

Reading Artifacts: The Material Culture of Science

Course Meeting Time: 10A (Tues/Thurs 10:10am–12:00pm); occasional x-hour use (see below)
Room: Carson C214 (and collections on campus—see daily schedule below)



Mastodon molar, donated to Dartmouth in 1772, Hood Museum of Art, Dartmouth College.



Matthew Loft, compound microscope, 1730–47, CHSI, Harvard University.



Luke Jerram, *Coronavirus COVID-19*, glass sculpture, 2020.

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Office Hours: Tuesdays 2:30–4:30pm
or by appointment

Course Description

In addition to its written documents, the history of science can be understood through its physical artifacts: through microscopes and mastodon molars, maps and masks, armadillo shells, botanical drawings, dioramas, and even human remains. Focusing on European and American scientific inquiry and collecting, and especially the years before 1800, this course introduces students to the historical study of material culture.

Through learning about the varied types of tangible things involved in scientific study, as well as the many ways historical people and institutions have approached material artifacts, students will understand more broadly how objects and collections both reflect and shape a culture's knowledge systems, identities, and values. By encountering historical artifacts and historical ways of seeing objects, students will also learn how to incorporate objects as sources into their own research. Above all, in an era of technological saturation, they will learn to slow down and to look closely.

Questions we will ask in this course include:

The History of Collecting, Studying, and Using Scientific Objects

- ❖ How has the use of objects in scientific inquiry changed over time? How do the various categories of scientific artifacts—such as specimens, scientific instruments, and illustrations—differ from one another? How do objects create knowledge?
- ❖ What has been considered museum-worthy in the past, and why? What historical forces gave rise to early modern collections of scientific objects, such as curiosity cabinets, and then to modern public museums and scientific research collections? What roles did slavery and colonialism play in amassing these collections?
- ❖ Why do people collect, and why have they done so in different times and places? How have collections structured knowledge? Who decides which objects belong in a museum, and who decides how to classify and organize collections?
- ❖ Whose expertise are we considering when we study the history of science? How have seemingly “non-scientific” realms of expertise and labor contributed to the development of science? Does studying objects help us access those contributions?

Using Objects as Historians

- ❖ What does it mean to work with objects as historical things? How can they expand the toolkit of sources available to historians? How is studying three-dimensional objects different from studying two-dimensional written records? Do objects have agency?
- ❖ What tools can we use to understand mute objects, especially when we lack written documentation about them? How can we understand their material composition, structure, form, and potential functions and meanings for the historical people who made or used these objects? Can reenactment provide a window into the past, or is that window hopelessly dusty?

Through studying objects, you will learn practical skills and habits of mind that will aid you in your other courses, including developing research strategies, critically interpreting evidence, and composing persuasive arguments using both written and nonwritten sources. The course will also give you context for evaluating the historical underpinnings of contemporary debates about scientific expertise, museums, objects, repatriation, and monuments.

A Note on Course Format: Most of our Tuesday sessions will convene in our main classroom (Carson C214), where we will work through the historical content, readings, skills, and theory for each unit. Most of our Thursday sessions (and one Tuesday session, on May 23) will apply this knowledge through visits to view artifacts held in collections across campus. **Please check the syllabus or Canvas ahead of each meeting to see where we’ll be convening each day.**

Requirements and Assignments

Participation (15%): Active participation—based on careful reading of written sources and sustained observation of artifacts—is essential to your success in this course. The required readings listed in the schedule below should be completed before our Tuesday meetings. Please bring all readings to class, either in printed or digital form, so that we can reference them in our group discussions (and reach out to me if either of those options presents a financial or logistical challenge). Further (optional) readings for each unit are included on Canvas for additional context, especially for your final projects. If you have trouble speaking up in class, contact me at the beginning of term so we can brainstorm strategies for ways you can contribute. Please see below for this course’s attendance policy and how it affects your participation grade.

Reading Responses (15%): A short response to the weekly prompt must be posted to Canvas by 3:00 pm every Monday before we meet. See the “Discussions” tab on our course Canvas page.

Close Looking Exercise (25%): In this exercise, you will begin to familiarize yourself with the methods of material culture study and the art of close looking by observing an artifact on campus to which you have in-person access. See the “Assignments” tab on Canvas for complete instructions. Your writeup is **due as a Word document uploaded to Canvas by the beginning of class (10:10am) on Thursday, April 13.**

Final Project Proposal (5%): A proposal for your final project (see description below) is **due as a Word document uploaded to Canvas by the beginning of class (10:10am) on Thursday, April 27.** See the “Assignments” tab on Canvas for a full description of requirements. In addition, **you must bring a printed draft to our seminar on Tuesday, April 25.**

Final Project (40%): The final project lets you creatively engage with the historical themes of this course and the observational methods we have applied. All final projects will be based around a cornerstone scientific object and must draw from primary and secondary sources, including and extending beyond the readings on this syllabus. You will have the option to do one of the following:

- (1) Write an argument-driven historical research paper (12–15 pages) about a particular scientific artifact or one of the objects from Dartmouth’s lost 1810 museum. All papers should be informed by the methods of material culture analysis and close looking.
- (2) Design a digital exhibition that features a cornerstone object alongside a curated collection of other historical artifacts. Your submission should include individual object labels, labels with general context that together build a historical argument, and an unpublished curatorial statement describing your research and process to me.
- (3) Make a physical object, accompanied by a historically informed maker’s statement, that provides a new interpretation of a historical artifact and its historical context.
- (4) Have an idea for another format? Let’s talk!

History majors counting this course toward the pre-1800 or pre-modern requirement must choose a c. pre-1800 object for the final project. We will discuss the requirements for the project, and the method of submission given the varying file types and sizes, in one of our sessions. See Canvas for further details. The project is **due by 11:59pm on Wednesday, May 31.**

Grade Distribution

Participation (15%)
Reading Responses (15%)
Close Looking Exercise (25%)
Final Project Proposal (5%)
Final Project (40%)

Readings

Readings will be available as PDFs or links on Canvas.

One optional book, *Study, Measure, Experiment: Stories of Scientific Instruments at Dartmouth College*, is on 24-hour reserve at Baker-Berry Library:

https://search.library.dartmouth.edu/discovery/search?query=any,contains,HIST.63.02.01-SP22&tab=CourseReserves&search_scope=CourseReserves&vid=01DCL_INST:01DCL&offset=0

If you encounter financial challenges related to this class, please let me know.

Course Policies

Attendance: Attendance is part of your participation grade and essential for your success in this class. Sometimes emergencies, illness (see below), or other unexpected circumstances arise that make attendance that day impossible. If this is the case, please send me an email before class. Joining class late (after 10:10am) on a regular basis will negatively impact your participation grade for the term, as will missing any sessions in the absence of extenuating circumstances. While I do not take roll call, I take daily attendance. I also take detailed notes of your participation, presence, and punctuality after each of our meetings.

Illness: Please do not come to class if you are sick. Lecture slides will be posted on Canvas and you can grab notes from a friend. Please email me before class to let me know if you'll be absent for illness.

Technology: Phones should be turned off or silenced, and stored out of sight, during our meetings. Checking your phone in an obvious or distracting manner during class will negatively impact your participation grade. You can take notes on a laptop computer, but please turn off Wi-Fi. I will ask everyone to close their computers for certain focused activities, so please still bring a pencil and paper/notebook for notetaking. Each collection space we visit will have different guidelines for what can or can't be brought into the room (for instance, no food, drink, or pens are allowed in the Hood Museum's Bernstein Center for Object Study). Please bring a pencil (not a pen) to meetings held outside our regular classroom.

Email: You are welcome to email me at any time. I will do my best to respond within one business day.

Late Work: All students automatically receive one “flex day,” which can be used on one assignment in the course (the close looking exercise, final proposal, or final project). The flex day grants a 24-hour extension with no penalties. I simply ask that you send me a quick heads up to let me know when you’ll be using it. Once the flex day has been used, extensions will only be granted for medical or family emergencies, significant illness, or other acute circumstances and must be requested at least 24 hours in advance. Late submissions will be reduced by 1/3 of a letter grade per day after the deadline (i.e., a B+ assignment would become a B after the deadline has passed, and it would become a B- 24 hours + 1 minute after the deadline has passed, etc.).

Revisions: Students may revise an assignment (excluding the final project) and resubmit it, along with a revision memo, within one week of receiving my comments. Your grade will be calculated as follows: $.6(\text{original grade}) + .4(\text{re-write grade}) = \text{final grade}$.

Accommodations: Students requesting disability-related accommodations and services for this course are required to register with Student Accessibility Services (SAS; [Apply for Services webpage](#); student.accessibility.services@dartmouth.edu; 1-603-646-9900) and to request that an accommodation email be sent to me in advance of the need for an accommodation. Then, students should schedule a follow-up meeting with me to determine relevant details such as what role SAS or its [Testing Center](#) may play in accommodation implementation. This process works best for everyone when completed as early in the quarter as possible. If students have questions about whether they are eligible for accommodations or have concerns about the implementation of their accommodations, they should contact the SAS office. All inquiries and discussions will remain confidential.

Religious Observances: Some students may wish to take part in religious observances that occur during this academic term. If you have a religious observance that conflicts with your participation in the course, please meet with me as soon as possible, or before the end of the second week of the term at the latest, to discuss appropriate adjustments. Dartmouth has a deep commitment to support students’ religious observances and diverse faith practices.

Classroom Etiquette: While we can and should offer differing opinions and perspectives on the material, please always approach the instructor and your fellow classmates with respect, professionalism, good faith, curiosity, and kindness, and assume best intentions.

Copyright: Lectures and materials utilized in this course, including but not limited to in-person lectures, pre-recorded lectures and videocasts, session recordings, podcasts, visual presentations, assessments, and assignments, are protected by United States copyright laws and Dartmouth College policy. As the instructor of this course, I possess sole copyright ownership. You are permitted to take notes for personal use or to provide to a classmate also currently enrolled in this course. Under no other circumstances is distribution of recorded or written materials associated with this course permitted to any internet site or similar information-sharing platform, or to individuals beyond this course, without my express written consent. Violations may be subject to discipline by Dartmouth up to and including separation from Dartmouth, as well as any other civil or criminal penalties under applicable law. By enrolling in this course, you also affirm that you will not under any circumstance make a recording in any medium of any one-on-one meeting with the instructor or another member of the class or group of members of the class without obtaining the prior written consent of all those participating, and you understand that if

you violate this prohibition, you will be subject to discipline by Dartmouth up to and including separation from Dartmouth, as well as any other civil or criminal penalties under applicable law.

Academic Honesty: All work you submit for the course must be your own. For Dartmouth's Academic Honor Principle, see <https://students.dartmouth.edu/community-standards/policy/academic-honor-principle>. Moreover, you are expected to develop original work for this course; you may not submit material from another course to satisfy the requirements for this course. Students who violate Dartmouth College rules may receive a penalty grade, including but not limited to a failing grade on the assignment or in the course. Students should take care when writing their papers and completing assignments to properly document each and every outside source from which they have obtained information or ideas, and to avoid committing plagiarism as defined by the Dartmouth College Committee on Sources. For a helpful guide on sources and citations, please visit <https://writing-speech.dartmouth.edu/learning/materials/sources-and-citations-dartmouth>.

Other Resources

The [Academic Skills Center](#) supports a Tutor Clearinghouse and provides academic coaching and resources on learning strategies. In addition, [RWIT](#), housed within the Institute for Writing and Rhetoric, provides peer-to-peer tutoring and other writing assistance for undergraduates.

Mental Health and Wellness: The academic environment at Dartmouth is challenging, our terms are intensive, and classes are not the only demanding part of your life. There are a number of resources available to you on campus to support your wellness, including your undergraduate dean (<https://students.dartmouth.edu/undergraduate-deans/>), Counseling and Human Development (<https://students.dartmouth.edu/health-service/counseling/about>), and the Student Wellness Center (<https://students.dartmouth.edu/wellness-center/>). I encourage you to use these resources to take care of yourself throughout the term, and to come speak to me if you experience any difficulties.

Title IX: The Sexual Respect Website (<https://sexual-respect.dartmouth.edu>) at Dartmouth provides a wealth of information on your rights with regard to sexual respect and resources that are available to all in our community. Should you have any questions, please feel free to contact Dartmouth's Title IX Coordinator or the Deputy Title IX Coordinator for the Guarini School. Their contact information can be found at: <https://sexual-respect.dartmouth.edu>. Please bear in mind: while you are welcome to bring any issues to me, I am a "mandated reporter" under Title IX. This means that although I will be discreet, I am not considered a confidential resource and would have to report anything shared with me that might fall under the umbrella of Title IX.

Weekly Schedule

Week 1: Historical Methods and Material Culture

Tuesday, March 28

No Reading

Thursday, March 30

Laurel Thatcher Ulrich, “An Indian Basket,” in *The Age of Homespun: Objects and Stories in the Creation of an American Myth* (New York: Vintage Books, 2001), 42–74.

View the basket discussed by Ulrich here:

http://rihs.minisisinc.com/rihs/scripts/mwimain.dll/144/RIHS_M3/LINK/SISN+67875?SESSIONSEARCH

“Louis Agassiz as a Teacher,” ed. Lane Cooper (Ithaca, New York: The Comstock Publishing Co., 1917), 125–128.

Robin Kelsey, “Notes from the Field: Materiality,” *Art Bulletin* 95, no. 1 (2013): 21–23.

Week 2: Early Modern Collections

Tuesday, April 4

Daniela Bleichmar, “Seeing the World in a Room: Looking at Exotica in Early Modern Collections,” in *Collecting Across Cultures*, ed. Daniela Bleichmar and Peter Mancall (Philadelphia: University of Pennsylvania Press, 2011), 15–30.

Rachel Poliquin, “Wonder” in *The Breathless Zoo: Taxidermy and the Cultures of Longing* (University Park, PA: The Pennsylvania State University Press, 2012), 11–42.

Constance Classen, “Touch in the Museum,” in *The Book of Touch*, ed. Constance Classen (Oxford: Berg, 2005), 275–286.

Sam Kean, “Historians Exposes Early Scientists’ Debt to the Slave Trade,” *Science* (April 4, 2019), sciencemag.org/news/2019/04/historians-expose-early-scientists-debt-slave-trade.

Thursday, April 6

→**Note:** Thursday’s session will convene in Rauner Library’s Bryant Room with Jay Satterfield, who will lead us through related books and objects. Please meet in the lobby of Rauner Library.

Week 3: Scientific Instruments

Tuesday, April 11

→**Note:** We will spend part of our seminar speaking with Wendel Cox about how to conduct research in Dartmouth's libraries for the final project.

Liba Taub, "On Scientific Instruments," *Studies in History and Philosophy of Science* 40 (2009): 337–343.

Philip Ball, "On the Head of a Pin," in *Curiosity: How Science Became Interested in Everything* (Chicago: The University of Chicago Press, 2012), 287–320.

David Pantalony, Richard L. Kremer, and Francis J. Manasek, "The Cultural Attic," and "An American College Gets Instruments," in *Study, Measure, Experiment: Stories of Scientific Instruments at Dartmouth College* (Norwich, VT: Terra Nova Press, 2005), 203–235. [This book in its entirety is also on 24-hour reserve at Baker-Berry Library]

Thursday, April 13

→DUE: Close Looking Exercise (uploaded to Canvas by the beginning of class on April 13)

→**Note:** Thursday's session will convene at the Hood Museum's Bernstein Center for Object Study, where we will view scientific instruments with Beth Mattison. Please meet in the main atrium of the Hood Museum.

Week 4: Early American Science at Dartmouth and Beyond

Tuesday, April 18

1810 Dartmouth College Museum Catalogue [1920 typescript transcription].

Christine DeLucia, "Fugitive Collections in New England Indian Country: Indigenous Material Culture and Early American History Making at Ezra Stiles's Yale Museum," *William and Mary Quarterly* 75, no. 1 (2018): 109–150.

Craig Wilder, "'All Students & All Americans': The Colonial Roots of Racial Science," in *Ebony & Ivy: Race, Slavery, and the Troubled History of America's Universities* (New York: Bloomsbury Press, 2013), 193–195 and 198–199.

Jacquelynn Baas, "A History of the Dartmouth College Museum Collections," in *Treasures of the Hood Museum of Art, Dartmouth College* (New York: Hudson Hills Press in Association with the Hood Museum of Art, Dartmouth College, 1985), 9–20.

Thursday, April 20

→**Note:** This session will convene at the Hood Museum's Bernstein Center for Object Study with Amelia Kahl, where we will see representative objects from Dartmouth's early museum. Please meet in the main atrium of the Hood Museum.

Week 5: Early Modern Remote Learning

Tuesday, April 25

→**Note:** Please bring a printout of a draft of your final project proposal to Tuesday's session and be ready to share your plans. We will be discussing these in small groups and as part of our seminar.

Staffan Müller-Wille, "Linnaeus' Herbarium Cabinet: A Piece of Furniture and its Function," *Endeavour* 30, no. 2 (June 2006): 60–64.

Thursday, April 27

→DUE: Final Project Proposal (uploaded to Canvas by the beginning of class on April 27)

→**Note:** Thursday's session will convene in Rauner Library's Bryant Room with Jay Satterfield. Please meet in the lobby of Rauner.

Week 6: Craft, Reenactment, and Subaltern Science

Tuesday, May 2

Steven Shapin, "The Invisible Technician," *American Scientist* 77 (1989): 554–563.

Pamela H. Smith, "In the Workshop of History: Making, Writing, and Meaning," *West 86th* 19, no. 1 (Spring–Summer 2012): 4–31.

- See also the website of Pamela Smith's Making and Knowing Project at <https://edition640.makingandknowing.org>

Peter Heering, "The Enlightened Microscope: Re-enactment and Analysis of Projections with Eighteenth-Century Solar Microscopes," *British Journal for the History of Science* 41, no. 3 (September 2008), 345–367.

Caitlin Galante-DeAngelis Hopkins, "Object Lesson: Pompe Stevens, Enslaved Artisan," *Commonplace: The Journal of Early American Life* 13, no. 3 (Spring 2013), <http://commonplace.online/article/object-lesson-pompe-stevens/>

Thursday, May 4

→**Note:** Thursday's session will convene at the Book Arts Workshop with Sarah Smith. The workshop is located on the [ground floor \(basement\) of Baker Library](#), right around the corner from the Orozco murals (on the West side). Please note we will use the x-hour on **Friday of next week** to finish our projects.

Friday, May 5 (x-hour: 3:30–4:20pm)

→**Note:** Close looking sessions for your final project's cornerstone artifacts at the Hood Museum's Bernstein Center for Object Study and other locations. More details forthcoming.

Week 7: Specimania, Naming, and the Anxiety of Maintenance

Tuesday, May 9

María Eugenia Constantino and Antonio Lafuente, "The Hidden Logistics of Longinos's Novohispanic Cabinet," *Nuncius* 27, no. 2 (2012): 348–370.

Lorraine Daston, "Type Specimens and Scientific Memory," *Critical Inquiry* 31, no. 1 (Autumn 2004): 153–182.

J. Drew Lanham, "Forever Gone," *Orion*, Spring 2018,
<https://orionmagazine.org/article/forever-gone/>.

J. Drew Lanham, "9 Rules for the Woke Birdwatcher," *Orion*, Winter 2020,
<https://orionmagazine.org/article/9-rules-for-the-woke-birdwatcher/>.

Jessica Leigh Hester, "The Strange, Smelly Chores That Keep Natural History Museums Running," *Atlas Obscura* (May 12, 2020)
https://www.atlasobscura.com/articles/unusual-essential-workers-natural-history-museums?fbclid=IwAR0XPuSlk7laqfaRGURyk3cVQ1rOTibh_QCS0DysHy07icN6iCb1oo7AyyY.

Thursday, May 11

→**Note:** This session will convene in the collections of the Biology Department, where Craig Lane will show us biological specimens. Please meet in the first-floor lobby of the Life Science Center (78 College Street).

Friday, May 12 (x-hour: 3:30–4:20pm)

→**Note:** Friday's x-hour session will convene at the Book Arts Workshop again to finish our printing projects.

Week 8: Exhibitions and the Rise of the Modern Museum Landscape

Tuesday, May 16

Donna Haraway, "Teddy Bear Patriarchy: Taxidermy in the Garden of Eden, New York City, 1908–1936," *Social Text* 11 (Winter 1984–1985): 20–64.

Sadiah Qureshi, "Displaying Sara Baartman, the 'Hottentot Venus,'" *History of Science* 42, no. 2 (2004): 233–257.

Philip J. Deloria, "The New World of the Indigenous Museum," *Daedalus* 147, no. 2 (Spring 2018): 106–115.

Watch: American Museum of Natural History, "Behind the Updates to Old New York Diorama," November 10, 2018, <https://youtu.be/ndj59hGuSSY>.

Thursday, May 18

→**Note:** This session will convene at the Hood Museum, where Michael Hartman, Jonathan Little Cohen Associate Curator of American Art, will walk us through the exhibition *Historical Imaginary*. Please meet in the main atrium of the Hood Museum.

Week 9: Difficult Objects

Tuesday, May 23

→**Note:** Tuesday's session will convene at the Hood Museum's Bernstein Center for Object Study, where we will see examples of difficult objects with Amelia Kahl. Please meet in the main atrium of the Hood Museum and be prepared to discuss the readings.

Elaine Ayers, "Noble Rot," *Cabinet* 64 (2017): 71–75.

Marion Endt-Jones, "Coral Fishing and Pearl Diving: Curatorial Approaches to Doubt and Wonder," in *Wonder in Contemporary Artistic Practice*, ed. Christian Mieves and Irene Brown (New York and London: Routledge, 2017), 177–192.

Chip Colwell, "Introduction," in *Plundered Skulls and Stolen Spirits: Inside the Fight to Reclaim Native America's Culture* (Chicago: The University of Chicago Press, 2017), 1–12.

Anita Herle, "Museums and Shamans: A Cross-Cultural Collaboration," *Anthropology Today* 10, no. 1 (February 1994): 2–5.

Susan J. Boutwell, "Dartmouth to Replace Weather Vane Atop Baker Library Tower," *Dartmouth News* June 15, 2020, <https://news.dartmouth.edu/news/2020/06/dartmouth-replace-weather-vane-atop-baker-library-tower>.

Anemona Hartocollis, "Who Should Own Photos of Slaves? The Descendants, not Harvard, a Lawsuit Says," *The New York Times* (March 20, 2019), <https://www.nytimes.com/2019/03/20/us/slave-photographs-harvard.html>.

Thursday, May 25

→**Note:** This will be a peer-review session for your final projects. More details forthcoming.

Week 10: Toward the Present: Laboratories, Models, and the Material Culture of Covid-19

Tuesday, May 30

Minh-Ha T. Pham, "'How to Make a Mask': Quarantine Feminism and Global Supply Chains," *Feminist Studies* 46, no. 2 (2020): 316–326.

→**DUE: Final Project due by 11:59pm on Wednesday, May 31**