

Multimedia History of Science
History of Science 555 (Capstone)

Spring 2013

Prof. Lynn K. Nyhart

Meets: Tuesdays 1:20-3:15 pm in 332 Bradley Memorial Building.

This capstone seminar for majors in the history of science focuses on researching and writing history, not just reading what others have written about it. The main requirement will be to prepare and write a 15-20-page research paper using primary sources. The theme for Spring 2013 is science, medicine, and technology in visual, material, and print culture; our initial primary-source examples will come mainly (but not exclusively) from nineteenth- and twentieth-century exhibitions and fairs in Britain and America. We will also read secondary works that examine visual, material, and print culture in science, medicine, and technology, which will provide models for research-based writing. Collectively, these primary and secondary sources will provide takeoff points for students' individual research papers.

Book: Stanley Chodorow, *Writing a Successful Research Paper: A Simple Approach* (Indianapolis: Hackett, 2011). UBS should have copies for sale.

All other readings are posted on Learn@UW.

Grading:

40% class participation, including attendance, participation in discussion, on-time completion of exercises for class and postings on Learn@UW (generally due by 7 a.m. the day of the relevant class), positive critical discussion of others' presentations, and peer review of others' paper drafts.

60% research project, including timely progress on its stages: Ideas sheet, draft proposal presentation, proposal/outline and annotated bibliography, paper draft, and final paper.

Expectations:

This is the capstone in the major, and I expect this to be your top priority course this semester. We meet for only two hours per week, but it's a three-credit course. This means that you should be doing extra work outside class each week. I have somewhat front-loaded the readings to give you a variety of models and materials to work with; investing the time in the first third of the course will pay off as you move into more independent research and writing in the second third, and sharpening and refining in the last third. Note that the **paper is due April 23**. That means you deliver a polished paper with full argument and notes. It is not a "draft;" it is a "first-final" version. Aim mentally for April 23 as your endpoint.

A note about readings: You are expected to read carefully everything listed under "Readings." Items listed under "Supplementary Readings" are available on L@UW but are purely optional; they are there for you to peruse in looking for further topics or instances of

related analyses. Of course, there is a huge realm of relevant work not listed here. Pay attention to footnotes in secondary lit. for items that would be of interest as you do your research.

Schedule Overview:

1/22: Introduction to HS 555 and historical research methods

Part 1: Finding and Developing a Research Topic and Question

1/29: Practicing Historical Research: Meet in Memorial Library Special Collections (9th Floor)

2/5: Introduction to Visual and Material Culture in HSTM

2/12: Introduction to Print Culture in the History of Science

2/19: Words, Images, and the Technology of Print

2/26: Library session: Individual meetings. Provisional proposal due.

Part 2: From Topic/Question to Argument

3/5: The elements of argumentation. Proposal with preliminary annotated bibliography due.

3/12: The parts of the argument: Evidence and its contextualization.

3/19: Structure; complex arguments

3/26: No class: Spring Break

Part 3: Writing! Refining, Deepening, Clarifying, Polishing

4/2: Beautiful writing. Nuts and bolts of oral presentations and documentation.

4/9: Presentations I

4/16: Presentations II

4/23: Papers Due

Part 4: Revising

4/30: Editing workshop

5/7: Wrap-Up

FINAL VERSION DUE 5/14 in L@UW Dropbox.

Detailed Schedule:

1/22: Introduction to HS 555 and discussion of course goals. Orientation to visual, material, and print culture in history of science, medicine, and technology.

PART 1: FINDING AND DEVELOPING A RESEARCH TOPIC AND QUESTION

1/29: Practicing Historical Research: Meet in Memorial Library Special Collections (9th Floor)

Reading:

Chodorow, chapters 1-3. Make sure you read chapter 3 before you do the exercise (Assignment 2) below.

Robert Rydell, *World of Fairs: The Century-of-Progress Expositions* (Chicago: University of Chicago Press, 1993), pp. 15-58, 226-233.

Assignments:

- 1) Complete the UW-Library Campus Library User Education (CLUE) online training program, <http://clue.library.wisc.edu/index.html>. Take a screen shot or print your results from the quizzes and hand it in.
- 2) **Exercise:** Each person will be assigned a chapter of the *Official Catalogue of Exhibitors at the Universal Exposition*, St. Louis, USA, 1904. Division of Exhibits: Frederick J. V. Skiff, Director: URL: <http://archive.org/details/officialcatalogu00loui>. The sections are as follows (we are not using crossed-out sections):

~~A: Education (p. 6 ; 117 p.)~~

~~B: Art (p. 126; 299 p.)~~

C: Liberal Arts (p. 430; 111 p.)

D: Manufactures (p. 543; 154 p.)

E: Machinery (p. 698; 52 p.)

F: Electricity (p. 751; 37 p.)

G: Transportation (p. 790 ; 37 p.)

H: Agriculture (p. 828; 291 p.)

J: Horticulture (p. 1121; 47 p.)

K: Forestry (p. 1168; 43 p.)

L: Mines and Metallurgy (p. 1214; 110 p.)

M: Fish and Game (p. 1324; 34 p.)

N: Anthropology (p. 1358; 109 p.)

O: Social Economy: (p. 1447; 60 p.)

~~P: Physical Culture (p. 1517)~~

R: Livestock (p. 1533; 317 p.)

Look through the chapter and generate comments plus a list of questions you might ask of material in that chapter. Ask at least 5 questions; try to make them not variants on one another but take different directions. Post your questions on L@UW (Communication>Discussion>St. Louis Official Catalogue Questions) by 7 a.m. on Jan. 29.

Supplementary Reading:

Robert Rydell, *All the World's a Fair*, chapter 6, "The Louisiana Purchase Exposition, St. Louis, 1904: 'The Coronation of Civilization,'" pp. 154-183, 270-278.

2/5: Introduction to Visual and Material Culture in HSMT**Readings:**

Review Chodorow, chapter 2.

Asa Briggs, "The Great Victorian Collection," chapter 2 in idem, *Victorian Things* (University of Chicago Press, 1988), pp. 52-102, 429-30.

Nancy Rose Marshall, "A Dim World, Where Monsters Dwell": The Spatial Time of the Sydenham Crystal Palace Dinosaur Park," *Victorian Studies*, 49 (2007): 286-301.

Gregg Mitman, "Cinematic Nature: Hollywood Technology, Popular Culture, and the American Museum of Natural History," *Isis*, 1993, 84: 637-661.

Susan E. Lederer, "Lost Boundaries: Race, Blood, and Bodies," chapter 4 in idem, *Flesh and Blood: Organ Transplantation and Blood Transfusion in Twentieth-Century America* (New York: Oxford University Press, 2008), 107-142.

Assignment: annotate the readings using Chodorow's approach (see p. 25-26). Each student will be assigned one text to take notes on (not just "annotate") and critically summarize, drawing on the questions listed on p. 24 ("Questions about the author," and first and last "questions about the text"). Make sure your summary includes an identification of the author's thesis statement and a discussion of use of sources. Deposit your notes and summary in the L@UW Dropbox by 7 a.m. Feb. 5. Bring 10 hard copies to class to distribute.

Supplementary Readings:

Scott Curtis, "Photography and Medical Observation" in Nancy Anderson and Michael R. Dietrich, *The Educated Eye: Visual Culture and Pedagogy in the Life Sciences* (Hanover, NH: Dartmouth College Press, 2012), 68-93.

Richard C. Keller, "Place Matters: Mortality, Space, and Urban Form in the 2003 Paris Heat Wave Disaster" (forthcoming)

Pablo Gomez, "Transatlantic Meanings: African Rituals and Material Culture from the Early Modern Spanish Caribbean" (forthcoming)

Richard A. Staley, "Chapter Four: Science on Display: The World's Fair," in idem, *Einstein's Generation: The Origins of the Relativity Revolution* (Chicago: University of Chicago Press, 2008), pp. 137-165.

Peter H. Hoffenberg, "Machines-in-Motion: Technology, Labor, and the Ironies of Industrialization," Chapter 6 in idem, *An Empire on Display: English, Indian, and Australian Exhibitions from the Crystal Palace to the Great War* (Berkeley; Los Angeles: University of California Press, 2001)

2/12: Introduction to Print Culture in the History of Science

Reading:

- Thomas H. Broman, "Periodical literature" in Marina Frasca-Spada and Nick Jardine (eds.), *Books and the Sciences in History* (Cambridge: Cambridge U. Press, 2000), pp. 225-238.
- Jonathan R. Topham, "Publishing 'Popular Science' in Early Nineteenth-Century Britain," in *Science in the Marketplace: Nineteenth-Century Sites and Experiences* (Chicago: University of Chicago Press, 2007), pp. 135-168.
- Lynn K. Nyhart "Voyaging and the Scientific Expedition Report, 1800-1940," in *Science in Print: Essays on the History of Science and the Culture of Print*, ed. Greg Downey, Rima Apple, and Christine Pawley. (Madison: University of Wisconsin Press, 2012), pp. 65-86.
- Judith A. Houck, "'What Do These Women Want?' Feminist Responses to *Feminine Forever*, 1963-1980." *Bulletin of the History of Medicine*, 2003, 77: 103-132.

Assignments:

- 1) Following the precepts of Chodorow, take separate notes (not "annotations") on Broman, Topham, and Nyhart. Bring one hard copy of your notes to class to share with someone else in the class.
- 2) Houck's article, published in the *Bulletin of the History of Medicine*, was not intended specifically as a print culture analysis. But it definitely *involves* printed materials. Imagine you are an editor who wants her to revise her article for a print culture anthology. Write a brief note (300 words or less) suggesting what might be done to achieve this re-purposing. (To this end, you might creatively apply insights you picked up from the other 3 articles this week.) What questions would you ask her to attend to more that are subordinated or ignored in this version of the paper? How might this change her thesis or argument? What might get lost in this re-purposing? Deposit your analysis in the L@UW Dropbox (folder is titled "Repurposing exercise") by 7 a.m. on 2/12.

2/19: Words, Images, and the Technology of Print

Reading:

- Jonathan Smith, *Charles Darwin and Victorian Visual Culture* (Cambridge: Cambridge University Press), pp. 33-40, 289-290.
- Verity Hung, "Narrativizing the 'World's Show': The Great Exhibition, Panoramic Views and Print Supplements," chapter 6 in *Popular Exhibitions, Science and Showmanship, 1840-1910*, edited by Joe Kember, John Plunkett and Jill A. Sullivan (Pickering & Chatto, 2012), pp. 115-132.
- Florence Hsia, "Making Jesuit Science Travel," Chapter 4 in idem, *Sojourners in a Strange Land: Jesuits and their Scientific Missions in Late Imperial China* (Chicago: University of Chicago Press, 2009), 51-76, 172-182.

Robin E. Rider, "'Perspicuity and Neatness of Expression': Algebra Textbooks in the Early American Republic," in *Science in Print: Essays on the History of Science and the Culture of Print*, ed. Greg Downey, Rima Apple, and Christine Pawley. (Madison: University of Wisconsin Press, 2012), pp. 37-61.

Assignments:

- 1) Prepare for discussion: What do these writings tell you about the relationships among images, texts, and printing technology? What tools might you add to your intellectual toolkit from these readings?
- 2) Think about options for a paper topic; spend at least a good hour rooting around online and in the library, more as needed. Browse supplementary readings and readings later on in the syllabus for ideas, if you like. Come talk to me if you're at a loss for an idea.

Supplementary Readings:

Nick Fisher, "The Great Exhibition of 1851: The Struggle to Describe the Indescribable," *Endeavour* 36(1), Dec. 2011: 6-12.

Robin Rider, "Early Modern Mathematics in Print," in *Non-Verbal Communication in Science Prior to 1900*, edited by Renato Mazzolini (Florence: Olschki, 1993).

Michael H. Shank, "The Geometrical Diagrams in Regiomontanus's Edition of his own *Disputationes* (c. 1475): Background, Production, and Diffusion," *Journal of the History of Astronomy*, 43, 2012: 27-55.

2/26: Library session: Individual 25-minute meetings, to be held between 9 a.m. and 3:15 pm. (Sign up in advance.)

Assignment: Provisional proposal due at meeting. This is essentially an "ideas sheet" that lists possible TOPICS, QUESTIONS, and WAYS IN to both topics and questions that you have found. (Bring hard copy to hand in; keep one for yourself.)

PART 2: FROM TOPIC/QUESTION TO ARGUMENT

3/5: The Elements of Argumentation

Reading:

Chodorow, chs. 4, 5, and 8.

Eric Schatzberg, "Ideology and Technical Choice: The Decline of the Wooden Airplane in the United States, 1920-1945," *Technology and Culture* 35 (1994): 34-69.

Assignments:

- 1) Prospectus with preliminary annotated bibliography due. Use the format for a prospectus in Chodorow, pp. 86-88. For bibliographical entries in annotated bibliography, use Chicago Manual of Style 16th edition, "Notes and Bibliography" style, not "Author-Date" style. Online access is available through the UW Library at http://www.chicagomanualofstyle.org/16/ch14/ch14_toc.html. Include both primary and

secondary sources. Use only sources you have actually looked closely at, though you should also be keeping your own list of other items you still want to investigate. There should be at least a half-dozen items on your list, including more than one primary source. Annotations should be a couple of sentences, and should include how you plan to use this source. Deposit in L@UW Dropbox by 7 a.m.

- 2) Read Schatzberg's article with an eye toward the elements of his argument. How does he set it up in the introduction? How does he follow through in the body? How does his conclusion work? The title uses the word "decline." How does he treat chronology and change over time?

3/12: Parts of the Argument: Evidence and its Contextualization.

Reading:

Chodorow, chapter 6

Richard A. Staley, "Fog, Dust, and Rising Air: Understanding Cloud Formation, Cloud Chambers, and the Role of Meteorology in Cambridge Physics in the Late 19th Century," in James R. Fleming, Vladimir Jankovic and Deborah Coen, eds. *Intimate Universality: Local and Global Themes in the History of Weather and Climate* (New York: Science History Publications, 2006), pp. 93-113.

Dayle B. Delancey, "Vaccinating Freedom: Smallpox Prevention and the Discourses of African American Citizenship in Antebellum Philadelphia," *Journal of African American History* 95:3-4 (2010), 296-321.

James Secord, "Scrapbook Science: Composite Caricatures in Late Georgian England," in *Figuring It Out: Science, Gender, and Visual Culture*, edited by Ann B. Shteir and Bernard Lightman (Hanover, NH: Dartmouth College Press, 2006), pp. 164-191. (I suggest reading this online because of its large format and many images.)

Assignments:

- 1) Take notes on and come prepared to talk about this question: what is the *object* of attention of each article? How does each author contextualize that object? Does print or material culture serve as the thing to be explained or part of the explanation?
- 2) Continue extending and deepening your research.

Supplementary Readings:

Steve Edwards, "The Accumulation of Knowledge, or, William Whewell's Eye," in *The Great Exhibition of 1851: New Interdisciplinary Essays*, edited by Louise Purbrick (Manchester: Manchester University Press, 2001), pp. 26-52

3/19: Structure; Complex Arguments

Readings:

John McPhee, "Structure," *The New Yorker*, 14 January 2013, 46-55.

Gregg Mitman and Paul Erickson. "Latex and Blood: Science, Markets, and American Empire,"
Radical History Review 107 (2010): 45–73

Assignments:

- 1) Outline Mitman and Erickson's argument, with attention to these questions:
 - a) What is the thesis? Mark it on your copy with an asterisk.
 - b) What are the sections of their paper? Create an outline using the sub-section headers and a few words to describe what each section is doing in the argument. (Bring to class.)
 - c) How do visual and material objects figure into the argument? As something to be explained or part of an explanation? Or something else? Do they operate differently in different places?
 - d) How does chronology operate in this argument? Is it chronological? Thematic? Where does chronology play a role?
- 2) Consider your own material and the two readings. What sort of structure do you want to create? Take a stab at an outline. Print it up so you can show it and discuss it with another student and turn it in to me. Make sure your name and the date are on it.

Supplementary Reading:

John McPhee, "Progression," *The New Yorker*, 14 November 2011, 36-42. Access via UW Libraries: <http://archives.newyorker.com.ezproxy.library.wisc.edu/?i=2011-11-14#folio=036>.

3/26: No class: Spring Break

PART 3: WRITING! REFINING, DEEPENING, CLARIFYING, POLISHING

4/2: Beautiful writing. Nuts and bolts of oral presentations and documentation.

Reading:

Chodorow, chapters 7 and 9.

Another reading TBD.

Assignment: Write, Write, Write!

4/9, 4/16: Presentations

4/23: Papers Due. Deposit in L@UW Dropbox by 7 a.m. Bring two hard copies to class for your workshop partners to work on for next week.

Part 4: Revising

4/30: Editing Workshop. You will work in teams of 3 (or 4), following editing guidelines I hand out, to edit one another's papers.

5/7: Wrap-Up

5/14: FINAL-FINAL VERSION DUE in L@UW Dropbox by 1:30 pm; hard copy portfolio of final-final and first-final versions edited by others due in my Bradley mailbox.

Academic Performance and Accommodation:

Extensions are only granted if requested before the due date, and only in case of illness or other serious emergency. All extensions will have a definite new due date established. Papers received after the new due date will be subject to late paper penalties.

Late paper policy: any piece of writing that you hand in late without an extension will have the following penalties assessed: a quarter of a grade for every working day late. For example, if the paper on its merits deserves a B, after one day it would receive a B/BC, after two days a BC, after three a BC/C, after four a C. NOTE: LATE FINAL PAPERS WILL NOT BE ACCEPTED.

Academic Credit and Plagiarism: Students may not copy sentences or ideas from others (including authors, websites, or other students) without giving credit to those sources; if someone else's words are so wonderful that you cannot substantially rephrase them, you must put them inside quotation marks, using the exact same words. If you omit the quotation marks or the credit, you are plagiarizing. Plagiarism is grounds for failure on the assignment plagiarized; repeated plagiarism is ground for failure in the course. If you use 3 or more words in a row from another source, they must be placed in quotation marks and footnoted. Otherwise, it is plagiarism. For more details on what plagiarism is and how to avoid it, consult a style manual or the Writing Lab. An excellent source of all the ways you can go wrong is:
<<http://students.wisc.edu/doso/docs/Plagiarism.pdf>>

Appealing a Grade: If you have questions about a grade, come speak to me. If the problem is not resolved, speak with the Undergraduate Chair, Prof. Florence Hsia. She will attempt to resolve the issue informally and inform you of the Appeals Procedures if no resolution is reached informally.

Access and Accommodation: I will make every effort to honor requests for reasonable accommodations made by individuals with disabilities. (If you think you qualify for accommodation, please contact the McBurney Disability Resource Center [263-2741; www.mcburney.wisc.edu] to establish your eligibility for services.) Requests for accommodation can be responded to more effectively if I receive them as far in advance as possible, preferably at the beginning of the semester. Such requests are confidential.

Religious Observance: If religious holidays or observances conflict with your participation in this course, please come talk to me **well in advance** for us to work out alternative arrangements.

If any other problems arise, either academic or personal, which might jeopardize your performance in the course, you must try to inform me after class or by the soonest available office hour, by email (lknyhart@wisc.edu), or by leaving a message with the History of Science department administrator (262-1406).

Grading Scale for Research Papers:

I scrutinize five elements in a history of science research paper:

- **argumentation** (relation between claim and evidence; logic; analysis);
- **historiography** (situating your topic in relation to existing literature);
- **research** (expansiveness of primary [and secondary] source searching and examination);
- **writing structure** (organization, transitional sentences, signposting, clear thesis statement, good intro and conclusion); and
- **writing style** (correct grammar and punctuation; style: graceful sentence structure, variety of word use).

Different papers might balance these differently, but all should be part of your picture.

- A: For outstanding papers only. Thesis and argument are clear, thought-provoking, and based on correctly understood facts; material used to support the argument synthesizes ideas from different sources; relationships drawn between facts and ideas are sophisticated, subtle, and/or original. Writing is grammatically correct and succinct. The argument flows well from point to point, without any puffery or wasted words.
- AB: For very good papers that for some reason fall short of the criteria listed above. For example, the argument may be murky in one place; information may be presented that doesn't directly or clearly contribute to the argument; writing style may be awkward here and there, or flawed by one or two consistent (if minor) grammatical errors.
- B: Your basic okay grade. The paper may pursue a straightforward but not especially deep or sophisticated argument; it is okay as far as it goes, but doesn't penetrate the material very far (or use very much material). It may have a flash of brilliance that is unfulfilled, counterbalanced by minor grammatical problems, a weakness in argumentation, and/or a significant misunderstanding of events or chronology.
- BC: The paper shows some of the basics of the ideal, but is weakened by a lack of serious think-work or writing problems. It may make superficial connections without offering sufficient evidence to make the connections plausible or persuasive, or it may have what is in principle a good argument supported by incorrect facts or chronology. Alternatively, it may provide a fairly solid argument with minor flaws, from which the reader is repeatedly distracted by awkward or ungrammatical prose.
- C: A grade signifying some serious problem. It may deliver facts without a recognizable thesis or argument; it may wander away from the point; or it may be a thoughtful attempt so weakened by writing problems (grammar, punctuation, word choice) that it is difficult for the reader to understand a crucial point you are trying to make.
- D: A marginal grade. There may be enough in here to show you have paid some attention to the research and writing requirements, but the essay indicates no effort at synthesis or thinking on your own, or else shows a serious misunderstanding of the nature of the material and/or the assignment. Also used for papers that are just barely coherent.
- F: For unacceptable papers. A paper may be judged unacceptable if it contains plagiarism (see above); if it consists primarily in content inappropriate to the question or the material for this course; if it shows a complete misunderstanding of the technical or historical topic; or if the writing fails to meet standard college-level requirements of basic communication in English.