

Hist. Sci. 337: History of Technology

M W F 9:55-10:45
6232 Social Sciences

Dr. Karin Ellison
7129 Social Sciences
608-262-3973

kdellison@facstaff.wisc.edu

Office Hours: Tue. 1-3 and by appt.

What do you think of when you see or hear the word technology? Cars? Cell phones? A spiffy new computer? Without doubt, these objects are some of the most important technologies of our day. Still, there is more to technology than a single gadget or a device. How useful would a cell phone be without towers and an extensive network to transmit and receive signals? Without other cell phone users to call? Without the companies that maintain those towers and, more generally, all the institutions that build, maintain, and supply cellular service? Without the people who work in the factories which make cell phones? Without the inventors, engineers, and other groups of technological innovators who create and refine devices?

In this class, we will study the history of Western technology from the Medieval period to the mid-twentieth century. We will read about and discuss significant technologies from three eras—the Middle Ages, the Industrial Revolution, and ‘the American Century.’ We will strive to understand these technologies in their historical contexts, which include the networks, institutions, technological innovators, technical knowledge, and societies surrounding the technologies. For the Middle Ages, the ploughs, water mills, clocks, cathedrals, and guns that set Western society on a path of towards industrialization will be the focus of our study. Under the broad heading industrialization, we will study the new ways of making goods, like cloth and guns, and the myriad accompanying changes in society, institutions, governments, and economic systems of the eighteenth and nineteenth centuries. From the mid-nineteenth century to the mid-twentieth, the United States led the world in making new technologies with inventors, industrial research scientists, electric light and power systems, and, ultimately, the atomic bomb. We will conclude the course with a study of these entrepreneurs and their technological systems.

Assignments

The assignments for this course are readings, a readings journal, and three short (4 pgs.) take-home exams.

Reading Assignments

Reading assignments are given in the course schedule. Reading must be completed before each class so that discussion can draw on your knowledge of the readings. The required text—Thomas Hughes’ *American Genesis*—may be purchased at the university bookstore. The course reader, also required, is available from Eileen Ward in the History of Science Department Office. The Department Office is located in 7143 Social Sciences and is open from 7:30-3:15. You may purchase the reader with either exact change or check (no credit cards). Readers cost \$24.25 and may NOT be returned. There is one recommended book: David Macaulay’s *Cathedral*. This is a children’s book with superb illustrations, which we will read in its entirety for one class session. If you chose not to

purchase it, you will need to read and examine the copy on reserve at the College Library. *American Genesis* and the reader are also on reserve at the College Library.

Journals

One of your responsibilities for this class will be to keep a journal. Informal writing about course themes, readings, and ideas can be invaluable in helping you clarify your thoughts, prepare for discussions, and see the connections between course themes and the rest of your life. The journal is an informal place for you to consider the readings and course material—it lets you explore ideas without worrying about my response and your classmates' response. Formal papers are for developing arguments and persuading a critical reader. Journals are the place for much more fluid, open-ended writing. Both kinds of writing are important. Writing is not just a way of communicating ideas to others; it's a way of discovering what you think. Most importantly, journal-writing engages you with the material—it gives you a chance to argue with it, agree with it, and transform it so it's useful to you.

In the journal, I want you to prepare for discussions and respond to the readings. This isn't a personal diary. You have three basic choices about how to create journal entries: (1) you can state the argument of one of the class readings in one paragraph and develop a brief critique of it; (2) you can find quotes in the readings and respond to them; (3) you can create your own questions about the readings and suggest answers.

(1) Learning to identify and concisely state the argument of any text is one of the most important building blocks of historical scholarship. The task is also harder than you think. Journals are a great place to practice understanding each text as a whole and responding to aspects of that synthesis that particularly please or trouble you. After you summarize an argument, consider questions like: Does the evidence given in the text support the author's claims? Does the argument hang together logically? How does the argument relate to those of other class readings? Is the argument novel? Has the author missed something you think is critical?

(2) Another way of keeping the journal is to start by copying down quotes that especially strike you from the readings—and then write what you think the author is trying to convey. Why does the quote strike you? Do you agree? Do you strongly disagree? How does the passage illuminate themes of the course?

(3) A third possibility is to create your own questions about the readings, and suggest some answers to those questions. Again, focusing on themes of the class or connecting one reading to others will be most productive.

Journal mechanics are as follows:

- I will accept journal entries on a given reading only before or on the day that we discuss that reading. Days on which we view a film, instead of discussing readings, will be an exception. You may prepare a journal entry on any film and submit it at the beginning of the following class.

- Journal entries should be typed, double spaced, and 300 to 600 words long. (Please include a word count at the end of each entry.)
- You should submit five journal entries during each two week period. Since there are six class periods each two weeks, this means you will submit entries for five out of six class periods.
- I won't grade these journal writings on structure, grammar, or syntax; I will, however, grade them on your considered and honest responses to the reading.
- I will review journal entries once every two weeks. I will return journal entries on 9/10 (Everyone must submit an entry on 9/7.), 9/24, 10/10, 10/22, 11/5, 11/19, 12/3, and 12/14.

Exams

For each take-home exam, you will write a response to one of two essay questions. Due dates are given in the class schedule.

Evaluation and the Fine Print

Grades will generally be calculated as follows:

- Readings journal, 55%
- Three exams, 15% each

Thoughtful contributions to class discussions will weigh heavily in the mediation of boarder-line grades.

Make-up exams and acceptance of late assignments will only happen in university approved or dire circumstances. These include traveling with a sports team, major and documented illnesses, personal or family crises, etc. Should any of these arise, you are responsible for discussing the circumstances with me ASAP, before the work is missed if at all possible. I reserve the right to construct make-up exams or assignments more difficult than the work they replace.

Likewise, incompletes will only be given in extraordinary circumstances. To receive an incomplete, you and I would prepare a written agreement specifying how and when all work for the course would be completed. This agreement would have to be signed before I submit grades at the end of term.

Disabilities

If you have a significant disability condition (e.g., physical, learning, psychiatric, vision, hearing, etc.) and want to arrange reasonable accommodations, you must contact me at the beginning of the semester.

Academic Integrity

You are expected to express your ideas and to sustain arguments in your own words. Failure to do so is plagiarism. It is unethical and often illegal. Plagiarism ranges from

the blatant—purchasing a term paper or copying on an exam—to the subtle—failing to credit another author with the flow of ideas in an argument.

Properly acknowledging the use of the words of others and avoiding excessive quotation of the work of others will eliminate most plagiarism problems. If you want to quote from a published work (including a web page), you must put the passage in quotation marks and provide a citation.

Simply changing a few words from the writings of other authors does not alter the fact that you are essentially quoting from them. Paraphrasing of this sort, where you use the words of another almost verbatim without acknowledging your source, is the most common form of plagiarism among undergraduates. When you state another author's viewpoint, theory, or hypothesis—especially when it is original or not generally accepted—you must also include a reference to the published work. In general, citations are unnecessary when the information is considered common knowledge or a matter of widespread agreement. Common knowledge can often be identified by its appearance in several of the assigned readings for class.

All papers prepared outside of class must have a bibliography at the end. This provides readers with a complete list of sources consulted, regardless of whether you quoted directly from them, and serves to acknowledge your intellectual debts to them.

Another common and related problem may arise from working with another student in studying and carrying out assignments. Such collaboration is encouraged, but the work that you submit must be in your own words, and not jointly written or copied.

If you are unclear about collaborating, paraphrasing, quoting, or the need to indicate sources, I will be glad to speak with you and can recommend additional materials for clarification.

Failure to maintain academic integrity in any portion of the academic work for the course shall be grounds for awarding a grade of F for that assignment.

Course Schedule

<i>Date</i>	<i>Reading Assignment</i>
9/5	Introduction
9/7	McClellan and Dorn, "Plows, Stirrups, Guns, and Plagues," 24 pgs.
M 9/10	White, "Agricultural Revolution," 39 pgs.
9/12	Holt, "Medieval Mill," 5 pgs. Squatriti, "Water and Milling," 33 pgs.
9/14	Crossley, "Archaeology of Water Power," 15 pgs.
M 9/17	Landes, "Are You Sleeping," and "Great Necessity for Every Rank of Men," 30 pgs.
9/19	Pacey, "Cathedral Builders," 27 pgs.
9/21	Macaulay, <i>Cathedral</i> , all.

M 9/24	Esper, "Replacement of the Longbow," 11 pgs.
9/26	Te Brake, "Air Pollution and Fuel Crises," 22 pgs.
9/28	<i>Domesday Book</i> , c. 15 pgs.
M 10/1	Winner, "Do Artifacts Have Politics?," 15 pgs.
10/3	McKay, "Expansion of Europe," 26 pgs.
10/5	No Class
M 10/8	Stearns, "Britain's Revolution" and "New Causes," 23 pgs. Exam I due.
10/10	Mokyr, "The Years of Miracles," 31 pgs.
10/12	Film: "The Luddites."
M 10/15	Olson, "Science, Technology and the Industrial Revolution," 28 pgs.
10/17	Smith, <i>Wealth of Nations</i> , 22 pgs.
10/19	Headrick, "Tools of Imperialism," 32 pgs.
M 10/22	Hammond and Hammond, "Shadow of the Slave Trade," 19 pgs.
10/24	Thompson, "Time, Work-Discipline, and Industrial Capitalism," 41 pgs.
10/26	Engels, "Working-Class Manchester," 6 pgs. "Child Labor in Factories and Mines," 8 pgs.
M 10/29	Hounshell, "American System of Manufactures," 21 pgs.
10/31	Kasson, "Factory as Republican Community," 53 pgs.
11/2	"Mary Paul Letters," 12 pgs.
M 11/5	Film: "Iron Road."
11/7	Morison, "Building Things in Early America," 23 pgs.
11/9	Marx, "Does Improved Technology Mean Progress?," 9 pgs.
M 11/12	Hughes, <i>American Genesis</i> , Ch. 1, 40 pgs.
11/14	Hughes, <i>American Genesis</i> , Ch. 2, 43 pgs.
11/16	"Papers of Thomas A. Edison," 35 pgs. Exam II due.
M 11/19	Hughes, <i>American Genesis</i> , Ch. 3, 42 pgs.
11/21	Hughes, <i>American Genesis</i> , Ch. 4, 46 pgs.
11/23	Film: "Hoover Dam."
M 11/26	Hughes, <i>American Genesis</i> , pgs. 184-203.
11/28	Hughes, <i>American Genesis</i> , pgs. 203-226 and Smith and Clancy, Documents, 13 pgs.
11/30	Thanksgiving
M 12/3	Hughes, <i>American Genesis</i> , pgs. 226-248 and Nye, "Middletown Lights Up," 27 pgs.
12/5	Hughes, <i>American Genesis</i> , pgs. 353-381 and Lilienthal, <i>TVA</i> , 30 pgs.
12/7	Hughes, <i>American Genesis</i> , pgs. 381-442.
M 12/10	Film: "The Day After Trinity."
12/12	Film: "The Day After Trinity."
12/14	Wrap-up
12/21	Exam III due. Papers are due before the end of exam period in my office.

