

# Technology and Power

HIST 615-003/HIST 635-003. George Mason University. Fall 2016.

Professor Zachary Schrag  
Mondays, 7:20-10pm.  
Innovation Hall 330  
Syllabus updated 22 August 2016

Course Blackboard site: <http://mymason.gmu.edu>.  
General advice: <http://historyprofessor.org>  
Chicago-Style Citation Quick Guide: [http://www.chicagomanualofstyle.org/tools\\_citationguide.html](http://www.chicagomanualofstyle.org/tools_citationguide.html)

E-mail: [zschrags@gmu.edu](mailto:zschrags@gmu.edu) (please include "615" in subject header).  
Office: Robinson B 357A. Tel. 703/594-1844.  
Office Hours: Mondays, 3-5pm.

Please use your official Mason email account for all communications. Important course messages may be sent there.

While I greatly enjoy meeting students individually, department meetings and other commitments occasionally force me to cancel scheduled office hours, so please make an appointment at <https://zschrags.youcanbook.me/>.

I am happy to meet with small groups and am open to suggestions for other communications formats, e.g., text chat or Skype video calls.

## Course Description

Do artifacts have politics? asked Langdon Winner. This reading seminar believes that they do, and it asks just what politics they have. Students will explore some general approaches to the interrelationship of state power and technology, and then read scholarship about three specific areas: vaccination, electricity, and aviation. The main emphasis will be Europe and the United States in the nineteenth and twentieth centuries, and the course is intended to serve students with a general interest in those periods as well as those with particular interest in politics or technology. The seminar mostly focuses on assigned reading, though students are also asked to complete an independent final project.

## Goals

In this course, students will:

- Enhance their knowledge of nineteenth- and twentieth-century United States and European history.
- Explore the connections between public policy and science, technology, and medicine, and the ways historians study those connections.
- Practice critical reading and analysis of recent scholarship.
- Consider the connections between scholarly history and public history approaches to the history of technology.

## Administrative

Please read the administrative information about the honor code, university resources, and the like online at <http://historyprofessor.org/miscellaneous/boilerplate/>

## Required Readings

The following books are required and have been ordered at the campus bookstore. *Power Lines* will be available when the paperback is issued, sometime in September.

Baldwin, Peter C. *Contagion and the State in Europe, 1830-1930*. Cambridge, UK; New York: Cambridge University Press, 2005.

Durbach, Nadja. *Bodily Matters: The Anti-Vaccination Movement in England, 1853–1907*. Durham: Duke University Press Books, 2004.

Fritzsche, Peter. *A Nation of Fliers: German Aviation and the Popular Imagination*. Revised ed. edition. Cambridge, Mass.: Harvard University Press, 1994.

Hecht, Gabrielle. *The Radiance of France: Nuclear Power and National Identity after World War II*. MIT Press, 2009.

Hughes, Thomas Parke. *Networks of Power: Electrification in Western Society, 1880-1930*. Reprint edition. Baltimore, Maryland: Johns Hopkins University Press, 1993.

Mckiernan-González, John. *Fevered Measures: Public Health and Race at the Texas-Mexico Border, 1848–1942*. Durham: Duke University Press Books, 2012.

Needham, Andrew. *Power Lines: Phoenix and the Making of the Modern Southwest*. Princeton, N.J.: Princeton University Press, 2014.

Palmer, Scott W. *Dictatorship of the Air: Aviation Culture and the Fate of Modern Russia*. Reprint edition. Cambridge: Cambridge University Press, 2009.

Scott, James C. *Seeing Like a State: How Certain Schemes to Improve the Human Condition Have Failed*. Yale University Press, 1998.

Van Vleck, Jenifer. *Empire of the Air: Aviation and the American Ascendancy*. Cambridge, Massachusetts: Harvard University Press, 2013.

Additional short readings are available through the university library: [library.gmu.edu](http://library.gmu.edu) or via links on the Readings page of Blackboard.

## Assignments

### *Attendance and contribution*

As graduate students, you are expected to attend class regularly and promptly, and to let me know in advance if you will not be able to attend a session. You are expected to participate actively in class discussions, posing questions to your classmates and asking for their thoughts on challenging portions of the reading. Since I expect these things of every student, I will not grade participation separately. Only if your contributions are deficient will I factor that into your final course grade.

Please do not eat in the classroom before or during class.

### **Reading responses: 1 point each x 10 responses. 10 points total**

For each class meeting except the last, you are asked to post responses to the assigned readings. These responses are mainly designed to set the agenda for class discussions. I do not expect to offer detailed feedback, though I may do so if you are having trouble with the format. Please post your responses to the **discussion board** section of Bb by **2pm** on the day of our meetings. Please post these by clicking "Reply" on the relevant thread and pasting plain text; do not use attachments. I suggest you compose your response in a plain text editor and then paste it, in case Bb malfunctions.

Twelve responses are assigned but only ten are needed for full credit, so you may skip two without penalty. These can be the two weeks you present a primary source, but they need not be.

Each response should run between 100 and 300 words and achieve three tasks:

1. Present one indisputable fact. This should be something specific, with a who, what, where, and when, not a matter of interpretation. Please include a page reference.
2. Present the author's interpretation of that fact, and how it relates to a broader claim of the relevant section, article, chapter, or book. Please include page reference or references and quote the author as appropriate.
3. Present another reading of that fact. Is the author's interpretation of the fact persuasive? How might the fact otherwise be interpreted by someone skeptical of the claim?

Your response can be more or less critical of the work. If you find a fact that undermines the author's claim, or does not support in the way that the author asserts, say that. But if you were originally skeptical of the claim and a particular fact won you over to the author's way of thinking, say that.

*Example (A response to Jennifer S. Light, *Warfare to Welfare: Defense Intellectuals and Urban Problems in Cold War America*, 2003.)*

1. The 1972-1973 collaboration between NASA and the New York City government produced few results. City officials could not find uses for satellite imagery, and after outside funding expired they did not renew the program. (pp. 137-138)
2. Light presents this as an example of the failed application of defense technology to urban problems. "A critical finding of this book," she writes in her introduction, "is that applications of military innovations and expertise to urban problems rarely served as sources of solutions . . . Average city dwellers found few visible effects. In city after city, for innovation after innovation, few experiments achieved their promised reforms." (8) She calls the NASA collaboration and similar efforts in New York a "mixed success" (138).
3. The New York story could be read in a more positive way. One of the reasons city officials did not use satellite imagery is that they could rely on other military spinoffs. Light concedes, "aerial photography and geographic information systems have remained essential for New York City administration to the present day." (138) As Light notes, both aerial photography (126) and GIS (134-136) emerged from military applications, so their use by New York City must count as "applications of military innovations and expertise to urban problems." If they

have remained essential to city administrators, presumably it is because they are sources of solutions. So why call this a “mixed” rather than an outright success? By downplaying the results of the successful experiments, Light risks a false impression of the impact of defense technology.

More examples of this kind of analysis can be found at “How to Use Examples to Evaluate Scholarship,” <http://historyprofessor.org/how-to-use-examples-to-evaluate-scholarship/>.

### Goals

- Help you distinguish between the claims a historian makes and the evidence she uses to support those claims.
- Help you practice evaluating a work by its ability to make sense of the evidence it offers.
- Prepare you for class discussions by focusing your attention on the arguments and facts presented by the readings.
- Prepare the instructor and your classmates by giving them an advance idea of what you and other students think are the key questions raised by the readings.

### Comparison essays: 4 essays, 10 percent each, 40 percent total

For each unit of the course, you are asked to write a review essay comparing and contrasting the assigned texts. Each paper should run roughly 750-1000 words (3-4 pages). It should present a thesis that explains what we learn from reading the works in combination. You are welcome to elaborate on points raised in your own reading responses or, with proper citation, those of your classmates. References to readings done for other courses may be helpful. Please footnote as needed. **Please post your response on the Assignments section of Blackboard by 7pm on the dates indicated on the schedule below.**

The essays should not summarize the reading, nor attempt to address every claim by every author. Rather, each essay should present one bold, original thesis about how the works address an important theme in the history of technology or political history. In other words, aim to say something that would interest a reader already familiar with the works under review.

Please pay attention to essay form. Present a question and a thesis in your introduction, and argue it consistently through the essay.

For more instructions on reading and reacting, please see “How to Read a History Book,” “How to Write a Review,” “How to Write a Reading Response,” and “Reverse Engineering for Historians” at <http://historyprofessor.org/reading/>.

The best published models for these essays are likely the reviews of multiple books in the journal *Reviews in American History*, available online through the university library. See, for example,

- Robert A. Beauregard, “The Political Complexities of Development,” *Reviews in American History* 43, no. 1 (2015): 161–67.
- Robert S. Friedman, “American Nuclear Energy Policy, 1945–1990: A Review Essay,” *Journal of Policy History* 3, no. 03 (July 1991): 331–48.
- Howard P. Segal, “Rewiring the History of the Telegraph and the Telephone,” *Reviews in American History* 42, no. 3 (2014): 456–61,

These essays explore the choices of scholars about scope, timeframe, sources, agency, and the like, and use them to develop findings about broader topics.

This assignment is designed to:

- Keep you engaged as active readers.
- Encourage you to consider the largest implications of the individual stories told by each work.
- Give you practice in writing critically yet respectfully about other scholars' work.

**Lesson plans: 2 presentations, 10 percent each, 20 percent total**

At the start of the course, teams of student will be assigned two weeks for which they will be responsible for leading the last hour of discussion.

For each presentation, find a primary source for discussion. Imagine that you want to convey some of the major insights of our reading for the week to an audience (high school students, undergraduates, museum visitors, Smithsonian cruise ship passengers) who have not read and never will read the scholarly monograph that we are discussing that week. But they are willing to read a short, primary source, or absorb its sound or video equivalent. How will you translate your scholarly understanding to a non-scholarly audience?

Steps

1. Review the sample lesson plan on Bb.
2. As you read the assigned book, think about what themes or questions you would like to communicate.
3. Choose a primary source that addresses those themes or questions. It should be brief enough that your classmates can read, listen to, or watch it in no more than 5 minutes. You are welcome to choose a source that is cited in the assigned text, though preferably not one that the author addresses at great length.

**Please limit your source to two pages or five minutes of audio or video**, excerpting as necessary. Please format texts so they can be printed on a single sheet (double sided if needed), which can be distributed in class. Please bring handouts or let me know to make copies. **If you plan to use audio or video, please email the citations to me two weeks ahead of time.** I will arrange for the video to be captioned or the audio to be transcribed.

4. Prepare a lesson plan (500-1000 words) for the discussion with the following sections:
  - Claims. Summarize one or more (not all) of the major claims of the seminar text, quoting as appropriate.
  - Primary source: Please provide full bibliographic information for the source you will use. Explain your choice of primary source and its relation to the assigned readings. Imagine you were teaching undergraduates, preparing a museum or website exhibit, or scripting a documentary film, and you wanted to convey some of the insights from the assigned scholarly book without requiring people to read that text. What concepts would the primary source introduce on its own?
  - Goals: what are the most important facts and concepts that students should take away from the readings.
  - Questions: List questions about both the assigned readings and primary source. Aim for open-ended, interpretive questions, rather than specific factual questions.

**Please post your source to the Assignments section of class Blackboard site by 2pm** on the day you will lead discussion, along with a brief analysis or two or three discussion questions. For instructions on writing an analysis, see "How to Read a Primary Source," "Document Analysis," and "Image Analysis," all at <http://historyprofessor.org>.

Please note that items posted to the Assignment section of Blackboard will not be visible to your classmates. If you wish to share items with the class, please post those to the class blog on Blackboard.

5. Lead discussion. You will have about 30 minutes to lead a discussion on your source, based on your lesson plan. This includes the time your classmates will need to read, listen to, or view the source.

#### Goals

- Give you experience leading discussions and preparing materials for discussion.
- Give you experience translating the questions and claims of scholarly history into more accessible formats.
- Give you the chance to explore your own special interests by selecting primary and secondary materials that shed alternative perspectives on the common readings.
- Enliven class discussions by bringing in those new perspectives.
- Aid your instructor and classmates in teaching future courses in this period.

For these discussions, imagine that you are presenting the material in the week's assigned reading to an audience—high school or undergraduate students, visitors to a museum, viewers of a documentary—who will never read the scholarly text but who could benefit from its insights.

#### **Final project: 30 percent**

Early in the semester, you should begin work on an independent project. In our final session, you will present your work to the seminar, and during exam period you will submit a written version on Bb.

##### *Option 1. Museum/Historic site review*

At some point during the semester, please attend one museum exhibit or historic site with a technology theme, and write up a review in the style of a *Technology and Culture* exhibit review, about 2500-3000 words. (For examples, search the T&C database within Project Muse for "exhibit review.")

Your review should be informed by current scholarship about the subject of your exhibit. Please read and cite the work of at least three scholars in your review. You may choose whether to include works by scholars who worked on the exhibit in some capacity.

Please put special emphasis on the *politics* of the exhibits you see. Prior to your visit, please read

- George Basalla, "Museums and Technological Utopianism," in Ian M.G. Quimby and Polly Anne Earl (eds), *Technological Innovation and the Decorative Arts*, Winterthur Conference Report, 1973 (Charlottesville: University of Virginia, 1974), 355-373 [on Blackboard]
- Bernard S. Finn, "Exhibit Reviews-Twenty Years After," *Technology and Culture* 30, no. 4 (1989): 993-1003, doi:10.2307/3106200.
- Edward T. Linenthal, "Struggling with History and Memory," *Journal of American History* 82, no. 3 (December 1995): 1094-1101.

You have a broad range of choices about places to visit. You may have an easier time with a museum or site with an explicit technology theme (e.g., the B&O Railroad Museum), but I am open to proposals for visits to sites, such as historic houses, that preserve the history of technology without making it their main mission. Please do not review sites where you work as a volunteer or paid employee.

This assignment is designed to:

- Help you consider the relationship between scholarly and public history.
- Give you practice in writing critically yet respectfully about public historians' work.
- Allow you to explore a personal interest beyond the classroom.
- Give you experience with public presentation.
- Let you have some fun.

*Option 2. Research prospectus*

Write a proposal for an article-length research project on a topic in the history of technology.

The proposal should include a thorough exploration of all scholarship about the particular subject, an explanation of why further research is needed, and a description of available primary sources and how they would answer the research question. The total length should be about 2500-3000 words, including bibliography.

See "How to Write a Prospectus" <<http://historyprofessor.org/research/how-to-write-a-prospectus/>> for general format. The Sample Application Narratives for the NEH Fellowships program <<http://www.neh.gov/grants/research/fellowships>> offer good models.

This assignment is designed to:

- Give you practice in identifying primary and secondary sources.
- Give you practice in identifying scholarly questions requiring original research.
- Allow you to explore a research interest beyond the assigned readings.
- Give you experience with public presentation.

## Schedule

### Unit 1. Introductions

1. August 29. Approaches to technology and power
  - W. Caleb McDaniel. "How to Discuss a Book for History." W. Caleb McDaniel, August 19, 2013. <http://wcm1.web.rice.edu/howtodiscuss.html>.
  - Wiebe E. Bijker, "American and Dutch Coastal Engineering: Differences in Risk Conception and Differences in Technological Culture," *Social Studies of Science* 37, no. 1 (2007): 143–51. [JSTOR]
  - Kranzberg, Melvin. "Technology and History: 'Kranzberg's Laws.'" *Technology and Culture* 27 (1986): 544-560. [JSTOR]
  - Winner, Langdon. "Do Artifacts Have Politics?" *Daedalus* 109, no. 1 (January 1980): 121–136. [JSTOR]
  - Joerges, Bernward. "Do Politics Have Artefacts?" *Social Studies of Science* 29, no. 3 (June 1999): 411–31. [JSTOR].
  - Seely, Bruce E. "The Scientific Mystique in Engineering: Highway Research at the Bureau of Public Roads, 1918-1940." *Technology and Culture* 25, no. 4 (October 1984): 798–831. [JSTOR].

**Reading response due on Bb, 2pm.**

2. September 12. Scott, *Seeing Like a State*

**Reading response due on Bb, 2pm.**

3. September 19. Hecht, *Radiance of France*. You can skim or skip the Callon preface.

**Reading response due on Bb, 2pm.**

### Unit 2. Public Health

4. September 26. Durbach, *Bodily Matters*

**Reading response due on Bb, 2pm.**

**Unit 1 essay due on Bb, 7pm.**

5. October 3. Baldwin, *Contagion and the State*, 1-36, 524-563, 37-354.

**Reading response due on Bb, 2pm.**

6. October 10 NO CLASS. (Columbus Day/Yom Kippur)

Please use this time to work on your final projects.

7. October 17. Mckiernan-González, *Fevered Measures*

**Reading response due on Bb, 2pm.**

### Unit 3. Electricity

8. October 24. Hughes, *Networks of Power*, ix-323, 461-465.

**Reading response due on Bb, 2pm.**

**Unit 2 essay due on Bb, 7pm.**



9. October 31. Articles on electricity:

- Moses Chikowero, "Subalternating Currents: Electrification and Power Politics in Bulawayo, Colonial Zimbabwe, 1894-1939," *Journal of Southern African Studies* 33, no. 2 (June 2007): 287–306
- Raquel a. G. Reyes, "Modernizing the Manileña: Technologies of Conspicuous Consumption for the Well-to-Do Woman, circa 1880s–1930s," *Modern Asian Studies* 46, no. Special Issue 01 (January 2012): 193–220, doi:10.1017/S0026749X1100062X
- Carolyn M. Goldstein, "From Service to Sales: Home Economics in Light and Power, 1920-1940," *Technology and Culture* 38, no. 1 (January 1997): 121–52, doi:10.2307/3106786
- Ronald C. Tobey, *Technology as Freedom: The New Deal and the Electrical Modernization of the American Home* (Berkeley: University of California Press, 1997), Chapter 4: "The New Deal in Electrical Modernization," <http://ark.cdlib.org/ark:/13030/ft5v19n9w0/>
- Audra J. Wolfe, "'How Not to Electrocute the Farmer': Assessing Attitudes Towards Electrification on American Farms, 1920-1940," *Agricultural History* 74, no. 2 (April 2000): 515–29.

**Reading response due on Bb, 2pm.**

10. November 7. Needham, *Power Lines*

**Reading response due on Bb, 2pm.**

*Unit 4. Aviation*

11. November 14. Palmer, *Dictatorship of the Air*

**Reading response due on Bb, 2pm.**

**Unit 3 essay due on Bb, 7pm.**

12. November 21. Fritzsche, *Nation of Fliers*

**Reading response due on Bb, 2pm.**

13. November 28. Van Vleck, *Empire of the Air*

**Reading response due on Bb, 2pm.**

*Final projects*

14. December 5. Final project presentations.

**Unit 4 essay due on Bb, 7pm.**

**Friday, December 16, 5pm. Final papers due on Bb.**