

History of Science 720: Introduction to Historiography and Methods
Fall 2005

Wednesdays 1:20-3:20 p.m. in Social Science 7130
Michael H. Shank (mhshank@facstaff.wisc.edu)

Office hours: immediately after class or F at 1:15, or by appointment

Required reading

A large photocopied reader in two parts (\$53.50) is available in the dept office (per page, it is a bargain). NOTE: The reader is not refundable; if you're not committed to the class—don't buy it.

Books (available at Underground Textbook Exchange, 600-block of State Street, and University Bookstore)

Ian Hacking, *The Social Construction of What?* (Cambridge, Mass.: Harvard University Press, 1999). ISBN: 0674004124

Ludmilla Jordanova, *History in Practice* (London: Arnold, 2000; New York: Oxford University Press, 2000). ISBN: 0340663324

Thomas Kuhn, *The Structure of Scientific Revolutions*, latest edition (Chicago: University of Chicago Press, 1970). 3rd edition (November 1996) ISBN: 0226458083

G. E. R. Lloyd, *The Ambitions of Curiosity: Understanding the World in Ancient Greece and China* (Cambridge: Cambridge University Press, 2002) 0 521 89461-1

Peter Novick, *That Noble Dream: The "Objectivity Question" and the American Historical Profession* (Cambridge/New York: Cambridge University Press, 1988). ISBN: 0521357454

Strongly Recommended:

Wayne Booth, Gregory G. Colomb, and Joseph N. Williams, *The Craft of Research* (Chicago: University of Chicago Press, 1995) ISBN: 0226065847; at Underground Textbook Exchange). This book is an **excellent introduction** to many aspects of scholarship, from the reading of sources to the writing of reviews and dissertations.

The History of Science Society's website contains information about the society, its activities, and resources for teaching and research (www.hssonline.org). See especially the bibliography, the suggestions for reading, and the sample syllabi. Under "Teaching and Research," see in particular the Bibliographic Essays, which are very useful, notwithstanding their age.

Course Requirements

A. Reading and thinking

Each week, we will read and discuss several articles and book chapters, and occasionally an entire book (notably four of the five required ones above). The reading load will vary somewhat between extremes of approximately 100 and 300 pages a week. I expect to spend a full day, sometimes slightly more, on my own preparation; you should too. This is crucial: seminars simply cannot function without **thorough preparation** on the part of all participants.

Not even a photographic memory substitutes for taking notes, and the acts of editing and of selecting that this presupposes. Several of our readings are classics. Take good notes, and add your own favorite rubrics to the indexes of books (make indexes for the course reader), and you will find yourself returning to them during your graduate and professional careers. As you take notes, summarize, but also raise questions and draw connections in writing with what you know and with other readings--you will find yourself engaging more deeply with the material.

At the risk of sounding too elementary: discipline yourself now to keep the near-verbatim summaries and direct quotations of authors distinct from your own prose, including your criticisms or asides (e.g., use indented paragraphs for the latter, for example). This habit will save you many headaches later (the failure to develop it has ruined careers).

When reading entire books, it is possible (and it will sometimes be necessary) to skim. Learn to do this effectively (I do not recommend skimming introductions and conclusions, including those of chapters).

B. Speaking

1. Weekly class attendance, mental and oral participation. The seminar meets only once a week and is typically a small enrolment course. Attendance is therefore crucial, for you and for the dynamics of the seminar itself. Your preparation of the reading and notes should give you the basis for a shared analytical and critical discussion of the material. 30% of the grade
2. Each student will carry primary responsibility for starting and nurturing the discussion in one or two weeks of the seminar (depending on class size) and for selecting the major issues with which we will grapple; see Writing C1, below.

C. Writing (crucial to sharpening thinking)

Browsing through Booth, et al., *The Craft of Research*, will be valuable for these assignments, esp. ch. 2, "Connecting with your Reader."

1. **Two short pieces** (2-4 pp. each) at the interface between an essay and a critical outline and/or list of questions—what my colleague Lynn Nyhart calls a "think-piece." Each of these is associated with your leadership in B2 above and should be available in advance (by Tuesday noon at the latest) to everyone in the seminar. Email is OK; use a format that everyone can download (e.g., rtf). 10% total.

2. Two **critical** summaries (each ca. 700 words; no more than 3 pages double-spaced), one of Lloyd (see week 12, due 11/29) and one of a classic book in the field that you will choose in consultation with me (due at end of course). In the space allotted, summarize the main argument of the book, the author's approach and use of sources/evidence, and provide a brief evaluation. This assignment is akin to a book review, but is intended to place less pressure on you than that august scholarly assignment would do, especially in the area of "original" criticism. 15% each
3. A **final historiographical essay** (ca. 8-10 pages) that synthesizes, analyzes, and/or criticizes some aspect of the readings you have done for the course and preferably also builds upon the analysis of your book). Pick a theme, an unusual grouping, a methodological problem, an approach, etc., that you find especially challenging, stimulating, or problematic and would like to explore in greater depth and/or clarify. (By the time you are through with your exploration, this paper should have a thesis or argument that you are prepared to defend). Due by 12/15. 30%

D. Academic honesty

It is only fair to tell you that I (and the department) take academic honesty very seriously. Please do so likewise. All submitted work must be your own. All sentences, portions of sentences, and thoughts borrowed from others must be credited to others, using quotation marks and other forms of proper citation. If you have questions about proper form, contact me (When in doubt, it is always better to overattribute than to underattribute).

Week 1 (9/7): Introduction: Here (and Now?)

Victor L. Hiltz, "History of Science at the University of Wisconsin," *Isis* 75 (1984) 63-94.

Günter Risse, "An Account of the Wisconsin Chair in Medical History: A Tribute to William S. Middleton," *Bulletin of the History of Medicine* 50 (1975) 133-137.

Diane Land, "A Department and a Discipline Develop Together/Fifty Years of the History of Medicine," *Quarterly* [of the Wisconsin Medical Alumni Association] 3 (2001) 16-17.

Peter Novick, *That Noble Dream*, introduction and ch. 1-2 (pp. 1-60).

PART 1: The Discipline—Trends, Interpretations, and Institutions

Week 2 (9/14): Emergence of the Discipline in 19th-early 20th centuries [186]

Read the next two articles in their original location (see the dept Reading Room or other reference rooms, including those of Memorial and Helen C. White Libraries) so that you can **browse in the *Dictionary of Scientific Biography* (DSB)**, the leading reference work in the field:

Peter Novick, *That Noble Dream*, ch. 3-4, pp. 61-108.

Not in reader—use DSB: Donald G. Miller, "Duhem, Pierre," *Dictionary of Scientific Biography* [=DSB], 15 vol. (New York, 1970–1980), IV, 225-233.

Not in reader-use DSB: Arnold Thackray and Robert K. Merton, "Sarton, George," *DSB*, XII, 107-114.

George Sarton, "The New Humanism," *Isis* 6 (1924) 9-42 (scan final list of names)

Michael H. Shank, "Lynn Thorndike," in Helen Damico and Joseph Zavadil, eds., *Medieval Scholarship: Biographical Studies on the Formation of a Discipline*, vol. 1: *History* (New York: Garland, 1995), pp. 185-204.

Arnold Thackray, "The Pre-History of an Academic Discipline: The Study of the History of Science in the United States, 1891-1941," *Minerva* 18 (1980) 448-73.

Arthur P. Molella, "The First Generation: Usher, Mumford, and Giedion," in Stephen Cutcliffe and Robert Post, eds., *In Context: History and the History of Technology*, (Bethlehem, Penn., 1989), pp. 88-105.

Elizabeth Fee and Edward T. Mormon, "Doing History, Making Revolution: The Aspirations of Henry Sigerist and George Rosen," *Clio Medica* 23 (1993), pp. 275-311.

Optional: browse in Margaret Rossiter, ed., *Catching Up with the Vision: Essays on the Occasion of the 75th Anniversary of the Founding of the History of Science Society* (Chicago, 1999) [Supplement to *Isis*, vol. 90 (1999)] [in Reading Room, near *Osiris* volumes]

Week 3 (9/21): Academic History in North America

Peter Novick, *That Noble Dream*, ch. 5-12, pp. 111-411.

Week 4 (9/28): Trends and Institutions before World War II

Peter Novick, *That Noble Dream*, ch. 13, pp. 415-68.

Boris Hessen, "The Social and Economic Roots of Newton's *Principia*," in *Science at the Crossroads* (London: Kniga, n.d. [=1931]), pp. 155-176.

P. G. Werskey, "On the Reception of *Science at the Crossroads* in England," from 1971 reprint of *Science at the Crossroads* (London: Frank Cass and Co., 1971), pp. xi-xxix.

Loren Graham, "The Socio-political Roots of Boris Hessen: Soviet Marxism and the History of Science," *Social Studies of Science* 15 (1985) 705-22.

David C. Lindberg, "Conceptions of the Scientific Revolution from Bacon to Butterfield: A Reappraisal," in D. C. Lindberg and Robert S. Westman, eds., *Reappraisals of the Scientific Revolution* (Berkeley: University of California Press, 1990), pp. 1-26.

Robert K. Merton, *Science, Technology and Society in Seventeenth-Century England* [1938] (repr. New York: Harper, 1970), pp. 80-111, 160-183.

Michael H. Shank and David Vampola, "Negating Positivism: Language and the Practice of Science," in Chip Sills and George Jensen, eds., *The Philosophy of Discourse: The Rhetorical Turn in Twentieth Century Thought*, 2 vol. (Portsmouth, N.H.: Heinemann, 1992), I, 22-32 only (through Popper; ctd week 7).

I. Bernard Cohen, "A Harvard Education," *Isis* 6 (1924) 13-21 (incl. caption on p. 21).

Week 5 (10/5): The Post-War/Cold War Boom

Peter Novick, *That Noble Dream*, ch. 14, pp. 469-521.

Not in reader (please handle the original and browse): Charles Gillispie, "Koyré, Alexandre," *Dictionary of Scientific Biography*, vol.7, 482-90 [Reading Room/Reference Libraries]

Alexandre Koyré, "Galileo and Plato," [1943] in his *Metaphysics and Measurement* (Cambridge, Mass: Harvard University Press, 1968), pp. 16-43.

J. D. Bernal, *Three Prefaces to Science in History*, 4 vol. (London, Watts [1954]; Cambridge: MIT Press, 1969), I, pp. 1-18.

Marie Boas Hall, "Recollections of a History of Science Guinea Pig," in Margaret Rossiter ed., *Catching up with the Vision: Essays on the Occasion of the 75th Anniversary of the Founding of the History of Science Society* (Chicago, 1999) [Supplement to *Isis*, vol. 90 (1999) pp. S68-S83.

Melvin Kranzberg, "For a Start," *Technology and Culture* 1 (1959) 1-10.

Thomas S. Kuhn, "Professionalization Recollected in Tranquility," *Isis* 75 (1984) 29-32.

Thomas S. Kuhn, "History of Science," *International Encyclopedia of the Social Sciences*, vol. 14 (New York: Macmillan, 1968), pp. 74-83; also in Kuhn, *The Essential Tension* (Chicago: University of Chicago Press, 1977) pp. 105-126.

Robert S. Westman, "Two Cultures or One? A Second Look at Kuhn's *Copernican Revolution*," *Isis* 85 (1994) 79-115.

Week 6 (10/12): The Kuhnian Revolution (entire book)

Thomas Kuhn, *The Structure of Scientific Revolutions*, latest edition [1962] (rev. ed. Chicago: University of Chicago Press, 1970).

Suggested background: John L. Heilbron, "Eloge of Kuhn," *Isis* 89 (1998) 505-515.

Week 7 (10/19) Context and Impact of Kuhn

Peter Novick, *That Noble Dream*, ch. 15-16, pp. 522-629.

Michael H. Shank and David Vampola, "Negating Positivism: Language and the Practice of Science," in Sills and Jensen, eds., *The Philosophy of Discourse*, I, 32-52 (Kuhn to end; ctd from week 4)

Kenneth Caneva, "Objectivity, Relativism, and the Individual: A Role for post-Kuhnian History of Science," *Studies in History of Philosophy of Science* 29A (1998) 327-44.

"Truth, Objectivity, and History: An Exchange," *Journal of the History of Ideas* 56 (1995) 651-680.

Week 8 (10/26): Practicing History: Genres, Approaches, and Problems

NOTE: Critical Summary of "outside book" due next week!

Ludmilla Jordanova, *History in Practice* (London: Arnold, 2000; New York: Oxford University Press, 2000)--ALL

William Bouwsma, "Intellectual History in the 1980s: From History of Ideas to History of Meaning," *Journal of Interdisciplinary History* 12 (1981) 279-91; reprinted in Theodore K. Rabb and Rotberg, eds., *The New History: The 1980s and Beyond* (Princeton: Princeton University Press, 1982), 279-91.

Carlo Ginzburg, "Clues: Roots of an Evidential Paradigm," in *Clues, Myths, and the Historical Method* (Baltimore: The Johns Hopkins University Press, 1986), pp. 96-125.

PART II: Recent Approaches and Questions

Week 9 (11/2) Women, Science, and Medicine

NOTE: Critical Summary of "outside book" due this week

Evelyn Fox Keller, *Reflections on Gender and Science* (New Haven: Yale University Press, 1985), pp. 158-176.

Judith Walzer Leavitt, "'Typhoid Mary' Strikes Back: Bacteriological Theory and Practice in Early Twentieth Century Public Health," *Isis* 83 (1992) 608-629.

Donna Haraway, "Situated Knowledges: The Science Question in Feminism and the Privilege of Partial Perspective," in Haraway, *Simians, Cyborgs, and Women: The Reinvention of Nature* (New York: Routledge, 1991), pp 183-201.

Margaret Rossiter, "Women's Work in Science," *Isis* 71 (1980) 381-398.

Judith McGaw, "No Passive Victims, No Separate Spheres: A Feminist Perspective on Technology's History," in Stephen Cutcliffe and Robert Post, eds., *In Context: History and the History of Technology*, (Bethlehem, Penn., 1989), pp. 172-91.

Judith Houck, "'What Do These Women Want?' Feminist Responses to Feminine Forever," *Bulletin of the History of Medicine*, 77 (2003) 103-132.

Noretta Koertge, "Feminism: A Mixed Blessing to Women in Science," in Angela M. Pattatucci, ed., *Women in Science: Meeting Career Challenges*. (Thousand Oaks, Calif. : Sage, 1998), pp. 189-202.

Gerda Lerner, "Why History Matters," in Lerner, *Why History Matters: Life and Thought* (Oxford: Oxford University Press, 1997), pp. 199-211.

Week 10 (11/9) The Social Construction of Science: The Canon and its Critics

Steven Shapin and Simon Schaffer, *Leviathan and the Air Pump: Hobbes, Boyle, and the Experimental Life* (Chicago : University of Chicago Press, 1985), ch. 1 and Conclusion, pp. 3-21, 332-44.

Steven Shapin, *A Social History of Truth: Civility and Science in Seventeenth-Century England* (Chicago: University of Chicago Press, 1994)—"The Argument Summarized," pp. xxv-xxxi.

Barbara J. Shapiro, *A Culture of Fact: England, 1550-1720* (Ithaca: Cornell University Press, 2000), Introduction and ch. 5-6, pp. 105-167.

Ian Hacking, *The Social Construction of What?* (Cambridge, Mass.: Harvard University Press, 1999), ch. 1-4, 7-8 (**skim** ch. 5-6).

Week 11 (11/16): Issues in the Cross-cultural History of Science I

David Pingree, "Hellenophilia versus the History of Science," *Isis* 83 (1992) 554-563.; also in Shank, ed., *The Scientific Enterprise in Antiquity and the Middle Ages* (Chicago: University of Chicago Press, 2000), pp. 30-39.

Martin Bernal, "Animadversions on the Origins of Ancient Science," *Isis* 83 (1992), pp. 596-607; also in Shank, ed., *The Scientific Enterprise in Antiquity and the Middle Ages*, pp. 72-83.

Robert Palter, "Black Athena, Afrocentrism, and the History of Science," in Mary R. Lefkowitz and Guy MacLean Rogers, eds., *Black Athena Revisited* (Chapel Hill: Univ of North Carolina Press, 1996), pp. 209-227, 255-260.

A. I. Sabra, "The Appropriation and Subsequent Naturalization of Greek Science in Islam," *History of Science* 25 (1987) 223-243; reprinted in F. Jamil Ragep and Sally P. Ragep, eds., *Tradition, Transmission, Transformation. Proceedings of Two Conferences on Pre-Modern Science held at the University of Oklahoma* (New York: Brill, 1996), pp. 3-27.

Joseph Needham, *Introduction to Science in Traditional China* (Cambridge, Mass.: Harvard University Press, 1981), pp. 1-26.

Nakayama Shigeru, "The History of East Asian Science: Needs and Opportunities," *Osiris*, NS 10 (1995) 88-94.

Nathan Sivin, "Why the Scientific Revolution Did Take Place in China--or Didn't It?" *Chinese Science* 5 (1982), 45-66. Also in Everett Mendelsohn, ed., *Transformation and Tradition in the Sciences: Essays in Honor of I. Bernard Cohen* (Cambridge: Cambridge Univ. Press, 1984), pp. 531-554.

Marcos Cueto, "Indigenismo" and Rural Medicine in Peru : the Indian Sanitary Brigade and Manuel Nuñez Butrón," *Bulletin of the History of Medicine* 65 (1991) pp. 22-41.

Florence Hsia, "Some Observations on the *Observations*: The Decline of the French Scientific Mission in China," *Revue de Synthèse* 4th series #2-3 (1999) pp. 305-333.

Edward Shils, "Reflections on Tradition, Centre and Periphery and the Universal Validity of Science: The Significance of the Life of S. Ramanujan," *Minerva* 29 (1991) 393-419.

Richard Keller, "Madness and Colonization: Psychiatry in the British and French Empires, 1800-1962." *Journal of Social History* 35 (2001) 295-326.

Warwick Anderson, "The Possession of Kuru: Medical Science and Biocolonial Exchange," *Comparative Studies in Society and History* 42 (2000) 713-44.

Week 12 (11/23): Issues in the Cross-cultural History of Science II

G. E. R. Lloyd, *The Ambitions of Curiosity*

Written review due in my box or by email Monday 11/28 at 5 p.m.

Week 13 (11/30) Material Culture and Its Ramifications

Henry Lowood and Robin Rider, "Literary Technology and Typographic Culture: The Instrument of Print in Early Modern Science," *Perspectives on Science* 2 (1994) 1-37.

Gregg Mitman, "Cinematic Nature: Hollywood Technology, Popular Culture, and the American Museum of Natural History," *Isis* 84 (1993) 637-661.

Lynn K. Nyhart, "Civic and Economic Zoology: The 'Living Communities' of Karl Möbius," *Isis* 89 (1998) 605-630.

Eric Schatzberg, "Materials, Symbols, and Ideologies of Progress," in his *Wings of Wood, Wings of Metal: Culture and Technical Choice in American Airplane Materials, 1914-1945* (Princeton: Princeton University Press, 1999), pp. 3-21.

Peter Galison, "Material Culture, Theoretical Culture, and Delocalization," in John Krige and Dominique Pestre, eds., *Science in the Twentieth Century* (Australia: Harwood Academic, 1997), pp. 669-682.

Richard Staley, "On the Histories of Relativity: The Propagation and Elaboration of Relativity Theory in Participant Histories in Germany, 1905-1911," *Isis* 89 (1998) 263-299.

Week 14 (12/7): More of our faculty (and then some) in the fray

Demarcations, Boundary-Crossing, Place and Space

Thomas Broman, "Introduction: Some Preliminary Considerations on Science and Civil Society," in Broman and Nyhart, eds., *Science and Civil Society*, *Osiris* 17 (2002) 1-21..

Jane Camerini, "Wallace in the Field," *Osiris*, n.s. 11 (1996) 44-65.

Micaela Sullivan-Fowler, "Doubtful Theories, Drastic Therapies: Autointoxication and Faddism in the Late Nineteenth and Early Twentieth Centuries," *Journal of the History of Medicine and Allied Sciences* 50 (1995) 365-390.

Interpretations, Narratives, and Meanings

Ronald L. Numbers, "Creating Creationism: Meanings and Uses Since the Age of Agassiz," in Numbers, *Darwinism Comes to America* (Cambridge, Mass.: Harvard University Press, 1998), pp. 49-57.

William Cronon, "A Place for Stories: Nature, History, and Narrative," *Journal of American History* 78 (1990) 1347-76.

Daniel Siegel, "Text and Context in Maxwell's Electromagnetic Theory," *Physis*, n.s. 33 (1996) 125-140.

Umberto Eco, *Interpretation and Overinterpretation*, with Richard Rorty, Jonathan Culler, and Christine Brooke-Rose, ed. Stefan Collini (Cambridge: Cambridge University Press, 1992), pp. 1-43.

Week 15 (12/14): Possible session with Ron Numbers on the Biagioli-Shank debate

In this case, readings will be handed out separately.

Historiographical essay due (last date for written work: Friday 12/16)

Look at June 2005 Isis re "General Histories of Science" Isis 96 (2005) pp. 224-51