WOMEN ON THE VERGE OF SCIENCE:
GENDER AND KNOWLEDGE IN EARLY MODERN EUROPE

Between the sixteenth and eighteenth centuries both men and women investigated the natural world with renewed intensity. They did so for a variety of different reasons and this seminar explores some of the ways in which questions of gender and questions of knowledge emerged simultaneously in the age of the Scientific Revolution. Looking closely at a sample of the source materials that have recently been made available, we will look critically at how and why women philosophers, naturalists, alchemists, mathematicians, astronomers, and medical practitioners contributed to the growth of knowledge in the early modern period. We will also discuss the broad context in which men and women shared in the possibilities for new knowledge at this time by considering questions of the location of scientific work, experimentation, and teaching in an era in which new institutions of science and learning arose in relationship to more traditional venues for knowledge. Finally, we will consider the most recent work by scholars interested in this subject in relation to the (now classic) studies of historians such as Londa Schiebinger (The Mind Has No Sex? Women in the Origins of Modern Science), Carolyn Merchant (The Death of Nature: Women, Ecology, and the Scientific Revolution), and Evelyn Fox Keller (Reflections on Gender and Science). We will also discuss the work on gender and knowledge in light of the current historiography of the Scientific Revolution (see, for example, Steven Shapin, The Scientific Revolution; and Peter Dear, Revolutionizing the Sciences).

Fundamentally this seminar is concerned with two basic questions: Where is the discussion about gender and knowledge today in light of the work of the past two decades? What role should it play in articulating a more dynamic and broad-ranging account of the making of knowledge in the early modern period?

The following books should be purchased before the seminar:

Sylvia Bowerbank and Sara Mendelson, eds., Paper Bodies: A Margaret Cavendish Reader
Bernard le Bovier de Fontenelle, Conversations on the Plurality of Worlds
Anne Conway, The Principles of the Most Ancient and Modern Philosophy
Natalie Zemon Davis, Women on the Margins
Moderata Fonte, Women’s Worth
Anna Maria Van Schurman, Whether a Christian Woman Should Be Educated

While not required reading, two additional books are highly recommended as background reading in preparation for this seminar:

Steven Shapin, The Scientific Revolution
Londa Schiebinger, *The Mind Has No Sex*

**Week One**
*Optional Library Orientation (meet Betsy Walsh in the Registrar’s Office, 5/15 11-12)*

**May 15: Gender and the Nature of Knowledge in Early Modern Europe**
This first seminar is concerned with establishing an image of the male philosopher in early modern Europe. We will particularly examine Francis Bacon’s image of the philosophical community and knowledge in light of recent work on the gender of the male philosopher in other contexts. What are the diverse models for the male philosopher at this time? What questions of gender do they raise? (Steven Shapin’s *The Scientific Revolution* is good background reading for this first meeting).

**Reading:**

**May 16: In the Neighborhood of Science**
What does it mean to participate in the creation of scientific knowledge? This seminar explores this question, using a variety of case studies. Read excerpts from Moderata Fonte’s account of an imaginary conversation among Venetian patrician women. How might we understand conversation about the natural world in this dialogue in light of the questions about the role of gender and knowledge in domestic and civic life that these other case studies raise?

**Reading:**
Week Two
May 22: Bodies of Knowledge

Medicine was perhaps the most complex and contested terrain in which women claimed expertise in key aspects of the natural world, in particular female reproduction and the world of medicinal recipes. This seminar examines questions of gender in relations to knowledge of the human body. How did midwives and male-midwives present their expertise in female reproduction? How did popular medical guides present male and female knowledge of the body?

Reading:

May 23: Collecting and Representing Nature

During the early modern period natural history emerged as one of the most important forms of scientific activity. Consider the ways in which the study of nature and art intertwined in the work of Maria Sibylla Merian and the rise of botanical books by and for women in eighteenth-century England. Which aspects of natural history especially attracted female participants?

Reading:
Week Three

May 29: Women and the Republic of Letters
This seminar explores the place of women in the republic of letters. What were the constituent features of the republic of letters as a mechanism for organizing conversations about knowledge and exchange of information? What possibilities existed for women who wished to participate in this imagined community of scholars? How did they understand their place within the republic of letters?

Reading:

3:30-4:30 Presentation by Carol Pal on women and the republic of letters

May 30: Patrons and Philosophers
Looking closely at Descartes’ famous correspondence with Elisabeth of Bohemia, this seminar explores the possibilities for philosophical conversation between men and women. To what degree did the woman philosopher emerge in the seventeenth century? What role did this famous exchange play in the growth of philosophical conversation at this time?

Reading:
Lisa Shapiro, ed. and trans., *Correspondence between Elisabeth, Princess of Bohemia, and René Descartes* (partial draft translation forthcoming in “The Other Voice” series of the University of Chicago Press).

3:30-4:30 Presentation by Scott Maisano on Descartes and female automata
**Week Four**  
**June 5: Imagining Science, Observing Nature**
Margaret Cavendish is probably the most discussed and well studied woman natural philosopher of the seventeenth century. Yet we tend to view her in isolation, a singular mind in an era of scientific revolution. How might we place Cavendish at the center of these developments rather than on the margins? What contributions did she make to the growth of natural philosophy at this time?

**Reading:**  
Lisa Sarasohn, [new article on Margaret Cavendish and Thomas Hobbes]  

3:30-4:30  Presentation by Lara Dodds on Cavendish and genres of writing

**June 6: Philosophical Systems**
Early modern women are often presented as commentators on knowledge rather than creators of new knowledge. Anne Conway is an example of a woman who sought to create her own philosophy, in strikingly different ways than Cavendish. Should we see Conway as an important philosopher of the late seventeenth century? If so, how might we integrate her into a general history of knowledge?

**Reading:**  

3:30-4:30  Presentation by Denise Albanese on Lucy Hutchinson’s translation of Lucretius
Week Five

June 12: Fictions of the Scientist
If the Cartesian woman was a reality in the middle of the seventeenth century, she had become an entertaining fiction by the century’s end. Read Fontenelle’s dialogue and Aphra Behn’s preface to her translation in light of Harth and Shelford’s comments on gender and knowledge in the Ancien Regime. How might we compare the situation in France to that in England?

Reading:
Erica Harth, (1992, pp. 64-122).

3:30-4:30 Presentation by Sandy Feinstein on Marie de Meurdrac’s chemistry

June 13: Women on the Verge of Science?
During the eighteenth century a number of women sought to participate in the new scientific culture, practices, and institutions that emerged in the age of Enlightenment. This final seminar offers several different case studies of what was possible (and what was not). Taken together, can we come to any conclusions about the circumstances for women’s participation in science? (You might consider this question in light of the argument of Schiebinger’s The Mind Has No Sex).

Reading:

3:30-4:30 Trip to Dibner Library of the History of Science and Technology (in the National Museum of American History; 202-357-1568)
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SOME FURTHER READING

The Scientific Revolution: Surveys
Peter Dear, Revolutionizing the Sciences
Allen Debus, Man and Nature in the Renaissance
Margaret Jacob, The Cultural Meaning of the Scientific Revolution
Lisa Jardine, Ingenious Pursuits
Thomas Kuhn, The Copernican Revolution
Steven Shapin, The Scientific Revolution
Charles Webster, From Paracelsus to Newton
Richard Westfall, The Construction of Modern Science

The Scientific Revolution: Recent Edited Volumes
Mordechai Feingold, ed., Jesuit Science and the Republic of Letters
J.V. Field and Frank A. J. L. James, eds., Renaissance and Revolution
Paula Findlen, ed., Athanasius Kircher: The Last Man Who Knew Everything
David Lindberg and Robert Westman, eds., Reappraisals of the Scientific Revolution
Margaret Osler, ed., Rethinking the Scientific Revolution
Pamela Smith and Paula Findlen, eds., Merchants and Marvels

The Scientific Revolution: Recent and Classic Monographs
Svetlana Alpers, The Art of Describing
Domenico Bertoloni Meli, Equivalence and Priority: Newton versus Leibniz
Mario Biagioli, Galileo Courtier
Ann Blair, The Theater of Nature: Jean Bodin and Renaissance Science
James Bono, The Word of God and the Languages of Man
Edwin Burtt, The Metaphysical Foundations of Modern Science
Andrea Carlino, Books of the Body: Anatomical Ritual and Renaissance Learning
John Robert Christianson, On Tycho’s Island: Tycho Brahe and His Assistants
Lesley Cormack, Charting an Empire: Geography at the English Universities
Alfred Crosby, The Measure of Reality: Quantification in Western Europe 1200-1600
Lorraine Daston and Katharine Park, Wonders and the Order of Nature
Peter Dear, Discipline and Experience: The Mathematical Way in the Scientific Revolution
Allen Debus, The English Paracelsians
---------, The French Paracelsians
B. J. T. Dobbs, The Foundations of Newton’s Alchemy
---------, The Janus Faces of Genius
William Eamon, Science and the Secrets of Nature
Deborah Harkness, John Dee’s Angel Conversations
Mordechai Feingold, The Mathematician’s Apprenticeship
Rivka Feldhay, Galileo and the Church
J.V. Field, Kepler’s Geometric Cosmology
Paula Findlen, Possessing Nature: Museums, Collecting and Scientific Culture in Early Modern Italy
David Freedberg, The Eye of the Lynx: Galileo, His Friends, and the Beginning of Modern Natural History
Roger French, William Harvey’s Natural Philosophy
Daniel Garber, Descartes Embodied
Stephen Gaukroger, Francis Bacon and the Transformation of Early-Modern Philosophy
Anthony Grafton, Cardano’s Cosmos: The World and Works of a Renaissance Astrologer
Roger Hahn, The Anatomy of a Scientific Institution: The Paris Academy of Sciences, 1666-1803
Fernand Hallyn, The Poetic Structure of the World: Copernicus and Kepler
Deborah Harkness, John Dee’s Angel Conversations
Owen Hannaway, The Chemists and the Word
John Heilbron, Science in the Church
Toby Huff, The Rise of Early Modern Science: Islam, China and the West
Michael Hunter, Science and Society in Restoration England
--------, Establishing the New Science: The Experience of the Early Royal Society
Alexandre Koyré, From the Closed World to the Infinite Universe
Margaret Jacob, The Newtonians and the English Revolution
Nicholas Jardine, The Birth of the History and Philosophy of Science
Adrian Johns, The Nature of the Book
David Lux, Patronage and Royal Science in Seventeenth-Century France
William Newman, Gehennical Fire
Walter Pagel, Paracelsus
--------, Johann Baptista van Helmont
Larry Principe, An Aspiring Adept
Pietro Redondi, Galileo Heretic
Eileen Reeves, Painting the Heavens: Art and Science in the Age of Galileo
Rose-Mary Sargent, The Diffident Naturalist: Robert Boyle and the Philosophy of Experiment
Steven Shapin, A Social History of Truth
Steven Shapin and Simon Schaffer, Leviathan and the Air-Pump: Hobbes, Boyle and the Experimental Life
Pamela Smith, The Business of Alchemy
Alice Stroup, A Company of Scientists: Botany, Patronage and Community at the Seventeenth-Century Parisian Royal Academy of Sciences
Charles Webster, The Great Instauration
Richard Westfall, Never at Rest: A Biography of Isaac Newton
Frances Yates, Giordano Bruno and the Hermetic Tradition
Women in Early Modern Europe: Some Introductory Readings
Judith Brown and Robert Davis, eds., *Gender and Society in Renaissance Italy*
Carla Hesse, *The Other Enlightenment: How French Women Became Modern*
Margaret King, *Women of the Renaissance*
Paul Hoffman, *La femme dans la pensée des Lumières*
Richard Kagan, *Lucrecia’s Dreams*
Patricia Labalme, ed., *Beyond Their Sex: Learned Women of the European Past*
Joan Landes, *Women and the Public Sphere in the Age of the French Revolution*
Cynthia Lawrence, ed., *Women and Art in Early Modern Europe*
Barbara K. Lewalski, *Writing Women in Jacobean England*
Sara Mendelsohn, *The Mental World of Stuart England*
Ottavio Niccoli, *Rinascimento al femminile*
Hilda Smith, *Reason’s Disciples: Seventeenth-Century English Feminists*
----------, *All Men and Both Sexes: Gender, Politics, and the False Universal in England, 1640-1832*
Lieselotte Steinbrügge, *The Moral Sex: Woman’s Nature in the French Enlightenment*
Amanda Vickery, *A Gentleman’s Daughter*
Merry Weisner, *Women and Gender in Early Modern Europe*

Gender, Science, and Medicine in Early Modern Europe: Additional Readings
Susanna Åkerman, *Queen Christina of Sweden and Her Circle*
Margaret Alic, *Hypatia’s Heritage*
Margaret Atherton, ed., *Women Philosophers of the Early Modern Period*
Marina Benjamin, ed., *A Question of Identity: Women, Science and Literature*
 idem, ed., *Science and Sensibility: Gender and Scientific Inquiry 1780-1945*
Anna Battigelli, *Margaret Cavendish and the Exiles of the Mind*
Gisela Bock and Giulian Nobili, eds., *Il corpo delle donne*
Beate Ceranski, “Und sie fürchtet sich vor niemanden.” Die Physikerin Laura Bassi (1711-1778).


Barbara Duden, *The Woman Beneath the Skin: A Doctor’s Patients in Eighteenth-Century Germany*

Esther Ehrman, *Mme du Châtelet: Scientist, Philosopher and Feminist of the Enlightenment*


Nina Gelbart, *The King’s Midwife: A History and Mystery of Madame du Coudray*


Sally Gregory Kohlstedt, ed., *History of Women in the Sciences: Readings from Isis*

David Hillman and Carla Mazzio, eds., *The Body in Parts: Fantasies of Corporeality in Early Modern Europe*


Evelyn Fox Keller, *Reflections on Gender and Science*


Kathleen Jones, *A Glorious Fame: The Life of Margaret Cavendish, Duchess of Newcastle*

Ludmilla Jordanova, *Sexual Visions*


Helmut Kaiser, *Maria Sibylla Merian: Eine Biographie*


Thomas Laqueur, *Making Sex: Body and Gender from the Greeks to Freud*

Christopher Lawrence and Steven Shapin, eds., *Science Incarnate: Historical Embodiments of Natural Knowledge*


Ian Maclean, *The Renaissance Notion of Woman*

Hilary Marland, ed., *The Art of Midwifery: Early Modern Midwives in Europe*


Gerald Dennis Meyer, *The Scientific Lady in England 1650-1750*


Kathryn Neelley, *Mary Somerville: Science, Illumination, and the Female Mind*

David Noble, *A World without Women*

Andrea Nye, *The Princess and the Philosopher*


Dorinda Outram, *The Body and the French Revolution*


Octavio Paz, *Sor Juana, or The Traps of Faith*


Ruth Perry, *Mary Astell*

---------, “Radical Doubt and the Liberation of Women” *Eighteenth Century Studies* 18

Patricia Phillips, The Scientific Lady: A Social History of Women's Scientific Interests 1520-1918

Elizabeth Potter, Gender and Boyle’s Law of Gases


Londa Schiebinger, The Mind Has No Sex? Women in the Origins of Modern Science

------, Nature’s Body


Geoffrey Sutton, Science for a Polite Society: Gender, Culture, and the Demonstration of the Enlightenment

Mary Terrall, ed., “Gender and Knowledge in Early Modern Europe” [Special issue of Configurations 3 (1995)]

Giovanna Tilche, Maria Gaetana Agnesi la scienziata santa del Settecento.

Pina Totaro, ed., Donna e filosofia nel Seicento


Nancy Tuana, The Less Noble Sex: Scientific, Religious, and Philosophical Conceptions of Woman’s Nature

René Vaillot, Avec Madame du Châtelet, 1734-1749.


Kurt Wettengl, ed., Maria Sibylla Merian Artist and Naturalist 1647-1717

Katie Whitaker, Mad Madge: The Extraordinary Life of Margaret Cavendish, Duchess of Newcastle, The First Woman to Live by Her Pen
Lindsay Wilson, *Women and Medicine in the French Enlightenment*

J. D. Woodley, “Anne Lister, illustrator of Martin Lister’s *Historiae Conchyliorum,***