

S0318 Down-to-Earth Knowledge in the Early Modern World

Seminar Leader: Maria Avxentevskaya

Course Times: Fridays, 14:00-17.15

Credits: 8 ECTS, 4 U.S. credits

Email: mavxentevskaya@mpiwg-berlin.mpg.de

Office Hours: By appointment only

Course Description

What do we consider practical, useful knowledge, knowledge that is of service? We might consider a variety of skills highly convenient, like knowing how to cook or how to fix a bicycle, but we still encounter hierarchies in which practical skills are less prized than intellectual capacities. Writing the history of the early modern period was previously influenced by such a hierarchy between skill and intellect. However, new approaches have shown the tight intermingling between everyday know-how and theoretical insight, and the importance of considering actors' active involvement in practical activities. This course explores the interaction between these two realms, and across a variety of contexts, such as the hold of the merchant ships, the workshop of the instrument maker, the meeting rooms of learned societies, the kitchens of the gentry, the grotto of the courtesan's gardens. We will focus on understanding these sites, the physical objects found and processes staged within them, and the arguably distinctive bodies of knowledge – artisanal and humanist, empirical and bookish, popular and academic, feminine and masculine – that they established. We discover illuminating links between alchemical experiments and methodical ale brewing at country houses; between bureaucratic paper-shuffling and the evocation of new fauna in marine expeditions; between the legal protocols of a witch trial, and new rules for discourse about nature at the Royal Society in London. These practices of inquiry and invention informed techniques of observation and knowledge-acquisition and inscription, and created new knowledge concerning nature. The notion of expertise itself came as a result to be reevaluated, as did hierarchies determining unimportant or illegitimate sources or criteria of knowing – in definitive, what counted as “science”. Our course will include an examination of primary source material, and visits to the Staatliche Kunstsammlungen Dresden, and the library of the Max Planck Institute Berlin.

Requirements

Attendance

Attendance at ALL classes is expected. More than two absences (i.e. absences from two sessions of 90 minutes) in a semester will significantly affect the participation grade for the course. Students should consult the Student Handbook for regulations on periods of illness or leaves of absence.

Readings

Students are required to complete the essential reading for each session (see below), and are encouraged to take a look at the further reading, which should also be used as the starting point in preparing essays. There is no required textbook, but all essential reading, and many of the sources for

further reading, will be provided via Google Drive. Students are encouraged to take advantage of Berlin's libraries and museum collections to find other secondary literature to read, and images and objects to examine. The website of the Max-Planck Institute for the History of Science (<http://www.mpiwg-berlin.mpg.de/en/research>) also offers a wide range of illustrative materials.

Class Presentation

Each student will make a brief (10-15 minutes) presentation on an object or image of their choosing, and then be prepared to answer questions relating to their presentation. The presented object or picture should relate to the theme of the course, and originate from the early modern world (approx. 1450-1750). The presentation should introduce the object/image, and explain how considering it helps us understand early modern practical knowledge. Students will be given an opportunity and encouraged to discuss their choice of objects and images during the first month of the semester. Once the object or image have been selected and discussed with the instructor, a presentation slot will be allocated for each student during classes in the second half of the semester.

Writing Assignments

Students must write one mid-term essay, and one final essay. The list of available topics for each essay is given below.

Word count: Mid-term Essay: 2,000-3,000 words
 Final Essay: 3,000-4,000 words

Essay Deadlines

Deadline for the mid-term essay: Monday, 22nd October.

Deadline for the final essay: Monday, 10th December.

Sample Questions the Essays May Consider

While composing the essays, students are encouraged to bear in mind the following questions and examine them on a range of concrete examples relevant to the course material:

1. What specific features characterize early modern "down-to-earth" knowledge?
2. How did art and science interact in advancing the early modern practical knowledge?
3. How did manual and mental work come together in craft practices?
4. How did early modern writers of manuals convey information about practical skills?
5. What was happening in the early modern sites of "down-to-earth" knowledge?

Policy on Late Submission of Papers

Essays that are up to 24 hours late will be downgraded one full grade (from B+ to C+, for example). Instructors are not obliged to accept essays that are more than 24 hours late. Where an instructor agrees to accept a late essay, it must be submitted within four weeks of the deadline and cannot receive a grade of higher than C. Thereafter, the student will receive a failing grade for the assignment. For more information, please consult the Student Handbook.

Grade Breakdown

Attendance and Active Participation in Classes - 25%

Class Presentation – 25%

Mid-term essay – 25%

Final essay – 25%

Schedule

Scheduled class times are available online under the relevant course heading:

<http://www.berlin.bard.edu/academics/courses/fall-2018/>

Sessions 1 and 2: Introduction 7th September

Essential Reading:

- Bacon, Francis, *New Atlantis*. London: Printed by J.H., 1628, available: <http://www.gutenberg.org/files/2434/2434-h/2434-h.htm>
- Pamela H. Smith and The Making and Knowing Project, "Historians in the Laboratory: Reconstruction of Renaissance Art and Technology in the Making and Knowing Project," *Art History*, Volume 39, Issue 2 (2016): 210–233, available: <http://onlinelibrary.wiley.com/doi/10.1111/1467-8365.12235/full>

Further Reading:

Primary

- Jan van der Straet, *Nova Reperta* [c. 1580], available: http://echo.mpiwg-berlin.mpg.de/ECHOdocuView?url=/permanent/einstein_exhibition/sources/PZ39PA1P/index.meta&pn=1
- Hartmann Schopper, *[Panoplia] omnium illiberalium mechanicarum*. Francofurti ad Moenum: [Sigmundus Feyrabend], 1568, available: <https://bildsuche.digitale-sammlungen.de/index.html?c=viewer&bandnummer=bsb00028626&pimage=35&v=100&nav=&l=en>

Secondary

- Pamela H. Smith, *The Body of the Artisan. Art and Experience in the Scientific Revolution*. Chicago: University of Chicago Press, 2004.
- Pamela H. Smith and Benjamin Schmidt, *Making Knowledge in Early Modern Europe: Practices, Objects, and Texts, 1400-1800*. Chicago: University of Chicago Press, 2007.
- Pamela O. Long, *Artisan/Practitioners and the Rise of the New Sciences 1400-1600*. Corvallis, OR: Oregon State University Press, 2011.
- *Transmitting Knowledge: Words, Images, and Instruments in Early Modern Europe*, ed. by Sachiko Kusukawa and Ian Maclean. Oxford: Oxford University Press, 2006.

Sessions 3 and 4: Learned Society 21st September

Essential Reading:

- Thomas Sprat, *The History of the Royal Society of London*. London: Printed for T.R. by J. Martyn, 1667. "To the Royal Society" by Abraham Cowley, and Part I (1-51, excerpts) available: <https://books.google.de/books>
- Lisa Jardine, "The 2003 Wilkins Lecture: Dr. Wilkins's Boy Wonders", *Notes and Records of the Royal Society of London*, Vol. 58, No. 1 (Jan., 2004): 107-129.

Further Reading:

Primary

- John Evelyn, *The Diary of John Evelyn*, ed. William Bray. London: M. Walter Dunne, 1901, also available: <https://archive.org/details/diaryofjohnevely01eveliala>

- Robert Hooke, *Micrographia: or, Some physiological descriptions of minute bodies made by magnifying glasses*, ed. J. Martyn and J. Allestry. London, 1665, available: <http://digicoll.library.wisc.edu/cgi-bin/HistSciTech/HistSciTech-idx?type=header;pview=hide:id=HistSciTech.HookeMicro>

Secondary

- Lisa Jardine, “The 2003 Wilkins Lecture: Dr. Wilkins's Boy Wonders”, *Notes and Records of the Royal Society of London*, Vol. 58, No. 1 (Jan., 2004): 107-129.
- Tina Skouen and Ryan J. Stark (eds.), *Rhetoric and the Early Royal Society: A Sourcebook*, Leiden: E.J. Brill, 2014.
- Michael Hunter, *Boyle: between God and Science*. New Haven: Yale University Press, 2009.
- Richard Yeo, *Notebooks, English Virtuosi, and Early Modern Science*. Chicago: University of Chicago Press, 2014.

Sessions 5 and 6: Mechanical Workshop 28th September

Essential Reading:

- Wilkins, John, *Mathematical Magick, or The wonders that may be performed by mechanical geometry*. London: Printed by M.F., 1648, Book I, excerpts.
- Wolfgang Lefèvre, “The Limits of Picture: Cognitive Function of Images in Practical Mechanics. 1400-1600”, in *The Power of Images in Early Modern Science*, ed. Wolfgang Lefèvre, Jürgen Renn, Urs Schoepflin. Springer, 2003: 69-88.

Further Reading:

Primary

- Database Machine Drawings, available: <http://dmd.mpiwg-berlin.mpg.de/home>
- Isaac de Caus, *New and Rare Inventions of Water-Works*. London: Joseph Moxon, 1659.

Secondary

- Alexander Marr, “Gentile curiosité: Wonderworking and the culture of automata in the late Renaissance” in *Curiosity and Wonder from the Renaissance to the Enlightenment*, ed. Robert John, Weston Evans, and Alexander Marr. Ashgate Publishing, 2006: 149-170.
- Matteo Valleriani, *Galileo Engineer*. Springer, 2010.
- Jim Bennett, “Early Modern Mathematical Instruments”, *ISIS, A Journal of the History of Science* 102 (2011): 697-705.
- Mary G. Winkler and Albert van Helden, “Johannes Hevelius and the Visual Language of Astronomy”, *Renaissance and Revolution: Humanists, Scholars, Craftsmen and Natural Philosophers in Early Modern Europe*, ed. Judith Veronica Field, et al. Cambridge: Cambridge University Press, 1997: 97-116.

Sessions 7 and 8: Captain's Cabin on a Ship 5th October

Essential Reading:

- *The Journals of Captain James Cook on his Voyages of Discovery*, ed. by John Cawte Beaglehole. Cambridge: Published for the Hakluyt Society at the University Press, 1955-1974. Chapter 10, available: <http://gutenberg.net.au/ebooks05/0500461h.html#ch10>

- Henrique Leitão, “All Aboard! Science and Ship Culture in Sixteenth-Century Oceanic Voyages”, *Early Science and Medicine* 21 (2016): 113-132.

Further Reading:

Primary

- William Barlow, *The Navigator's Supply*. London: G. Bishop, R. Newbery, et al., 1597.
- William Dampier, *A New Voyage Around the World*. London: Adam and Charles Black, 1937 [first published 1697, reprint of 4th edition of 1729], also available: <http://gutenberg.net.au/ebooks05/0500461h.html>
- Samuel Sturmy, *Mariner's Magazine*, London: E. Cotes, 1669.

Secondary

- Margaret Schotte, “Expert Records: Nautical Logbooks from Columbus to Cook.” *Information & Culture* 48, No. 3, 2013: 281-322.
- John Law, “On the Methods of Long Distance Control: Vessels, Navigation, and the Portuguese Route to India”, in John Law (ed.), *Power, Action and Belief: A New Sociology of Knowledge?* Sociological Review Monograph 32, Routledge: Henley, 1986, 234-263.
- Eric H. Ash. *Power, Knowledge, and Expertise in Elizabethan England*. Baltimore: Johns Hopkins University Press, 2004.
- Edwin Hutchins, *Cognition in the Wild*. Cambridge, MA: MIT Press, 1995.

Sessions 9 and 10: Doctor's Practice 12th October

Essential Reading:

- The Casebooks Project: A digital edition of Simon Forman's & Richard Napier's medical records 1596–1634, A Day with the Astrologers: <http://www.magicandmedicine.hps.cam.ac.uk/the-manuscripts/a-day-with-the-astrologers>
- Philipp Klaas et al., “Daily Business: The Organization and Finances of Doctor's Practices” in *Medical Practice, 1600-1900: Physicians and Their Patients*, ed. Michael Stolberg, et al. Brill: Rodopi, 2016. *Medical Practice, 1600-1900: Physicians and Their Patients*, ed. Michael Stolberg, et al. Brill: Rodopi, 2016.

Further Reading:

Primary

- Online exhibition “Drug Trade: Therapy, Pharmacy and Commerce in Early Modern Europe”: <http://www.mhs.ox.ac.uk/drugtrade/index.htm>
- Andreas Vesalius, *De humani corporis fabrica*. Basel, 1543, available: http://www.e-rara.ch/bau_1/content/pageview/6299765

Secondary

- Gianna Pomata, “Praxis historialis: the uses of historia in early modern medicine”, in *Historia: empiricism and erudition in early modern Europe*, ed. G. Pomata and N. G. Siraisi. Cambridge, MA: MIT Press, 2005: 105-146.
- James Shaw and Evelyn Welch, *Making and Marketing Medicine in Renaissance Florence*. Amsterdam: Rodopi, 2011.
- Michael Cyril and William Hunter, *The Occult Laboratory: Magic, Science, and Second Sight in Late Seventeenth-Century Scotland*. Woodbridge: Boydell Press, 2001.
- Anke Timmerman, “Doctor's Order: An Early Modern Doctor's Alchemical Notebooks”, *Early*

Science and Medicine, Vol. 13, No. 1 (2008): 25-52.

Sessions 11 and 12: Gender and Knowledge in Household 19th October

Essential Reading:

- Excerpts from Gervase Markham, *Cheape and Good Husbandry. A Way to Get Wealth: Containing the Sixe Principall Vocations or Callings*. London, 1631.
- Elaine Leong, "Collecting Knowledge for the Family: Recipes, Gender and Practical Knowledge in the Early Modern English Household", *Centaurus* 55 (2013): 81–103.

Further Reading:

Primary

- The Recipes Project Database, available: <http://recipes.hypotheses.org/about>
- Salem Witch Trials Archive, available <http://salem.lib.virginia.edu/home.html>

Secondary

- Vanessa Harding, "Shops, markets and retailers in London's Cheapside, c. 1500-1700", in *Buyers, Sellers and Salesmanship in Medieval and Early Modern Europe*, ed. B. Blondé et al. Brepols: 2006: 155-70.
- *The Experience of Domestic Service for Women in Early Modern London*, ed. Paula Humfrey. Routledge, 2011.
- Antony Buxton, *Domestic Culture in Early Modern England*. Boydell & Brewer, 2015.
- *The Witchcraft Sourcebook*, ed. Brian P. Levack. Routledge, 2015.

Sessions 13 and 14: Coins in Trade 26th October

Essential Reading:

- *Samuel Pepys' Diary*. Ed. by Henry Wheatley. London: John Bell, 1893. Entry for Tuesday, 19 May, 1663, also available: <http://www.pepysdiary.com/diary/1663/05/19/>
- Harold Cook, *Assessing the Truth: Correspondence and Information at the End of the Golden Age*, Primavera Pers, Leiden 2013

Further Reading:

Primary

- *Samuel Pepys' Diary*. London: John Bell, 1893.
- Edward Hatton, *The Merchant's Magazine: Or Trades Man's Treasury*. London: J.H., 1712.

Secondary

- C.E. Challis, *A New History of the Royal Mint*. Cambridge: Cambridge University Press, 1992.
- Craig Muldrew, "'Hard food for Midas': Cash and Its Social Value in Early Modern England." *Past & Present* 170 (2001): 78-120.
- Carl Wennerlind, *Casualties of Credit: The English Financial Revolution, 1620-1720*. Cambridge, MA: Harvard University Press, 2011.
- Mark A. Peterson, "The World in a Shilling: Silver coins and the challenge of political economy in the early modern Atlantic world", in Paula Findlen (ed.), *Early Modern Things: Objects and Their Histories, 1500–1800*. New York: Routledge, 2012: 252-273.

Sessions 15 and 16: Early Modern Bureaucracy 2nd November

Essential Reading:

- Samuel Hartlib, *A Memorandum on the Office of Address*. Hartlib Papers 63/7/4A-5B, available: https://www.hrionline.ac.uk/hartlib/view?docset=main&docname=63A_07_04&term0=transtext_addresses&term1=transtext_of&term2=transtext_office#highlight
- James Scott, *Seeing Like a State: How certain schemes to improve human condition have failed*. New Haven, CT: Yale University Press, 1998: 11-52 (Chapter 1).

Further Reading:

Primary

- H. Robinson, *Printed Notice on Functions of an Office of Address*. Ibid. 63/7/1A-B, available: https://www.hrionline.ac.uk/hartlib/view?docset=main&docname=63A_07_01&term0=transtext_office#highlight

Secondary

- Edward Gieskes, *Representing the Professions: Administration, Law, and Theater in Early Modern England*. University of Delaware Press, 2006: 68-113.
- Ben Kafka, *Hunting the Plumed Mammal: The History of "Bureaucracy" in France, 1750-1850*, in Peter Becker and Rüdiger von Krosigk, *Figures of Authority: Contributions towards a Cultural History of Governance from the Seventeenth to the Twentieth Century*. Brussels: Peter Lang, 2008: 111-126.
- Andre Wakefield, *The Disordered Police State: German Cameralism as Science and Practice*. Chicago: University of Chicago Press, 2009.
- Chandra Mukerji, "The Great Forestry Survey of 1669–1671: The Use of Archives for Political Reform", *Social Studies of Science* 37/2 (April 2007): 227–253.

Sessions 17 and 18: Down to the Mines 9th November

Essential Reading:

- Georgius Agricola, *De Re Metallica*. Translated by Herbert Clark Hoover and Lou Henry Hoover. New York: Dover Publications, 1950, Book I: 48-90 (excerpts) also available: http://archimedes.mpiwg-berlin.mpg.de/docuserver/images/archimedes/agric_remet_002_en/downloads/agric_remet_002_en.text.pdf
- Pamela Smith, "Making as Knowing; Craft as Natural Philosophy" in *Ways of Making and Knowing: The Material Culture of Empirical Knowledge*, ed. Pamela H. Smith et al. Bard Graduate Center/University of Michigan Press, 2016: 17-47.

Further Reading:

Primary

- Georgius Agricola, *De Re Metallica*. Translated into English by Herbert Clark Hoover and Lou Henry Hoover. New York: Dover Publications, 1950.
- Warren Alexander Dym, *Divining Science: Treasure Hunting and Earth Science in Early Modern Germany*. Leiden: Brill, 2011.
- Bruce T. Moran, "German Prince-Practitioners: Aspects in the Development of Courtly Science, Technology, and Procedures in the Renaissance," *Technology and Culture* 22, No. 2 (1981): 253-274

- Pamela O. Long, "Trading Zones in Early Modern Europe", *Isis* 106, no: 4 (2016): 840-847.

Sessions 19 and 20: Cabinet of Curiosities 16th November

Essential Reading:

- Online exhibition of the Kunstkammer Wien, available:
<http://www.khm.at/en/visit/collections/kunstkammer-wien/selected-masterpieces/>
- Lorraine Daston, "Curiosity in early modern science," in *Word and Image*, 11:4 (1995): 391-404.

Further Reading:

Primary

- Nicolas Lemery, *Modern curiosities of art and nature: extracted out of the cabinets of the most eminent personages of the French Court*. London: Printed for Matthew Gilliflower and James Partridge, 1685, available: Staatsbibliothek zu Berlin, Elektronische Ressourcen.
- *A Catalogue of the Large and Justly Admired Museum of Curiosities, of James West, Esq.* London, 1773, available: Staatsbibliothek zu Berlin, Elektronische Ressourcen.

Secondary

- Glenn Adamson, "The Labor of Division: Cabinet-making and the Production of Knowledge", *Ways of Making and Knowing: The Material Culture of Empirical Knowledge*, ed. Pamela H. Smith et al. Bard Graduate Center/University of Michigan Press, 2016: 243-279.
- Sven Dupré, *Laboratories of Art: Alchemy and Art Technology from Antiquity to the 18th Century*. New York: Springer, 2014.
- Elizabeth Yale, "Making Lists: Social and Material Technologies in the Making of Seventeenth Century British Natural History", *Ways of Making and Knowing: The Material Culture of Empirical Knowledge*, ed. Pamela H. Smith et al. Bard Graduate Center/University of Michigan Press, 2016: 281-301.
- Peter N. Miller, *Cultural Histories of the Material World*. Ann Arbor: University of Michigan Press, 2013.

Sessions 21-22-23-24: One-Day Field Trip to the Museum Complex in Dresden 23rd (24th) November

Essential Reading:

Dresden State Art Collections Online:

- The Mathematisch-Physikalischer Salon:
<http://www.skd.museum/en/museums-institutions/zwinger-with-semperbau/mathematisch-physikalischer-salon/index.html>
- The Grünes Gewölbe:
<http://www.skd.museum/en/museums-institutions/residenzschloss/gruenes-gewoelbe/index.html>
- Dresden Rüstkammer:
<http://www.skd.museum/en/museums-institutions/residenzschloss/ruestkammer/index.html>
- The Münzkabinett:

<http://www.skd.museum/en/museums-institutions/residenzschloss/muenzkabinett/index.html>

- Sven Dupré and Michael Korey, “Inside the Kunstkammer: The Circulation of Optical Knowledge and Instruments at the Dresden Court”, *Studies in History and Philosophy of Science Part A*, 40 (4-2009): 405-420.
- Mary M. Brooks, “Decay, Conservation, and the Making of Meaning through Museum Objects”, *Ways of Making and Knowing: The Material Culture of Empirical Knowledge*, ed. Pamela H. Smith et al. Bard Graduate Center/University of Michigan Press, 2016: 377-404.

Further Reading:

- Dresden Kupferstich-Kabinett:
<http://www.skd.museum/en/museums-institutions/residenzschloss/kupferstich-kabinett/index.html>
- Dresden Porzellansammlung:
<http://www.skd.museum/en/museums-institutions/zwinger-with-semperbau/porzellansammlung/index.html>
- *Princely Splendor: Dresden Court 1580-1620*, ed. Dirk Syndram. New York: Metropolitan Museum of Art - Dresden: Staatliche Kunstsammlungen, 2004.
- *Die Inventare der kurfürstlich-sächsischen Kunstkammer in Dresden*, ed. Dirk Syndram and Martina Minning. Staatliche Kunstsammlungen Dresden, 2012. Essays in German, available: http://verlag.sandstein.de/reader/422-00_InventareEssays/

Sessions 25-26: Library Visit to the Max Planck Institute for the History of Science 30th November

Essential Reading:

- Jürgen Renn, “From the History of Science to the History of Knowledge – and Back”, *Centaurus*, Volume 57, Issue 1 (February 2015): 37–53.
- Malcolm Baker, “Making and Knowing, Then and Now”, *Ways of Making and Knowing: The Material Culture of Empirical Knowledge*, ed. Pamela H. Smith et al. Bard Graduate Center/University of Michigan Press, 2016: 377-404.

Further Reading:

Secondary

- *The Mindful Hand: Inquiry and Invention from the Late Renaissance to Early Industrialization*, ed. Lissa Roberts, Simon Schaffer, Peter Dear. Edita-the Publishing House of the Royal, 2007.
- *The Structures of Practical Knowledge*, ed. by Matteo Valleriani. Springer, 2016.
- *Expertise: Practical Knowledge and the Early Modern State*, ed. by Eric H. Ash, Chicago, UCP, 2010.

Sessions 27-28: Revisiting the Early Modern Practical Knowledge: Final Discussion 14th December

There is no assigned reading for this class, but students should review one or two primary sources they have encountered, which they feel are significant for understanding practical knowledge in the

early modern world. All students are encouraged to prepare questions and feedback concerning the course material, and we will also receive and discuss feedback for their final essays.