel Taylor. "A Dissertation on the Science of Method." Introduction to the *Encyclopaedia Metropolitana*, London, 1817.

Babbage, Charles. *Reflections on the Decline of Science in England*. London, 1831.

## WEEK 6:

### The Civilized Mechanism

Read:

Fourier, Charles. *The Theory of the Four Movements*. Cambridge: Cambridge University Press, 1996. (There is also a recent paperback edition of the French text by Les Presses du Réel, 1998).

Review/examine/be aware of:

Manuel, Frank. *The Prophets of Paris: Turgot, Condorcet, Saint-Simon, Fourier, and Comte*. Cambridge, MA: Harvard University Press, 1962.

Guarneri, Carl. *The Utopian Alternative: Fourierism in Nineteenth-Century America*. Ithaca, NY: Cornell University Press, 1991.

## WEEK 7:

### From the Government of Men to the Administration of Things

Read:

Saint-Simon, Henri. *Selected Writings on Science, Industry, and Social Organization*. Edited by Keith Taylor. London: Croon Helm, 1975.

Review/examine/be aware of:

Saint-Simon, Henri. *Social Organization, the Science of Man, and Other Writings*. Edited by Felix Markham. New York: Harper and Row, 1964. NB: there are various other edited collections in both English and French; it will be useful to consult the *Oeuvres de Claude-Henri de Saint-Simon* (Paris: Anthropos, 1966), as well as the nineteenth-century collected works (cited in Markham) for the French texts.

## WEEK 8:

### Comte and Positivism

Read:

Comte, Auguste. *Early Political Writings*. Edited by H.S. Jones. Cambridge: Cambridge University Press, 1998.

Comte, Auguste. *Introduction to Positive Philosophy*. Edited by Frederick Ferré. Indianapolis, IN: Hackett, 1988.

Review/examine/be aware of:

- Comte, Auguste. *Plan des Travaux Scientifiques Nécessaires pour Réorganiser la Société*. Paris: L'Harmattan, 2001.
- Comte, Auguste. *Cours de Philosophie Positive I*. Edited by Michel Serres et al. Paris: Hermann, 1988.
- Gillispie, Charles. *Science and Polity in France: The Revolutionary and Napoleonic Years*. Princeton: Princeton University Press, 2004.
- Heilbron, Johan. *The Rise of Social Theory*. Oxford: Oxford University Press, 1995.

## **WEEK 9: Mill, Mind, and Democracy**

Read:

- Mill, John Stuart. "Nature," "Theism," and "The Spirit of the Age." These essays can be found in many places. I have consulted the *Norton Critical Edition* of Mill (for "The Spirit of the Age"), and *Three Essays on Religion* (Amherst, NY: Prometheus Books, 1998) for the others.
- Mill, John Stuart. *Auguste Comte and Positivism*. London: Trübner, 1865. There are numerous subsequent editions of this volume, including that of 1965, published by the University of Michigan Press.

Review/examine/be aware of:

- Kent, Christopher. *Brains and Numbers: Elitism, Comtism, and Democracy in Mid-Victorian England*. Toronto: University of Toronto Press, 1978.
- Spencer, Herbert. "The Genesis of Science." Review essay in the *British Quarterly Review*, July, 1854 (available online).

## **WEEK 10: Progress, Power, Spirit**

Read:

- Bagehot, Walter. *Physics and Politics*. There are several editions of this text, originally published in 1872; consider what I think is the most recent, edited by Roger Kimball (Chicago: Ivan R. Dee, 1999).

Review/examine/be aware of:

- Renan, Ernest. *L'Avenir de La Science*. There is a Flammarion edition in print, as well as a recent reprint of the late nineteenth-century English translation (Boston: Adamant, 2000).
- St. John Stevas, Norman. *Walter Bagehot*. Bloomington, IN: Indiana University Press, 1959.

## WEEK 11: Materialism, Dialectic, Revolution

### Read:

- Engels, Frederick. *Dialectics of Nature*. In volume 25 of the *Collected Works of Karl Marx and Frederick Engels*. New York: International Publishers, 1987.
- Marx, Karl. Excerpts from *The German Ideology*. In *The Portable Karl Marx*, edited by Eugene Kamenka. New York: Penguin, 1983.

### Review/examine/be aware of:

- Engels, Frederick. "Socialism Utopian and Scientific." There are many editions of this pamphlet-length work.
- Kropotkin, Peter. *Mutual Aid*. Mineola, NY: Dover, 2006 (a reprint of the 1902 London edition).
- Kropotkin, Peter. "Anarchism." *Encyclopaedia Britannica*, edition of 1911 (Volume 1, p. 918; available online).

## WEEK 12: The Twentieth Century: Review, Conclusion, Other Things?

*As I see it, things could develop various ways over the course of the semester. Depending on where we are at the end of the term, we might choose at this point to go back and pull up some material from the supplementary lists. But we might also reach forward into the twentieth century, or put a period to the class with a particularly grand fin de siècle text. I have listed a variety of different possibilities below, some of which may be of general interest regardless of what we decide to do.*

### Possible Readings:

- Nietzsche, Friedrich. *On The Genealogy of Morality*. Edited by Ansell-Pearson. Cambridge: Cambridge University Press, 1994.
- Marcuse, Herbert. "Industrialism and Capitalism in the Work of Max Weber." In *Negations* (Boston: Beacon Press, 1968).
- Habermas, Jürgen. "Technology and Science as 'Ideology.'" In *Toward a Rational Society* (Boston: Beacon Press, 1971).
- Taylor, Frederick Winslow. *The Principles of Scientific Management*. New York: Norton, 1967 [1911].
- Heidegger, Martin. "The Question Concerning Technology." In *Basic Writings* (San Francisco: Harper, 1993).
- Agar, John. *The Government Machine*. Cambridge, MA: MIT Press, 2003.
- Popper, Karl. *The Poverty of Historicism*. London: Routledge, 2002.
- Freud, Sigmund. *The Future of an Illusion*. New York: Norton, 1961.