HIST G8906: **Craft and Science: Making Objects in the Early Modern World**
Spring 2017
Monday 10:10am-2:10pm
Chandler 260

Co-Instructors:
Prof. Pamela Smith
Office: Fayerweather 605

Dr. Donna Bilak
Office: Heyman Center B206

Dr. Joel Klein
Office: Heyman Center B206

Dr. Tianna Uchacz
Office: Heyman Center B206

This course studies the materials, techniques, settings, and meanings of skilled craft and artistic practices in the early modern period (1350-1750), in order to reflect upon a series of issues, including craft knowledge and artisanal epistemology; the intersections between craft and science; and questions of historical methodology and evidence in the reconstruction of historical experience. The course will be run as a "Laboratory Seminar," with discussions of primary and secondary materials, as well as hands-on work in a laboratory. This course is one component of the Making and Knowing Project of the Center for Science and Society. Thus, in its first years, this course contributes to the collective production of a transcription, English translation, and critical edition of a late sixteenth-century manuscript in French, Ms. Fr. 640.

Making and Knowing on Twitter: You can follow the project on Twitter @makingknowing and tweet any photos from the laboratory (which we can then re-tweet).

Students are encouraged to take this course both semesters (or more), but can receive full credit only once. Different laboratory work and readings will be carried out each semester.

A course prerequisite is to complete laboratory safety training. No registration is required for safety training; you may simply show up and attend. Your attendance will be recorded and stored electronically in the RASCAL system, where you will be able to print a training certificate as proof of training.

Course Organization

This course will be conducted by discussion of readings and hands-on work in the laboratory. Readings will include primary sources and literature drawn from material culture studies, anthropology, history of science and technology, and art history, as well as an introduction to historical reconstruction and to BnF Ms. Fr. 640. Students will contribute to the research on Ms. Fr. 640 by finding and comparing contemporaneous primary sources and discussing their value for a better understanding of the recipes and methods described in Ms. Fr. 640. At the same time, a series of introductory lab sessions on making and materials will be conducted. The course will then turn to the reconstruction of the techniques in Ms. Fr. 640. Using a French transcription and

English translation, the laboratory portion of the course will focus each year on a single set of related techniques described in the manuscript. In 2014-15, the focus was on mold making and metalworking, including sand and plaster casting. In 2015-16, the focus was on color making, including dye and paint pigments, coloring woods and metals, varnishes, and artificial gem making. In 2016-17, we will examine a variety of contexts for the manuscript, including the regional history of Toulouse, elite collecting in the 16th century, and descriptions and recipes that have to do with "practical natural history" (such as catching and feeding of animals, silkworm cultivation, "anatomy," taxidermy, and organic dyes made from plants), "practical perspective and optics" (including perspective construction for painters, experiments with mirrors, and observations about the production of visual effects by the application of varnishes, glass, and other materials), and medical recipes, as well as revisiting some of the recipes from previous years, for example, possible research will focus on *azur d'esmail*, ruby glass, drawing, life casting, tool making, and bread molding.

Work in the laboratory each semester will include visits by expert makers, who will participate in the seminar and lead demonstrations and experiments in the lab. These experts will come from conservation, studio art, or craft, and will have expertise in areas relevant to the manuscript.

On May 23-25, 2017 (Tuesday-Thursday), an international meeting of scholars and expert practitioners (Working Group Meeting) will be held at Columbia in order to review the progress made on the project. Students from both semesters will be expected to present at this meeting.

Assignments and Evaluation

Discussion

All students are expected to come prepared for discussion. **Discussion participation accounts for about 10% of the total grade.**

Hands-on Assignments

Students will keep field notes (in written, visual, or podcast form) on their experiences and experiments in the Class Wiki, documenting their experiments in reconstruction, as well as their methodological reflections on the uses of hands-on work and reconstruction as historical sources. They will upload their photos to the Flickr photo repository.

Open lab times will be announced throughout the semester, but will generally be held afternoons after class. On average, students should expect to spend at least two additional hours in the lab per week. **The laboratory component of the course will be worth 30% of the grade.**

Written assignments

Students will contribute to the decipherment of the text of Ms. Fr. 640, and they will contribute annotations to the translation and critical edition of the manuscript. They will assist in maintaining and contributing to the course Wiki and Field Notes, and they will make every effort to take part in the final Working Group Meeting to be held in May 23-25.

Working in groups, students will contribute two short annotation essays (750-3000 words) to the critical edition, similar to a catalog entry for an exhibition. These essays will make use of a whole range of visual and textual sources, and will integrate the students' laboratory experiences into a written or visual presentation that makes an argument about what research (both textual

and material) into the recipe revealed about process, materials, sixteenth-century culture and society, or the identity of the author. One of the most important components of this assignment is the research students undertake on the relationship of recipes in Ms. Fr. 640 to other earlier and contemporaneous recipe collections. Previous year's annotations give students a good idea of our expectations for this assignment. Because the annotations will be published in 2019 as part of the edition's critical commentary, they must be in publication-ready shape by the final due date. This is achieved by means of a series of annotation workshops towards the end of the semester. **The annotation assignment comprises 60% of the grade.**

Student research essays resulting from this semester are contained in *Secrets of Craft and Nature in Renaissance France. A Digital Critical Edition and English Translation of BnF Ms. Fr. 640*.

- Acid as Dental Cleanser and Tooth-Whitening Practices
- Collecting Cures in an Artisanal Manuscript: Practical Therapeutics and Disease in Ms. Fr. 640
- Distillation in Ms. Fr. 640
- An Excellent Salve for Burns
- Gout or Gonorrhea? The Riddle of G.
- Making and Using Fish Glue
- The Reconstruction of a Medicinal Plaster
- Silkworms and the Work of Algiers

Reading

The following course books (only those marked **Required**, i.e., only 3 of the books listed below) are available at Book Culture (112th between Broadway and Amsterdam).

These provide an introduction to collecting and objects:

- ➔ **Required**: Samuel Quiccheberg, *The First Treatise on Museums. Samuel Quiccheberg's* Inscriptiones *1565*, trans. Mark A. Meadow and Bruce Robertson (Getty Research Institute, 2013)
- ➔ Lorraine Daston and Katharine Park, *Wonders and the Order of Nature* (Zone, 1998)
- ➔ Horst Bredekamp, *The Lure of Antiquity and the Cult of the Machine* (1995)

These provide an introduction to the likely locale of Ms. Fr. 640's compilation:

- ➔ Robert Schneider, *Public Life in Toulouse* (Cornell, 1989).
- ➔ William Beik, *A Social and Cultural History of Early Modern France* (Cambridge, 2009)

These provide an introduction to the history of the relationship between craft and science:

- ➔ **Required:** Pamela O. Long, *Artisan Practitioners and the Rise of the New Sciences, 1400-1600* (Oregon State UP, 2011)
- ➔ Pamela H. Smith, *The Body of the Artisan: Art and Experience in the Scientific Revolution* (Chicago and London: The University of Chicago Press, 2005)

These are useful as comparison artist/artisan writings:

- ➔ **Required:** Cennino Cennini, *The Craftsman's Handbook, 'Il Libro dell'Arte'*, trans. by Daniel Thompson (New York: Dover, 1960)
- ➔ Theophilus, *The Various Arts. De Diversis Artibus*, ed. and trans. Hawthorne (Dover, 1980)

- ➔ Benvenuto Cellini, *Two Treatises*, trans. C. R. Ashbee (repr. 2006)
- ➔ Mary P. Merrifield, *Medieval and Renaissance Treatises on the Arts of Painting: Original Texts with English Translations* (Courier Dover Publications, 2012)
- ➔ Giorgio Vasari, *The Lives of the Artists* (Paperback), Translators: Julia Conway Bondanella, Peter Bondanella (Oxford University Press, USA, 2008)
- ➔ Giorgio Vasari, *On Technique* (Dover, 1960)
- ➔ Karel van Mander, *The Lives of the illustrious Netherlandish and German painters, from the first edition of the Schilder-boeck* (Doornspijk: Davaco, 1994–1999)

Other works relevant to this course:

- ➔ Tim Ingold, *The Perception of the Environment: Essays in Livelihood, Dwelling and Skill* (London and New York: Routledge, 2000)
- ➔ Robert Tarule, *The Artisan of Ipswich: Craftsmanship and Community in Colonial New England* (Johns Hopkins University Press, 2004)
- ➔ Pamela H. Smith, Amy R. W. Meyers, and Harold J. Cook (eds.), *Ways of Making and Knowing* (University of Michigan Press, 2014)
- ➔ Christy Anderson, Anne Dunlop, and Pamela H. Smith, *The Matter of Art: Materials, Practices, and Cultural Logics, c. 1250-1800.*

As you do your weekly readings, please make use of the "Discussion Questions" documents. It is meant to be a place where everyone can raise and puzzle through some of the issues in the readings; we use these documents to guide and supplement class discussions. Please add any points you want to raise beneath the relevant readings, or add more general points in the section at the top. Feel free to make this a discussion space: comment or expand on the points of your colleagues.

Class Schedule

Below you will find what to prepare for class in **the week before** the class meeting, and what to expect on **the day of** class. Please be sure to ask in advance if anything is not clear!

Week 1: ART, CRAFT, AND SCIENCE

In preparation for January 23:

To watch:

- ➔ Watch the introduction to the manuscript and the project (ca 1 hour)
- ➔ Watch "Lions, Dragons, and other Beasts" (ca. 1 hour)
- ➔ Watch Ian Hankey, *Working with Venetian style glass* (ca. 25 mins)

To read:

REQUIRED

- ➔ Read the 2014 NSF grant description about the Making and Knowing Project, and the shorter 2017 Making and Knowing Project Description [Both in Student Readings Folder]
- ➔ Pamela H. Smith, "In the Workshop of History: Making, Writing, and Meaning," *West 86th: A Journal of Decorative Arts, Design History, and Material Culture*, vol. 19 (2012): 4-31.
- ➔ 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*, special issue on Art and Technology (2016) (research included in this article was carried out by the Making and Knowing Team; students from the 2014-15 Columbia University course,

Hist G8906: Craft and Science: Making Objects in the Early Modern World; students in the University of Amsterdam M.A. in conservation and restoration of cultural heritage, metals specialization course; and students from the V&A/RCA PhD in History of Design).

➔ Donna Bilak, Jenny Boulboullé, Joel Klein, and Pamela H. Smith, "The Making and Knowing Project - Reflections, Methods, and New Directions," in *New Directions in Making and Knowing*, a special issue guest edited by Smith of *West 86th: A Journal of Decorative Arts, Design History, and Material Culture*, *23.1* (2016): 35-55.

RECOMMENDED

➔ Pamela H. Smith and Tonny Beentjes, "Nature and Art, Making and Knowing: Reconstructing Sixteenth-Century Life Casting Techniques," *Renaissance Quarterly*, 63 (2010): 28-179.

➔ If you are new to the history of science, you should read Pamela H. Smith, "Science in Motion: Recent Trends in the History of Early Modern Science," *Renaissance Quarterly,* 62 (2009): 345–375.

To do:

➔ Please fill out the Google Drive Access Form, after which you will receive an invitation to GD with instructions.

➔ Browse the manuscript

➔ Browse (or read!) the pdfs of both:

- The diplomatic (i.e., verbatim) transcription
- The English translation

➔ Explore the general compilation of online sources for researching the manuscript

➔ Join the Wiki

What to expect in class on Monday, January 23:
Bring your laptop or tablet to class!

- 10:10-10:35 Introductions all around. The course in brief, expectations, skills, and your contribution to the project. Come with questions!
- 10:35-11:30 - Lecture on the Making and Knowing Project by P. Smith.
- 11:30-12:15: Navigating and reading BnF Ms. Fr. 640.
- 12:15-12:40: Break
- 12:40-1:15: Discussion of Home Culinary Reconstruction Assignment (division into groups). **Due Monday, January 30 in class**. And any further questions.
- 1:15-2pm: **Safety training** (Kathy Somers) and introduction to MSDS (search for "verdigris," copper, vinegar on Chemwatch (must be connected to Columbia Network)
- Use this information for making/growing verdigris. Be sure to take home your copper, a jar, string/twine. Start your verdigris growing immediately. Bring the result to class (the copper and growths in a ziplock bag) in Week 3 of the class. **Due February 6 in class.**
- Review Lab Procedure Reminders

Week 2. January 30. RECONSTRUCTION

This week we consider the problems raised by reconstructing past processes in the attempt to answer historical questions.

Skill building: Historical Culinary Recipe Reconstruction

Assignment in preparation for January 30:
You will want to start on the Historical Culinary Recipe Reconstruction (HCR) right away, by reading the assignment carefully, exploring and using the websites listed on the HCR assignment sheet to search for comparable recipes in contemporaneous sources, and doing the following reading **BEFORE** starting your reconstruction:

Required Reading and Watching:

- ➔ Ken Albala, "Cooking as Research Methodology: Experiments in Renaissance Cuisine," *Renaissance Food from Rabelais to Shakespeare: Culinary Readings and Culinary Histories,* ed. Joan Fitzpatrick (Aldershot, UK: Ashgate, 2010), pp. 73–88.]
  See also Ken Albala's blog on: http://kenalbala.blogspot.nl/
- ➔ Ad Stijnman, "Style and technique are inseparable: art technological sources and reconstructions," *Art of the Past. Sources and Reconstructions. The proceedings of the First Symposium of the Art Technological Source Research Study Group*, ed. by Mark Clarke, Joyce H. Townsend, and Ad Stijnman (Amsterdam: Archetype, 2005): 1-8.
- ➔ Francisco Alonso-Almeida, "Genre conventions in English recipes, 1600-1800," *Reading and Writing Recipe Books, 1550-1800*, Michelle DiMeo and Sara Pennell (Manchester: Manchester University Press, 2013), pp. 68-90.
- ➔ Syrup of Violets and Science: http://youtu.be/pdEbMBe0aa8
- ➔ Read over the HCR resource guide and the CU Library Tool compiled by Meredith Levin specially for this course.

For an example of an exemplary reconstruction experiment, see:

- ➔ Maartje Stols-Witlox, "Sizing layers for oil paintings…," *Proceedings of the Second ATSR Symposium* (2008), pp. 148-163.

January 30, in class:

- Bring the material results of your HCR. We will consume them, if safe!
- 10:10-11:30 - Student presentations (and consumption of the results), reconstruction template discussion
- 11:30-12:15 - Introduction to field/lab notes with Dr. Joseph Ulichny, Chemistry, and Dr. Brian Boyd, Anthropology. Introduction to Ian Beilin, Subject Specialist, CU Libraries.
- 12:30-1:55 - Wiki practice and profiles; upload photos to Flickr; link to Wiki, upload ppt to Wiki as field notes for HCR exercise, etc.
- 1:55-2:00 - distribution of the sourdough starter. Start baking bread; bread molds due **Week 5, February 20**, in class. **Start making bread in preparation for Feb 20:** Bread Molding assignment
- Divide up readings for next week among groups.

WEEK 3. February 6. MS. FR. 640 IN CONTEXT - COLLECTING

This week, we'll discuss one facet of the intellectual and social context of Ms. Fr. 640: **collecting**.

Skillbuilding: verdigris preparation and painting out. **Bring your verdigris to class! When carrying, separate the vinegar from the copper (use a ziplock bag).**

Start learning to make bread in preparation for Feb 20: Bread Molding assignment

In preparation for February 6:
Required Reading:
Everyone reads:

- ➔ Samuel Quiccheberg, *The First Treatise on Museums. Samuel Quiccheberg's* Inscriptiones *1565*, trans. Mark A. Meadow and Bruce Robertson (Getty Research Institute, 2013).

Group readings

- ➔ Neil Kenny, *The Palace of Secrets: Béroalde de Verville and Renaissance conceptions of knowledge* (Oxford: Clarendon, 1991), pp. 1-136, 156-57, 208-251.
- ➔ Neil Kenny, *The Uses of Curiosity in Early Modern France and Germany* (Oxford, 2004), ebook through Clio (Oxford Scholarship Online), Introduction: Ebook pdf version: pp. 1-30, Part 3: Ebook pdf version: pp. 1-33, 46-51, 62-79, 132-39.
- ➔ Martin Kemp, "'Wrought by No Artist's Hand': The Natural, the Artificial, the Exotic, and the Scientific in Some Artifacts from the Renaissance," *Reframing the Renaissance: Visual Culture in Europe and Latin America 1450–1650*, ed. Claire Farago (New Haven and London: Yale University Press, 1995), 177–96.
- ➔ Paula Findlen, "Anatomy Theaters, Botanical Gardens, and Natural History Collections," ch. 12 *The Cambridge History of Science*, eds. Katharine Park, Lorraine Daston, pp. 272-289. Log into Clio and find the chapter here. Browse other chapters in this immensely useful reference work.
- ➔ Kathryn Kremnitzer and Siddhartha Shah, Imitation Gemstones, Ruby, Emerald, Annotation, Fall 2015.
- ➔ Alexandra Chessa, "Imitation Coral," Annotation, Spring 2015.
- ➔ Isabella Lores Chavez and Charles Kang, Imitating Raw Nature, Fall 2016.

Everyone: Search the pdf of the entire text of Ms. Fr. 640. Can you identify any curiosities or wonders in Fr. 640? How does the author-practitioner use "curious" (*curieuse* and *curieusement*)? Would the objects that Fr. 640's recipes aim to produce fit into Quiccheberg's amphitheater? How do wonder, curiosity, invention and ingenuity intersect? How does the concept of curiosity and wonder intersect with the recipes in Fr. 640?

On verdigris, Required Reading:

- ➔ look up "verdigris" in pigment resources, and in the pigment glossary
- ➔ the COLOUR ConTEXTdatabase
- ➔ Technical Art History Website, University of Delaware
- ➔ CAMEO: Conservation & Art Materials Encyclopedia Online (explore, and check "Materials database")
- ➔ Cologne database of recipes
  - ◆ General landing page
  - ◆ Also see instructions here (in GD): Doris Oltrogge, "The Cologne database for painting materials and reconstructions," *Art of the Past. Sources and Reconstructions. The proceedings of the First Symposium of the Art Technological Source Research Study Group*, ed. by Mark Clarke, Joyce H. Townsend, and Ad Stijnman (Amsterdam: Archetype, 2005): 9-15.

Optional Reading:

- ➔ Pamela H. Smith, "Collecting Nature and Art: Artisans and Knowledge in the *Kunstkammer,"* in *Engaging With Nature: Essays on the Natural World in Medieval and Early Modern Europe*, ed. Barbara Hannawalt and Lisa Kiser (University of Notre Dame Press, 2008), 115-136.

- ➔ Lorraine Daston and Katharine Park, *Wonders and the Order of Nature* (Zone, 1998), chs. 1, 2, & 4. Ebook available on Clio.
- ➔ Horst Bredekamp, *The Lure of Antiquity and the Cult of the Machine* (1995), chs. "The Historical Chain" and "The Playfulness of Natural History," 11–36, 63–80.

February 6, in class:

- 10:10-12:15 - Discussion of readings with Dr. Nathan Flis, Yale Center for British Art
- 12:15-12:30 - Break
- 12:35-2:00 - Verdigris painting out. Record your work in field notes in the Wiki.

WEEK 4. February 13. RECIPES AND SKILL

Meet at the Rare Book & Manuscript Library in Butler

This week we'll consider what a "recipe" is, and how Ms. Fr. 640 resembles other books of practice and recipe collections. Michelle DiMeo will visit the course to talk about recipes.

Preparation for February 13:

Search Ms. Fr. 640 for the word "recepte."

In the next two weeks, go to see the Met Museum exhibition "Picturing Math: Selections from the Department of Drawings and Prints." Try to attend the Gallery talk by the curators on February 23, 11am-12pm.

Required Reading:

- ➔ Elaine Leong, "Making Medicines in the Early Modern Household," *Bulletin of the History of Medicine* 82(1) (2008): 145-168
- ➔ Sara Pennell "Perfecting Practice? Women, Manuscript Recipes and Knowledge in Early Modern England," ed. by Victoria E. Burke and Jonathan Gibson, *Early Modern Women's Manuscript Writing: Selected Papers from the Trinity/Trent Colloquium* (Aldershot: Ashgate, 2008)
- ➔ William Eamon and Françoise Paheau, "The Accademia Segreta of Girolamo Ruscelli: A Sixteenth-Century Italian Scientific Society," *Isis* 75, no.2 (1984): 327-42.
- ➔ Skim entire Cennino Cennini, *The Craftsman's Handbook, Il Libro dell'Arte'*, trans. by Daniel Thompson (New York: Dover, 1960)
- ➔ Compare structure of Cennini to that of Vasari on Technique - ebook here. In the section "On Painting," read chapters I–IX, XVII, XIX, and XXI
- ➔ Jaap Bolten, *Method and practice: Dutch and Flemish drawing books, 1600-1750*, Landau: PVA, 1985, p. 159–203
- ➔ Wenrui Zhao, "Apprenticeship of the Painter," Spring 2016.
- ➔ Ray Carlson and Jordan Katz, "Casting in a Box Mold," Annotation Fall 2014

Optional Reading:

- ➔ Vasari, *Lives of the Artists* (Paperback), Translators: Julia Conway Bondanella, Peter Bondanella (Oxford University Press, USA, 2008), esp. lives of Anonello da Messina, Jacopo della Quercia, Luca della Robbia, Leonardo da Vinci (accessible as PDF here)
- ➔ Van Mander, *Lives of the illustrious Netherlandish and German painters*, (Doornspijk: Davaco, 1994–1999), esp. Hans Vredeman de Vries, p. 318–26; Hendrik Goltzius, p. 385–406; Jacques de Gheyn, p. 433–38

- ➔ Van Mander, *The Foundation of the Noble, Free Art of Painting*, esp. Chapters I & II (full text accessible here)
- ➔ William Eamon, "How to Read a Book of Secrets," ch. 1, *Secrets and Knowledge in Medicine and Science, 1500-1800*, ed. by Elaine Leong and Alisha Rankin (Ashgate, 2011): 23-46 (in the GD under "Leong and Rankin...")
- ➔ Pamela Smith, "What is a Secret? Secrets and Craft Knowledge in Early Modern Europe," *Secrets and Knowledge in Medicine and Science, 1500-1800*, ed. by Elaine Leong and Alisha Rankin (Ashgate, 2011): 47-66. (in GD as "Leong and Rankin...").
- ➔ Arie Wallert et al., "Still-Life Sources," ch. 2.

We shall examine several recipe books in the Rare Book room in Butler library. In preparation for this class, check out the CU Library Tool (available on the wiki) that Meredith Levin,Western European Humanities Librarian put together for us on recipes. Her colleague, Ian Beilin, will be present at the session and can answer questions.

- ➔ Alessio Piemontese, *Book of Secrets* (1555); various English versions on EEBO; French versions on Gallica; BEFORE 1600. (For English: Search for Ruscelli, Girolamo, *The secretes of the reuerende Maister Alexis of Piemount Containyng excellent remedies against diuers diseases, woundes, and other accidents, with the manner to make distillations, parfumes, confitures, diynges, colours, fusions and meltynges. ... Translated out of Frenche into Englishe, by Wyllyam Warde* (1558).
- ➔ Hugh Platt, *The Jewell House of Art and Nature: Containing divers rare and profitable Inventions, together with sundry new experimentes in the Art of Husbandry, Distillation, and Molding* (London, 1594).

we'll also look at the following works at the RBML:

re: fol. 2r Polydori Virgilii Vrbinatis De rervm inventoribvs libri octc B913 V583 Vergil, Polydore, 1470?-1555 Romae : Ex officina Bartholomaei Grassi, 1585. re: 170v_a3 B580 D661 Dodoens, Rembert, 1517-1585 Remberti Dodoæni ... Stirpivm historiæ pemptades sex, sive libri XXX Antverpiæ, Ex officina C. Plantini, 1583. SELIGMAN 1603F Se68 *Serres, Olivier de, 1539-1619.* Le theatre d'agriculture et mesnage des champs / d'Oliuier de Serres, seigneur du Pradel. Seconde ed. / reueuë et augmentee par l'auteur. (A Paris : Ches Abr. Saugrain ..., 1603.)	re: fol. 35v_1 R126.D7 M42 1563g Mattioli, Pietro Andrea, 1501-1577 Petri Andreæ Matthioli Senensis ... Commentarii denuo aucti in libros sex Pedacii Dioscoridis Anazarbei De medica materia Lugduni : Apud Gabrielem Coterium, 1563 SELIGMAN 1554F Es86 Estienne, Charles, 1504-approximately 1564. Praedium rusticum (Lutetiae, : Apud Carolum Stephanum typographu[m] regium., 1554..) Rodler, Hieronymus, *Eyn schön nützlich Büchlin vnd Vnderweisung der Kunst des Messens*, (Siemeren, 1531) B742 R61 Cousin, Jehan, *La vraye science de la povrtraictvre descrite et demonstree par maistre Iean Covsin*, (Paris: Gvillavme le Bé, 1647) B743 C83

	French engineer Jacques Besson (1540-1576) - Cosmolabe ou Instrument universal (1567): https://clio.columbia.edu/catalog/6189937

In class on February 13:

- 10:10-11:30 - **Meet at the Rare Book & Manuscript Library in Butler,** 6th Fl. East**.** Jennifer Lee, Curator of Performing Arts, RBML
- 11:45: fire extinguisher training
- 12:15-2 - Dr. Michelle DiMeo delivers a lecture and leads a discussion on recipes.

Week 5. February 20. MS. FR. 640 IN CONTEXT - PLACE AND TIME

This week we will continue our exploration of the context of Ms. Fr. 640, learning more about the region of its probable compilation.

Skillbuilding: Bread molding

Reminder: In the next two weeks, go to see the Met Museum exhibition "Picturing Math: Selections from the Department of Drawings and Prints." Try to attend the Gallery talk by the curators on February 23, 11am-12pm.

In preparation for February 20:

Read the Bread Molding Assignment. Find the recipes for molding in bread in Ms. Fr. 640, and, making use of the starter you were given the week before last, **perform a reconstruction** of this recipe. You will need to research the ingredients and process of making sixteenth-century bread, so keep detailed field notes and take copious pictures as you perform the reconstruction. Think about the aims of the bread-molding recipes, and the significance and properties of the quotidian material, bread, as you work. It may be helpful to you read previous students' field notes on this process.

- ➔ **Read:** Rozemarijn Landsman, Jonah Rowen, "Sulfur and Additives," Annotation, Fall 2014.
- ➔ Emma Le Pouésard, "Pain, Ostie, Rostie: Bread in Early Modern Europe," Annotation, Fall 2016.
- ➔ Emma Le Pouésard, "Bread as Mediating Material," Annotation, Fall 2016
- ➔ Bring your bread molds into class ready for casting in wax and sulfur. Be prepared to give an account of your experience in interpreting and reconstructing the Ms. Fr. 640 recipes.

Required Reading

EVERYONE READ:

- ➔ Robert Schneider, *Public Life in Toulouse* (Cornell, 1989), chs. 1-3, pp. 12-131
- ➔ William Beik, A Social and Cultural History of Early Modern France (Cambridge, 2009), Intro. & Chapters 1-11, pp. 1-341.
- ➔ Ray Carlson and Jordan Katz, "Molded Roses," Annotation Fall 2014.

GROUPS READINGS:

Information on regional context is also contained in the following annotations:

- ➔ Sofia Gans, "Knowledge Exchange in Ms. Fr. 640," Annotation Spring 2015.
- ➔ Giuliana Chiostrini, "Making Millas," Annotation Spring 2015.
- ➔ Ann Sophie Barwich, "Sleight of Hand Tricks," Annotation Spring 2016.
- ➔ Marianne Nuij, "Eau de Vie," Amsterdam Annotation Spring 2015.
- ➔ Giuliana Chiostrini and Jef Palframan, "Molding a Rose," Annotation Spring 2015.
- ➔ NICOLE & XIAOMENG: Sofia Gans, "Knowledge Exchange in Ms. Fr. 640," Annotation Spring 2015.
- ➔ ARIANE & HANNAH: Giuliana Chiostrini, "Making Millas," Annotation Spring 2015.
- ➔ JEN & SASHA: Ann Sophie Barwich, "Sleight of Hand Tricks," Annotation Spring 2016.
- ➔ CHRISTOPHER: Marianne Nuij, "Eau de Vie," Amsterdam Annotation Spring 2015.
- ➔ CASA: Giuliana Chiostrini and Jef Palframan, "Molding a Rose," Annotation Spring 2015.

February 20, in class:

- 10:10-11:30 - Discussion of the readings
- 11:30-12:15 - Lunch. Bread molding discussion. MSDS search for wax and sulfur. Discussion of safety protocol.
- Move to lab
- 12:30-2:00 - casting wax and sulfur into the bread molds

Week 6: PRACTICAL MATHEMATICS AND PERSPECTIVE

In preparation for February 27:

Reminder: See the Met Museum exhibition "Picturing Math: Selections from the Department of Drawings and Prints." Try to attend the Gallery talk by the curators on February 23, 11am-12pm. Also see "Practical Maths" online exhibit at Oxford Museum of HoS.

Required reading:

- ➔ Michael Baxandall, *The Limewood Sculptors of Renaissance Germany*, New Haven: Yale University Press, 1980, "Chiromancy" (p. 32–38); "The Period Eye" (p. 143–163)
- ➔ Pascal Brioist, "'Familiar Demonstrations in Geometry': French and Italian Engineers and Euclid in the Sixteenth Century," *History of Science* 47, no. 1 (2009) pp. 1–26
- ➔ Explore the images in Le gouvernail d'Ambroise Bachot (1598), discussed in the article by Brioist
- ➔ Look at this slide presentation about the geometric design principles underlying Gothic architecture: Bork, R. "The Geometry of Bourges Cathedral," *Architectural Histories* 2, no. 1 (2014): Article 24, Supplement 1, DOI: http://dx.doi.org/10.5334/ah.bz.s1
- ➔ Martin Kemp, *The Science of Art: Optical Themes in Western Art from Brunelleschi to Seurat*, New Haven: Yale University Press, 1990, p. 53–68.
- ➔ Christopher S. Wood, "The Perspective Treatise in Ruins: Lorenz Stoer, Geometria et perspectiva, 1567" *Studies in the History of Art, 59, Center for Advanced Study in the Visual Arts Symposium Papers XXXVI*, National Gallery of Art, Washington, New Haven, 2003.
- ➔ Look at the images in Dürer's 1525 *Unterweysung der Messung* (Instruction in measurement with compass and ruler)
- ➔ Look at the images in Dürer's 1532 *Vier Bücher von menschlicher Proportion* (Four books on human proportion)
- ➔ Look at the images in Jean Cousin's 1560 *Livre de perspective*
- ➔ Look at the images in Wenzel Jamnitzer's 1568 *Perspectiva corporum regularium*

➔ Ben Hiebert, “Spinet playing by itself,” Fall 2017.

Optional Readings

➔ Practical Maths: online exhibit at Oxford Museum of HoS
  - see the Museum’s other exhibits online

➔ James Elkins, *The Poetics of Perspective*, Ithaca: Cornell University Press, 1994, ch. 4

➔ Sybille Glutch, "The Craft’s Use of Geometry in 16th c. Germany: A Means of Social Advancement? Albrecht Dürer & After," *Anistoriton Journal*, Essays, Vol. 10, no 3 (2007) 1.

➔ Michael Mathias Prechtl, *Jamnitzer, Lencker, Stoer. Drei Nurnberger Konstruktivisten des 16. Jahrhunderts*, Austellung und Katalog, Albrecht Durer Gesellschaft M Nurnberg, 1969.

➔ Jeanne Peiffer, Projections embodied in technical drawings. Dürer and his followers, in Wolfgang Lefèvre, ed., *Picturing machines*, 1400-1700, Cambridge, Ma : The MIT Press, 2004, p. 245-275.

➔ Albrecht Dürer, Géométrie, Traduction et présentation de Jeanne Peiffer, collection "Sources du savoir" dirigée par Jean-Marc Lévy-Leblond et Thierry Marchaisse, éd. du Seuil, Paris 1995.

In class on February 27:

- 10:10-12:00 - Lecture/discussion led by Prof. Andrew Morrall, Bard Graduate Center on practical mathematics among sixteenth-century artists/artisans
- 12:00-12:15 - Break
- 12:15-1:00 - Discuss possible annotations.
- 1:00-2:00 - removing casts from breadmolds

please note: Next week, we will discuss your proposed annotations, so please start thinking about annotation ideas. Begin thinking about the historical question your annotation will answer, begin compiling a materials list for experiments, and start developing a protocol for experimentation on your recipe(s). Begin to identify the recipes that your group will annotate in BnF Ms. Fr. 640.

Week 7: ANNOTATIONS

In preparation for March 6:

In preparation for this discussion please make a page in the Field Notes File on the Wiki entitled “Annotation Plans.” Eventually this page should include the following elements, but for class on Monday, please just do as much of the following list as possible (e.g., you will not be expected to have a safety protocol at this point)

1. Names your group of 2
2. Describes your annotation plans (2 annotations)
3. Lists the recipes from MS Fr. 640 (and any other source) that you have identified so far (include full recipes if practical)
4. Lays out a schematic plan for the historical, object-based, and hands-on research that will shed light on these recipes.
5. List of materials you expect to need (are they in the lab inventory? See the Materials and Sourcing Reminders) where you will source them, and safety considerations.
6. Eventually, before you start experiments, you will determine whether you need a safety protocol, and you will formulate one based on the Safety and Workflow template. Your document should describe your workflow, and what safety measures you will need to

take. Upload it into the folder labelled Safety - Workflow and Protocol. Your file in this folder should be linked to in your Wiki field notes.

In class, March 6:

- YALE INSTRUCTIONS; lab schedule; 30 minutes discussing last week's readings 10:10-10:45
- Short reports on prospective annotations 10:45-12:00
- 12-12:10 break
- Intro to using Artstor and online image resources 12:10-12:25
- Intro to writing your annotation in Google docs 12:25-1:00
- (back to the lab!) Prep for Madder Lake, and color change in materials 1:00-2:10
    - Begin annotation research

RED (Madder) LAKE MAKING:

- Sign up for two sessions in the lab schedule, preferably for two consecutive days. As possible, the first session should be 2 hours, and the second for 1 hour.
- We will be making lake pigment from madder, following the recipe and procedures from Kirby et. al *Natural Colorants for Dyeing and Lake Pigments*
- Lake - An organic pigment prepared by precipitation of a dye on a powdered, inorganic substrate
- Please see Lakes in Student Files, particularly:
    - *Natural Colorants* Chapter 5 - Recipes
    - *Natural Colorants* Chapter 3 - Chemistry (chemistry of the lake process)
    - Naomi's powerpoint of the procedure
- Assignment notes:
    - Recipe and procedure (and timing information)
    - Calculations (breakdown of materials needed, quantities)

Week 8. March 13. SPRING BREAK

Week 9. March 20. NATURAL HISTORY

Class visit to Yale Center for British Art, where Dr. Tyler Griffith will give us a tour of the exhibition "Enlightened Princesses: Caroline, Augusta, Charlotte, and the Shaping of the Modern World" which contains much information on early modern natural history. We shall also be given a tour of the "Traveling Scriptorium" by one of its authors, Dr. Marie-France Lemay, Conservator, Yale University Library

In preparation for March 20:

Required Reading

➔ Florike Egmond. "Apothecaries as experts and brokers in the sixteenth-century network of the naturalist Carolus Clusius," *History of Universities*, vol. 23.2 (OUP, 2008): 59-91.

➔ Sophie Pitman, "Black color for dyeing," Annotation Spring 2016.

➔ Emilie Foyer, Gold without Gold on Silver, Annotation Fall 2015.

➔ Sanne Berbers, "Trees and Turpentine," Amsterdam Annotation, Spring 2016.

➔ Hanneke Kramer, "Silk Cultivation," Amsterdam Annotation, Spring 2016.

➔ Claire Molgat Laurin, "Alun," Amsterdam Annotation, Spring 2016.

➔ Sepha Wouda, "Spike lavender," Amsterdam Annotation, Spring 2016.

- ➔ Marjolein Hupkes, “Essential Oils,”Amsterdam Annotation, Spring 2016.
- ➔ Caitlyn Sellar, “Keeping Dried Flowers in the Same Condition,” Fall 2017.

Primary sources in natural history/botany:
http://www.botanicus.org/browse
https://www.nps.gov/rowi/learn/historyculture/colonial-kitchen-garden.htm

March 20, in class:
[Schedule: ca. 7:30am train to New Haven, Union Station, arrive 9:27am, tour of exhibition until 1pm. Lunch on your own until 1:45. 2-3pm Traveling Scriptorium visit. Train home at 4:15]

Week 10. March 27. CIRCULATION OF MATERIALS IN THE EARLY MODERN WORLD
This week we will explore the circulation of natural materials as rare precious stuffs, medicines, and industrial ingredients in the early modern world. Prof. Marcy Norton will visit the class.

In preparation for March 27:
Required reading:
- ➔ Alessandra Russo, "Plumes of Sacrifice: Transformations in Sixteenth-Century Mexican Feather Art." *Res: Anthropology and Aesthetics* 42 (2002): 226-50.
- ➔ Marcy Norton, "Going to the Birds: Animals as Things and Beings in Early Modernity." *Early Modern Things: Objects and Their Histories, 1500-1800*. Ed. Paula Findlen. New York: Routledge, 2012. 53-83.
- ➔ Marcy Norton, "Subaltern Technologies and Early Modernity in the Atlantic World." 1-30.
- ➔ Pamela H. Smith, “Knowledge in Motion: Following Itineraries of Matter in the Early Modern World,” in Daniel Rogers, Bhavani Raman, Helmut Reimitz, eds., *Cultures in Motion* (Princeton: Princeton University Press, 2014), 109-33.
- ➔ Joslyn DeVinney, Smoke as Medicine, Annotation Fall 2017
- ➔ Robin Reich, Dragon’s Blood, Annotation Spring 2016.
- ➔ Clemens, Sulfuric Acid as a Writer’s Material, Spring 2016.

Optional Reading:
- ➔ Marcia Norton, “Tasting Empire: Chocolate and the European Internalization of Mesoamerican Aesthetics,” *The American Historical Review* (June, 2006): 111, 660 - 691
- ➔ John Henry, “Doctors and healers: popular culture and the medical profession,” *Science, culture and popular belief in Renaissance Europe*, ed. by Stephen Pumfrey, Paolo L. Rossi and Maurice Slawinksi, 1991, pp. 191-221.
- ➔ Michael Stolberg, "You Have No Good Blood in Your Body. Oral Communication in Sixteenth-Century Physicians' Medical Practice,” *Medical History 59.1* (Jan 2015): 63-82.
- ➔ Mary Lindemann, “Sickness and Health” and “Practice," *Medicine and Society in Early Modern Europe.* (Cambridge UP, 1999): 8-36 and 193-230**.**
- ➔ Read the medical recipes in Ms. Fr. 640 listed here.
- ➔ Cleo Nisse, Painting Skin and Shadows *a destrempe*, Annotation Spring 2016.
- ➔ Michael W. Cole, “Cellini’s Blood,” *The Art Bulletin* 81.2 (1999): 215–35.
- ➔ Ulinka Rublack, “Matter in the Material Renaissance,” *Past and Present, 219* (May 2013): 41-85.
- ➔ Karin Leonhard, "Pictura’s fertile field: Otto Marseus van Schrieck and the Genre of Sottobosco Painting,” *Simiolus. Netherlands Quarterly for the History of Art 34* (2 2009/2010)

In class on March 27:
MEET IN 513 FAYERWEATHER

- ➔ 10:10 - 11:30 Marcy Norton discusses the circulation and trade of materials in the early modern world.
- ➔ 11:30-12:25 - Reports on finalized annotation plans. Start your research and/or experiments
- ➔ 12:25-12:45 - break. Leave projector set out for Andrew Goldman
- ➔ 12:45-2:10 MOVE TO LAB - Colors: Painting out madder lake

Week 11: EMBODIED KNOWLEDGE
Meet in Chandler 260
Preparation for April 3:
Required Reading:

- ➔ Raymond Tallis, *The Hand: A Philosophical Inquiry into Human Being*, (Edinburgh: Edinburgh University Press, 2003), Ch. 1.
- ➔ Julian Thomas, "Phenomenology and Material Culture," in *Handbook of Material Culture*, ed. Christopher Tilley et al. (Sage 2006), 43-59.
- ➔ Ann-Sophie Lehmann, "Wedging, Throwing, Dipping and Dragging – How Motions, Tools and Materials Make Art," *Folded Stones*, eds. Barbara Baert and Trees de Mits (Institute for Practice-based Research in the Arts: Ghent 2009), pp. 41-60.

Optional Reading:

- ➔ Tim Ingold, *The Perception of the Environment: Essays in Livelihood, Dwelling and Skill*, (London and New York: Routledge, 2000), Ch. 18-19 (pp. 339-361).
- ➔ Erin O'Connor, "Embodied knowledge in glassblowing: the experience of meaning and the struggle towards proficiency," *Sociological Review* (2007): 126-141.

In class, April 3:

- Discussion of readings
- Work on annotation experiments

Week 12: CRAFT AND SCIENCE
Preparation for April 10:
*** First draft of annotations due this week on April 14**

Required Reading:

- ➔ Pamela O. Long, *Artisan Practitioners and the Rise of the New Sciences, 1400-1600* (Oregon State UP, 2011), Intro-ch. 2 (p. 1 - 62)
- ➔ Pamela H. Smith, *The Body of the Artisan: Art and Experience in the Scientific Revolution* (Chicago and London: The University of Chicago Press, 2005), chs. 1-3.

In class, April 10:

- Discussion of Readings
- Short guest lecture by Stiliana Savin on optics
- Discussion of Annotations
- Annotation Research in the lab

<u>April 14</u>: Annotation first drafts due today by midnight. All class members read all annotations in order to discuss them.

<u>Week 13: Annotation Workshop</u>
April 17: ALL STUDENTS READ ALL ANNOTATIONS AND COME WITH QUESTIONS AND SUGGESTIONS.

<u>Week 14: Lab Work (meet in Lab)</u>
April 24: Further lab and writing work on annotations.

April 28: Annotation second drafts due today by midnight. All class members read all annotations in order to discuss them.

<u>Week 15: Annotation Workshop</u>
May 1: All class members read all annotations and come with questions and suggestions. Further lab and writing work on annotations.

FINAL ANNOTATIONS DUE ON May 6 by midnight.

<u>May 23-25, 2017 - Working Group Meeting,</u> attendance required, if at all possible.

<u>Four questions to consider in working with objects and materials:</u>

1. **Materials**: What material(s) make up your object? What are that material's properties? Where was it sourced? What determined its quality? How is the material described today (scientific analysis, material safety description - MSDS sheet)? How was the material described in written sources of the time (e.g., "unctuous," composed of water and earth, etc)? In addition to "workability," properties might also include the availability of materials in certain locales (by virtue of natural morphology or of trading patterns). How was knowledge of materials transmitted and disseminated (orally, by group working conditions, in writing, by templates)?

2. **Technology**: What tools, instruments and techniques were used for the transformation of your material in different places at different moments? How did that technology move and change over time? What were the consequences of these changes?

3. **Performance**: How did a specific conjunction of materials and technologies give rise to certain practices of making? In what ways did they constrain makers or require know-how? How did makers work against these limits (for example by manipulating the materials to vary their properties)? What were the circumstances for the display of skill: did makers change their practices when working in different places or when being watched by particular audiences? What were regarded as the signs of virtuosity, and how did these vary at different places at different moments? What was the role of the individual maker as opposed to the collaborative team? How does an object generate a "personality" or "sensibility" for the person or workshop that produced it? How did new technologies change bodily experiences and gave rise to specific forms of practical expertise? How do embodied practices vary through time? Under which conditions might our bodily experience when reconstructing a pre-modern experiment be comparable to what practitioners have experienced in the past?

4. **The system of the arts**: What were the social structures that supported certain forms of production and consumption (e.g., associations such as guilds, workshops, manufactories)? How were practices of making limited by the law? Reshaped by ambition? What practices of making were interdependent? Which were siblings ("sister arts")? What was the relationship between making and status? How was the meaning of an object made manifest by its use, which could occur in rituals, through written treatises, or through daily use of the object?"

Two further issues to consider throughout:

Evidence: How do we know what a thing was made of and how it was made? What do texts tell us, what can we learn directly from objects or from present-day practices? How does one kind of evidence affect the way we understand another? What is the status as historical evidence of the emergent knowledge produced by reconstructions?

Historiography: How have historians treated these materials and their transformation? What kinds of narratives have historians constructed around and about materials and processes that give them meaning (whether bound up with professional and national narratives, with issues of identity or of rationality, or something else)? How have historians of science reflected on experimental reconstructions as a tool to recreate historical experience?