S&TS/History 711
Fall 2009

Introduction to Science and Technology Studies

Michael Lynch & Kathleen Vogel   **M, 2:30-4:25 pm   Rockefeller B-16**

Office hours:
Kathleen Vogel: M, 10-12 noon in 154 Uris, T, 12- 1pm, 330 Rockefeller, other times by appointment; tel: 255-2248; email: kmv8@cornell.edu
Michael Lynch: Monday 11:10-12:10; Tuesdays & Thursdays 4:15-5:15, or by appointment; tel: 255-3810 (Dept. Office); email: mel27@cornell.edu.

This course is designed to provide newcomers to S&TS an overview of some of the major themes and issues in the field, and an opportunity to investigate how scholars in the field go about their work.

Requirements: In addition to active participation in weekly class discussions, after the first few weeks of the course, students will sign up to lead discussion on particular topics. All students will be expected to prepare in advance of each class a 2-3 page synopsis of the week's reading, identifying arguments, common themes, oppositions, and issues worthy of further consideration. The roster of reading assignments below lists required and recommended sources. Students should read required sources in preparation for class discussion on the day they are listed. Recommended sources can enhance participation in discussions, and are listed for further reference (for example, for term papers).

A term paper is required of at least 5,000 words. It should synthesize some of the issues encountered in the course, and bring them to bear on a relevant topic of the student's choosing. The deadline will occur during exam week (exact date TBA).

A limited number of copies of major books for this course (Kuhn; Shapin & Schaffer; Latour & Woolgar; Biagioli's Reader) will be available through the campus bookstore. The library's e-journals collection will be used for many required articles and designated with *[e-journals]* on the syllabus while copies of other required readings (and some additional sources that are not required) will be available through Blackboard: http://blackboard.cornell.edu/. Most recommended books and articles will not be distributed for the class, but most should be available through the library.

Week 1 (Aug. 31)   Organizational Meeting

Week 2 (Sept. 7)   Early 20th-Century History, Philosophy & Sociology of Science

Required for Discussion:

Robert K. Merton (1973) 'The Normative Structure of Science', in Merton, *The Sociology of Science* (Chicago: University of Chicago Press), pp. 267-78. (Blackboard)

S. B. Barnes and R.G.A. Dolby, 'The scientific ethos: A deviant viewpoint', Archives European Journal of Sociology, 11 (1970), 3-25. (Blackboard)

Barry Barnes, 'Catching up with Robert Merton,' *Journal of Classical Sociology* 7(2) (2007): 179-92. (e-journals)

Karl Popper (1992) 'A Survey of Some Fundamental Problems', Ch. 1 of Popper, *The Logic of Scientific Discovery* (Routlege) (Blackboard).

Boris Hessen, 'The Social and Economic Roots of Newton's Principia,' in: N. I. Bukharin, et al., Science at the Crossroads: Papers from the Second International Congress of the History of Science and Technology, 1931. New translation (draft) on Blackboard. Edgar Zilzel (2000) 'The Sociological Roots of Science', reprinted in *Social Studies of Science* 30(6): 935-49. (e-journals)

A. Rupert Hall, 'Merton revisited, or science and society in the Seventeenth century,' *History of Science* 2(1): 1-16. Available online at: http://articles.adsabs.harvard.edu/full/1963HisSc...2....1H

Recommended:

Bernard Barber & Renee Fox (1958) 'The Case of the Floppy-Eared Rabbits: An Instance of Serendipity Gained and Serendipity Lost', *American Journal of Sociology* 64(2): 126-36 (e-journals).

Charles Coulston Gillispie (1960) *The Edge of Objectivity: An Essay in the History of Scientific Ideas* (Princeton: Princeton University Press): 8-16, 27-53.

Karl Mannheim (1936) *Ideology & Utopia* (New York: Harvest Books).

Karl Mannheim (1952) *Essays in the Sociology of Knowledge* (London: Routledge & Kegan Paul).

Michael Mulkay (1976) 'Norms and ideology of science', *Social Science Information*, 15: 637-56 (Blackboard).

Ian Mitroff (1974) 'Norms and counter-norms in a select group of the Apollo moon scientists …,' American Sociological Review 39 (August): 579-95 (e-journals).

Pierre Bourdieu (1975) 'The specificity of the scientific field and the social conditions of the progress of reason.', *Social Science Information*, 14:19-47. Excerpted in Biagioli (1999) *Science Studies Reader*, pp. 31-50.

Week 3 (Sept. 14)   Kuhn's Revolution in History & Philosophy of Science

Required:

Thomas S. Kuhn (1962) *The Structure of Scientific Revolutions* (1st ed. 1962; use 2nd or 3rd edition with postscript; University of Chicago Press). Postscript is available on Blackboard.

Recommended:

Thomas S. Kuhn (1977) *The Essential Tension: Selected Studies in Scientific Tradition*

and Change (Chicago: University of Chicago Press).

Thomas S. Kuhn (1987) "Revisiting Planck," Postscript to *Blackbody Theory and the Quantum Discontinuity, 1894-1912* (Chicago: University of Chicago Press).

Thomas S. Kuhn (2000) *The Road Since Structure* (Chicago: University of Chicago Press).

Ludwig Wittgenstein (1958) *Philosophical Investigations* (Oxford: Blackwell).

N.R. Hanson (1961) *Patterns of Discovery* (Cambridge University Press).

Imre Lakatos (1970) 'Falsification and the methodology of scientific research programmes', in I. Lakatos and A. Musgrave (eds.), *Criticism and the Growth of Knowledge* (Cambridge: Cambridge University Press, 1970), 91-195.

Paul Feyerabend (1975) *Against Method: Outline of an Anarchistic Theory of Knowledge* (London: Verso).

Ludwik Fleck (1979) *Genesis and Development of a Scientific Fact* (University of Chicago Press).

Week 4 (Sept. 21)   The Strong Programme and Related Developments in SSK

<u>Required:</u>

Barry Barnes and David Bloor (1982) 'Relativism, Rationalism and the Sociology of Knowledge', in Martin Hollis and Steven Lukes (eds.), *Rationality and Relativism* (MIT Press), pp. 21-47. (Blackboard)

David Bloor (1991) *Knowledge and Social Imagery*, 2nd edition (Chicago: University of Chicago Press), chaps.1-3, Conclusion, Afterword (Blackboard).

H.M. Collins (1985) *Changing Order: Replication and Induction in Scientific Practice* (London: Sage), Chs. 2-4 (Blackboard).

<u>Recommended:</u>

S.B. Barnes (1977) *Interests and the Growth of Knowledge* (London: Routledge and Kegan Paul).

Michael Mulkay (1979) *Science and the Sociology of Knowledge* (London: George Allen and Unwin). (Excerpts on Blackboard)

David Bloor (1973) 'Wittgenstein and Mannheim on the sociology of mathematics', *Studies in the History and Philosophy of Science*, 4: 173-91.

Larry Laudan (1981) 'The pseudo-science of science?', *Philosophy of the Social Sciences*, 11: 173-98.

David Bloor (1981) 'The strengths of the strong programme in the sociology of knowledge', *Philosophy of the Social Sciences*, 11: 199-213.

Augustine Brannigan (1981) *The Social Basis of Scientific Discoveries* (Cambridge University Press).

H.M. Collins (1983) 'An empirical relativist programme in the sociology of scientific knowledge', in K. Knorr-Cetina and M. Mulkay (ed.), *Science Observed: Perspectives on the Social Study of Science* (London: Sage), 83-113.

Harold Garfinkel (1967), *Studies in Ethnomethodology* (Englewood Cliffs, NJ: Prentice Hall).

Harold Garfinkel, Michael Lynch and Eric Livingston (1981 'The work of a discovering science construed with materials from the optically discovered pulsar', *Philosophy of the Social Sciences* 11: 131-58.

Week 5 (Sept. 28)   SSK in Action: Refiguring the History of Early-Modern Science

Required:
Steven Shapin and Simon Schaffer (1985) *Leviathan and the Air-Pump: Hobbes, Boyle and the Experimental Life* (Princeton University Press).
Mario Biagioli (1990) "Galileo the Emblem Maker, *Isis* 81: 230-58. [e-journals]

Recommended:
A Canadian Broadcasting Corporation radio program, 'How to Think about Science,' ran an episode on this book. It is available online at:
http://www.cbc.ca/ideas/features/science/index.html#episode1
Steven Shapin (1984) 'Pump and circumstance: Robert Boyle's literary technology', *Social Studies of Science*, 14: 481-520. (e-journals)
Steven Shapin (1989), 'The invisible technician', *American Scientist*, 77: 554-63. (Blackboard)
Andrew Pickering (1984) 'Against putting the phenomena first: The discovery of the weak neutral current', *Studies in History and Philosophy of Science* 15: 85-117.
Andrew Pickering (1984) *Constructing Quarks* (University of Chicago Press).
Peter Galison (1987) *How Experiments End* (Chicago: University of Chicago Press).

Week 6 (Oct. 5)   Laboratory Studies

Required:
Bruno Latour & Steve Woolgar (1986) *Laboratory Life: The Construction of Scientific Facts*, 2nd edition (Princeton University Press [Sage, 1979]).
Karin Knorr-Cetina (1983) 'The ethnographic study of scientific work: Towards a constructivist sociology of science', in K. Knorr-Cetina and M. Mulkay (ed.), *Science Observed* (London: Sage), 115-40. (Blackboard)

Recommended:
Michael Polanyi (1958) *Personal Knowledge* (Chicago: University of Chicago Press).
Karin Knorr Cetina (1981) *The Manufacture of Knowledge: An Essay on the Constructivist and Contextual Nature of Science* (Oxford: Pergamon Press, 1981).
Karin Knorr Cetina (1995) 'Laboratory Studies: The Cultural Approach to the Study of Science', in S. Jasanoff et al. (eds.) *Handbook of Science & Technology Studies* (Sage):
Michael Lynch (1985) *Art and Artifact in Laboratory Science* (London: Routledge and Kegan Paul).

Sharon Traweek (1988) *Beamtimes and Lifetimes: The World of High Energy Physics* (Cambridge, MA: Harvard University Press).

Alberto Cambrosio and Peter Keating (1988) ''Going monoclonal': Art, science, and magic in the day-to-day use of hybridoma technology', *Social Problems*, 35: 244-60.

Michael Mulkay and G. Nigel Gilbert (1982) 'Accounting for error: How scientists construct their social world when they account for correct and incorrect belief', *Sociology* 16: 165-183.

G. Nigel Gilbert & Michael Mulkay (1984) *Opening Pandora's Box* (Cambridge University Press).

Joan Fujimura (1987) 'Constructing doable problems in cancer research', *Social Studies of Science*, 17 (1987), 257-293.

Joan Fujimura (1988) 'The molecular biological bandwagon in cancer research: Where social worlds meet', *Social Problems* 35 (1988), 261-283.

Ian Hacking, 'The participant irrealist at large in the laboratory', *British Journal of Philosophy of Science* 39: 277-94.

Steven Shapin (1995) 'Here and everywhere: Sociology of scientific knowledge', *Annual Review of Sociology*, 21 (1995), 289-321.

Park Doing (2007) 'Give me a laboratory and I will raise a discipline: The past, present, and future politics of laboratory studies,' in E. Hackett, et al. (eds.) *The Handbook of Science and Technology Studies*, 3rd Edition (Cambridge, MA: MIT Press). (Blackboard)

(Oct. 12 – Fall Break – no class)

Week 7 (Oct. 19)   Actor-Network Theory and After

Required:
Michel Callon (1999) "Some Elements of a Sociology of Translation: Domestication of Scallops and the Fishermen of St. Brieuc Bay" (abridged from 1986), in Mario Biagioli, ed., *The Science Studies Reader*, pp. 67-83. (Blackboard)

Bruno Latour (1999) 'Give me a laboratory and I will raise the world' (abridged from 1983) in Biagioli (ed.) *The Science Studies Reader*, pp. 256-75. Originally in K. Knorr-Cetina and M. Mulkay (ed.), *Science Observed: Perspectives on the Social Study of Science* (London: Sage, 1983), 141-70, (Blackboard; also available at: www.bruno-**latour**.fr/articles/.../12-**GIVE**%20ME%20A%20**LAB**.pdf)

Bruno Latour, *Science in Action* (Harvard University Press, 1987), Introduction, and chaps. 1, 2, 6. (Blackboard)

Bruno Latour (1990) 'Postmodern? No, simply amodern. Steps towards an anthropology of science: An essay review', *Studies in History and Philosophy of Science*, 21: 145-71. (Blackboard)

Olga Amsterdamska (1990) 'Surely you are joking Monsieur Latour!', *Science, Technology & Human Values* 15(4): 495-504. (e-journals)

Recommended:

Michel Callon & Bruno Latour (1981) 'Unscrewing the big Leviathan: How actors macro-structure reality and how sociologists help them to do so', in K. Knorr-Cetina and A. Cicourel (ed.), *Advances in Social Theory and Methodology: Toward an Integration of Micro- and Macro-Sociologies* (London: Routledge and Kegan Paul, 1981), 277-303.

John Law (1986) 'On the methods of long-distance control: Vessels, navigation and the Portuguese route to India', in J. Law (ed.), *Power, Action and Belief* (London: Routledge and Kegan Paul), 231-60.

Collins, H.M. & Steve Yearley (1992) 'Epistemological Chicken', in A. Pickering (ed.), *Science as Practice and Culture (Chicago: University of Chicago Press*), pp. 301-26.

Michel Callon and Bruno Latour (1992) 'Don't throw the baby out with the Bath school! A reply to Collins and Yearley', in A. Pickering (ed.), *Science as Practice and Culture (Chicago: University of Chicago Press*), pp. 343-68.

John Law and John Hassard (eds) (1999). *Actor Network Theory and After* (Oxford and Keele: Blackwell and the Sociological Review).

David Bloor (1999) 'Anti-Latour'; Bruno Latour (1999) 'For David Bloor… and Beyond'; Bloor, 'Reply to Bruno Latour,' *Studies in History and Philosophy of Science* 30A: 81-136. (Blackboard)

Week 8 (Oct. 26)   Technology: Historical and Sociological Approaches

Required:

Trevor Pinch and Wiebe Bijker (1984), "The Social Construction of Facts and Artefacts: Or, How the Sociology of Science and the Sociology of Technology Might Benefit Each Other," *Social Studies of Science* 14(3): 339-441. [e-journals] (Also in Bijker, Hughes & Pinch (eds*.), The Social Construction of Technological Systems* (1987), pp.17-50 [Blackboard])

Langdon Winner (1986) "Do Artefacts have Politics?" in L. Winner, *The Whale and the Reactor: A Search for Limits in an Age of High Technology* (University of Chicago Press), pp. 19-39. Excerpt available online at:
*zaphod.mindlab.umd.edu/docSeminar/pdfs/**Winner***.pdf*

Thomas P. Hughes (1987) 'The Evolution of Large Technological Systems', in Bijker, Hughes & Pinch (eds.), *The Social Construction of Technological Systems*, pp. 51-82 (Blackboard).

Donald MacKenzie, 'Nuclear Missile Testing and the Social Construction of Accuracy,' (abridged from 1990), in Biagioli, *The Science Studies Reader,* pp. 342-357 (Blackboard).

Trevor Pinch and Ronald Kline, 'Users as Agents of Technological Change: The Social Construction of the Automobile in the Rural United States,' *Technology and Culture* 37 (1996), pp. 763-95. [e-journals & Blackboard]

Ken Alder (2007) "Introduction" to "Focus: Thick Things." *Isis* 98:1 (March): 80-83. [e-journals & Blackboard]

Wiebe Bijker (2007) "Dikes and Dams, Thick with Politics." *Isis* 98:1 (March): 109-123. [e-journals and Blackboard]

Recommended:
Wolfgang Schivelbusch, *The Railroad Journey: The Industrialization of Time and Space in the Nineteenth Century* (Berkeley: University of California Press, 1986).
Lucy Suchman (1987) *Plans & Situated Actions* (Cambridge University Press). (Revised Edition under different title: *Human-Machine Reconfigurations: Plans and Situated Actions* (CUP, 2007).

Week 9 (Nov. 2) Visualization. Material Culture, and Dissemination in Science

Required:
Bruno Latour (1986) "Visualization and Cognition: Thinking with Eyes and Hands," *Knowledge & Society*, 6: 1-40. (Also appears under the title, 'Drawing Things Together,' in M. Lynch & S. Woolgar (eds.), *Representation in Scientific Practice* (Cambridge, MA: MIT Press). (Blackboard)
Kathleen Jordan and Michael Lynch, 'The sociology of a genetic engineering technique: Ritual and rationality in the performance of the plasmid prep', in A. Clarke & J. Fujimura (ed.), *The Right Tools For the Job: At Work in Twentieth-Century Life Science* (Princeton, NJ: Princeton University Press, 1992), 77-114. (Blackboard)
Susan Leigh Star & James R. Griesemer (1989), 'Institutional Ecology, "Translation," and Boundary Objects: Amateurs and Professionals in Berkeley's Museum of Vertebrate Zoology, 1907-39,' *Social Studies of Science* 19: 387-420 [e-journals]; reprinted in Biagioli, *Science Studies Reader*, pp.505-24. Peter Galison (1999) 'Trading Zone: Coordinating Action and Belief, in Biagioli, *Science Studies Reader*, pp. 137-60. Excerpted from Galison, *Image and Logic* (University of Chicago Press, 1997) (Blackboard),
Lorraine Daston & Peter Galison (1992) 'The Image of Objectivity,' *Representations* 40 (Fall): 81-128. [e-journals]
Simon Schaffer (1999) 'Late Victorian Metrology and Its Instrumentation: A Manufactory of Ohms', in Biagioli, *Science Studies Reader*, pp. 457-78. (Blackboard)
Otto Sibum, 'Reworking the Mechanical Value of Heat: Instruments of Precision and Gestures of Accuracy in Early Victorian England,' *Studies in History and Philosophy of Science* 26 (1995): 73-106. [e-journals]

Recommended
Martin Rudwick (1976) 'The Emergence of a Visual Language for Geological Science 1760-1840', *History of Science* 14 (1976), 149-95 (Blackboard).
Trevor Pinch, "Towards an Analysis of Scientific Observation: The Externality and Evidential Significance of Observation Reports in Physics," *Social Studies of Science* 15 (1985), pp. 167-87.
Robert Kohler, Moral Economy, Material Culture, and Community in *Drosophila* Genetics', in Biagioli, *Science Studies Reader*, pp. 243-58. Excerpted from Kohler, *Lords of the Fly*, (University of Chicago Press,1994).
Hans-Jörg Rheinberger, "Experimental Systems, Graphematic Spaces," in Timothy Lenoir (ed.), *Inscribing Science* (1998), pp. 285-303.

Hans-Jörg Rheinberger (1999) 'Experimental Systems: Historiality, Narration, and Deconstruction, in Biagioli, *Science Studies Reader*, pp. 417-29.

Jan Golinski, *Making Natural Knowledge: Constructivism and the History of Science* (1998), chaps.1, 5.

Thomas Gieryn (1983) "Boundary-Work and the Demarcation of Science from Non-Science: Strains and Interests in Professional ideologies of Scientists," *American Sociological Review* 48(6): 781-95.

Lorraine Daston (1999) 'Objectivity and the Escape from Perspective', in Biagioli, *Science Studies Reader*, pp. 110-123. (Originally in *Social Studies of Science* 22 [November 1992]: pp. 597-618 [e-journals]).

Simon Schaffer (1988) "Astronomers Mark Time: Discipline and the Personal Equation," *Science in Context*: 115-45 (Blackboard).

Michael Lynch (1985) 'Discipline and the material form of images: an analysis of scientific visibility', *Social Studies of Science*, 15: 37-66. (e-journals)

Michael Lynch & Steve Woolgar (eds.) (1990) *Representation in Scientific Practice* (MIT Press).

Trevor Pinch (1985), "Towards an Analysis of Scientific Observation: The Externality and Evidential Significance of Observation Reports in Physics," *Social Studies of Science* 15:167-87. (e-journals)

Bruno Latour (1995), 'The 'pédofil' of Boa Vista: A photo-philosophical montage', *Common Knowledge*, 4: 144-87. Reprinted in Latour, *Pandora's Hope* (1999) (Blackboard).

Adrian Johns (1998) *The Nature of the Book: Print and Knowledge in the Making* (Chicago and London: University of Chicago Press).

Caroline A. Jones and Peter Galison (eds.) (1998) *Picturing Science Producing Art* (New York & London: Routledge).

Andrew Pickering (1995) *The Mangle of Practice* (University of Chicago Press).

Joseph Dumit (2004) *Picturing Personhood: Brain Scans and Biomedical Identity* (Princeton University Press).

David Kaiser (2005) *Drawing Things Apart: The Dispersion of Feynman Diagrams in Postwar Physics* (University of Chicago Press).

Week 10 (Nov. 9)   Gender as an Analytical Category

Required:

Evelyn Fox Keller, "The Gender/Science System: Or, Is Sex to Gender as Nature is to Science?" (orig. 1987), in Biagioli, *The Science Studies Reader*, pp. 234-242 (Blackboard).

Donna Haraway (1988), "Situated Knowledges: The Science Question in Feminism and the Privilege of Partial Perspective," *Feminist Studies* 14(3): 575-99 ***[e-journals]***; reprinted in Haraway (1991), *Simians, Cyborgs, and Women*, pp.183-203; and in Biagioli (1999), *The Science Studies Reader*, pp. 172-88 (Blackboard).

Sandra Harding (2001) "Feminist Standpoint Epistemology" (orig. 1991), in Muriel Lederman and Ingrid Bartsch (eds*.), The Gender and Science Reader*, pp.145-68 (Blackboard).

Sergio Sismondo, 'The Scientific Domains of Feminist Standpoints', *Perspectives on Science* 3 (1995), pp. 49-65 (Blackboard).

Londa Schiebinger (1997) 'Creating Sustainable Science', in Lederman and Bartch, *Gender and Science Reader*, pp. 466-82 (Blackboard).

Karen Barad (1999) "Agential Realism: Feminist Interventions in Understanding Scientific Practices," in Biagioli, *The Science Studies Reader*, pp. 1-11 (Blackboard).

Alison Wylie (1999) "The Engendering of Archeology: Reconfiguring Feminist Science Studies" (abridged from 1997), in Biagioli, *The Science Studies Reader*, pp. 553-67 (Blackboard).

Recommended:
Nina Lerman, Arwen Mohun, and Ruth Oldenziel (1997) 'Versatile Tools: Gender Analysis and the History of Technology" and 'The Shoulders We Stand on and the View From Here: Historiography and Directions for Research', *Technology and Culture* 39(1): 1-30. [e-journals]

Judy Wajcman (1995) 'Feminist Theories of Technology', in Sheila Jasanoff et.al., (eds.), *Handbook of Science and Technology Studies* (Sage, 1995): 189-204. (Blackboard)

Week 11 (Nov. 16) "Non-Western," Colonial, Postcolonial, and "Global" Technoscience?

Required:
Bryan Pfaffenberger (1990) 'The Harsh Faces of Hydraulics: Technology and Society in Sri Lanka's Colonization Schemes', *Technology and Culture* 31 (July): 361-397. [e-journals]

Judith Carney (1996), 'Landscapes of Technology Transfer: Rice Cultivation and African Continuities,' *Technology and Culture* (January): 5-35. [e-journals]

Roger Hart (1999) 'On the Problem of Chinese Science', in Biagioli, *The Science Studies Reader*, pp. 189-201. (Blackboard)

Warwick Anderson (2002) 'Introduction: Special Issue on Postcolonial Technoscience', *Social Studies of Science* 32: 5-6 (October-December 2002): 643-658. [e-journals]

Vincanne Adams (2002) 'Randomized Controlled Crime: Postcolonial Sciences in Alternative Medicine Research', *Social Studies of Science* 32: 659-90. [e-journals]

Adriana Petryna (2005) "Ethical Variability: Drug Development and Globalizing Clinical Trials," *American Ethnologist* 32(2): 183-97. [e-journals]

Kapil Raj (2002) 'When Human Travellers Become Instruments: The Indo-British exploration of Central Asia in the Nineteenth Century," and "Conclusion", in K. Raj, Relocating Modern Science (Palgrave MacMillan, 2007): 181-234. (Blackboard)

Recommended:

Suzanne Moon (1998) 'Take-off or self-sufficiency? Ideologies of Development in Indonesia, 1957 – 1961', *Technology and Culture* 39 (April). [e-journals]

Gabrielle Hecht (2002), "Rupture-Talk in the Nuclear Age: Conjugating Colonial Power in Africa," *Social Studies of Science* 32: 5-6 (October-December 2002): 691-727. [e-journals]

Nicolas B. King (2002) 'Security, Disease, Commerce: Ideologies of Postcolonial Global Health', *Social Studies of Science* 32: 5-6: 763-789. [e-journals]

Week 12 (Nov. 23)   Politics, Science, & STS
Required:

P. Scott, E. Richards and B. Martin (1990) 'Captives of Controversy: The Myth of the Neutral Social Researcher in Contemporary Scientific Controversies*,' Science, Technology, and Human Values* 15: 474-94, together with H. M. Collins, 'Captives and Victims: Response to Scott, Richards and Martin', *ST&HV* 16 (1991), pp. 249-51, immediately followed by S, R & M's response. [e-journals]

Sheila Jasanoff (1996) 'Beyond Epistemology: Relativism and Engagement in the Politics of Science,' *Social Studies of Science* 26(2): 393-418. [e-journals]

Wiebe Bijker (2003) 'The Need for Public Intellectuals: A Space for STS,' *Science, Technology and Human Values* 28(4): 443-50. [e-journals]

Allison Macfarlane (2003) 'Underlying Yucca Mountain: The Interplay of Geology and Policy in Nuclear Waste Disposal,' *Social Studies of Science* 33(5): 783–807. [e-journals]

Kathleen M. Vogel (2006) "Bioweapons Proliferation: Where Science Studies and Public Policy Collide," *Social Studies of Science* 36(5): 659-690. [e-journals]

Hugh Gusterson (2007) 'Anthropology and Militarism,' *Annual Review of Anthropology* 36:155–75. [e-journals]

Pauline Kusiak, 'Sociocultural Expertise and the Military: Beyond the Controversy,' *Military Review*, November-December 2008. Available at: http://usacac.army.mil/CAC2/MilitaryReview/Archives/English/MilitaryReview_20081231_art011.pdf

Recommended:

Brian Wynne (1996) 'Misunderstood Misunderstandings: Social Identities and the Public Uptake of Science', in Alan Irwin and Brian Wynne (ed.), *Misunderstanding Science? The Public Reconstruction of Science and Technology* (Cambridge: Cambridge University Press), pp. 19-46.

James C. Scott (1998) *Seeing Like a State: How Certain Schemes to Improve the Human Condition Have Failed* (New Haven: Yale University Press), Ch 1.

Edward Woodhouse, David Hess, Steve Breyman & Brian Martin (2002) 'Science Studies and Activism: Possibilities for Reconstructivist Agendas', *Social Studies of Science* 32: 297-319.

Bruno Latour (2004) 'Why Has Critique Run out of Steam? From Matters of Fact to Matters of Concern,' *Critical Inquiry* 30(2) 225-48. [e-journals & Blackboard]

Malcolm Ashmore and Evelleen Richards (eds), 'The Politics of SSK: Neutrality, Commitment and Beyond,' Special issue, *Social Studies of Science*, 26(2) (May

1996): 219-468.
Brian Martin (1993) 'The Critique of Science Becomes Academic,' *Science, Technology, and Human Values*, 18(2): 247-59.
Michel Foucault (1979) *Discipiine and Punish: The Birth of the Prison* (New York: Random House).

Week 13 (Nov. 30) Wrap up and Discussion of Final Papers