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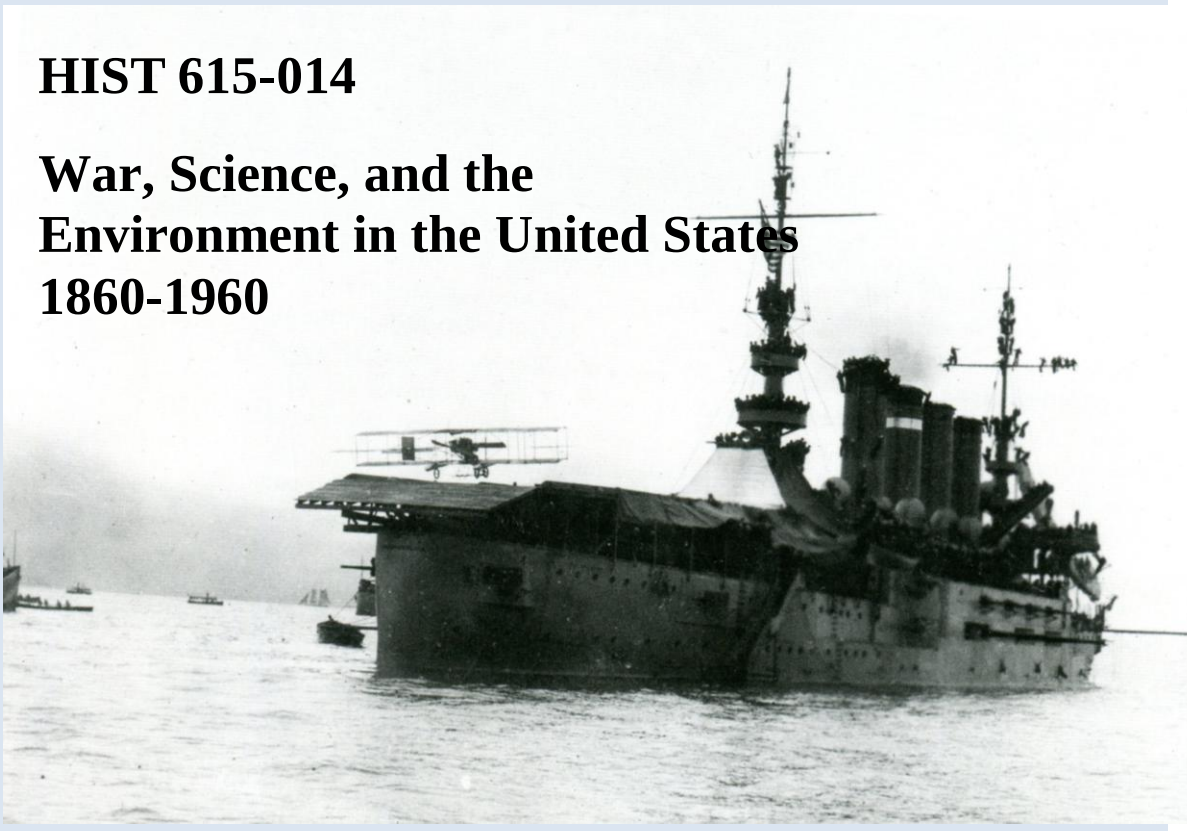
HIST 615-014

War, Science, and the Environment in the United States 1860-1960



Time and Location

Tuesday 07:20 PM to 10:00 PM — Robinson Hall B120

Course Outline

> *Experience proves that the man who obstructs a war in which his nation is engaged, no matter whether right or wrong, occupies no enviable place in history. Better for him, individually, to advocate "war, pestilence, famine," than to act as obstructionist to a war already begun.*
>
> Lt. Ulysses S. Grant, United States Army

> *To me, the development of new and more gases seemed no more immoral that the manufacture of explosives and guns. . . . I did not see in 1917 . . . why tearing a man's guts out by high explosive shell is to be preferred to maiming him by attacking his lungs or skin. All war is immoral.*
>
> Professor James B. Conant

The course explores the historical evolution of the academic-military-industrial complex in the United States beginning with light arms production at government armories prior to the Civil War and concluding with the successful creation of the world's first thermonuclear weapon, less than ninety years later, during the Cold War. Through a series of chronological and topical case studies, the history of weapons development will be used as a platform to investigate the cultural impact on the nation and its citizens resulting from the continual creation and deployment of increasingly complex and ever more powerful weapons and weapons systems. The seminar will pay particular attention to the relationship between research and development practices carried out by scientists, engineers, and physicians and the often times unintended consequences on both the body and the environment. Case studies will include the armory system, railroad construction, environmental warfare, naval architecture, chemical warfare, military medicine, strategic bombing, biological weapons, the Manhattan Project, and thermonuclear weapons.

This course fulfills the "1861-1914" or the "1914-Present" distribution requirement in U.S. History, but not both.

TEXTBOOKS (OPTIONAL)

James M. McPherson, *Battle Cry of Freedom: The Civil War Era,* (New York: Oxford University Press, 1988).
Peter Paret, ed. *Makers of Modern Strategy from Machiavelli to the Nuclear Age,* (Princeton: Princeton University Press, 1986).
Merritt Roe Smith and Leo Marx, eds., *Does Technology Drive History? The Dilemma of Technological Determinism,* (Cambridge: MIT Press, 1995).
Diana Hacker, *A Pocket Style Manual: With 2009 MLA Update*. Fifth Edition (Bedford: St. Martins 2010).

COURSE WEBSITE

We are using the Blackboard website for some course materials:
You should log in through MyMason:
https://mymasonportal.gmu.edu/webapps/portal/frameset.jsp
Contemporary documents that may be of relevance to this class are published by the U.S. Government. If they have not been destroyed, hidden, or reclassified, links to the documents can be found at: http://www.defenselink.mil/pubs/

Assessment

PAPERS, COURSEWORK AND GRADING

There are two book reviews, based on assigned readings, no longer than 3.5 pages each, double-spaced, 12-point font, and standard margins. These papers are due at the beginning of the class that those books are being discussed. The final historiographic essay of 12 to 15 pages can be on any topic of your choice dealing with cultural, environmental, medical, scientific, sensorial, or technological aspects of war. The instructor must approve your topic in advance by **February 14**. Paper must be based on 8-12 books or a corresponding number of journal articles and books. Papers will graded with emphasis on: (1) insightful argument and analysis; (2) mastery of the assigned readings and class material; and (3) writing that is clear, concise and free of error. It is due **May 10** by noon. Each student will also give a 10-minute presentation of their research.

Students are expected to read all assigned work prior to the class session under which it appears on this syllabus. The instructor reserves the right to change the order of the readings and the lectures. Grades will be calculated as follows:

Quality of class participation	**25%**
Quality of the two essays (10% each)	**20%**
Quality of in-class presentation	**10%**
Quality of final essay	**45%**

Late assignments are not accepted nor are assignments submitted via e-mail.

ATTENDANCE AND CLASS PARTICIPATION

DO NOT BE LATE! Arriving late to class once, much less more than once (!), will result in *severe* penalties in the class participation grade.

Your class participation grade (25%) is based not only upon your punctual attendance, but also on your willingness to engage in and add to class discussion. You are expected to come to each class fully prepared to discuss the assigned readings. Attendance is a precondition, but does not fulfill the participation requirement. In exceptional circumstances, I may discount your participation if it is unrepresentative of your performance.

ACCOMMODATIONS

Should you have a learning disability that requires accommodation, I would be grateful if you advise me privately of your situation at the beginning of the semester. I will be open to any necessary and formal accommodations. I appreciate that you bring them to my attention in due time. ***You will also need to contact the Office for Disability Services (ODS) at 993-2474, http://ods.gmu.edu. All academic accommodations must be arranged through the ODS.***

HONOR AND ACADEMIC INTEGRITY

The integrity of the University community is affected by the individual choices made by each of us. GMU has an Honor Code with clear guidelines regarding academic integrity. Three fundamental and rather simple principles to follow at all times are that: (1) all work submitted be your own; (2) when using the work or ideas of others, including fellow students, give full credit through accurate citations; and (3) if you are uncertain about the ground rules on a particular assignment, ask for clarification. No grade is important enough to justify academic misconduct. Plagiarism means using the exact words, opinions, or factual information from another person without giving the person credit. Writers give credit through accepted documentation styles, such as parenthetical citation, footnotes, or endnotes. Paraphrased material must also be cited. A simple listing of books or articles is not sufficient. Plagiarism is the equivalent of intellectual robbery and cannot be tolerated in the academic setting. If you have any doubts about what constitutes plagiarism, please see me. More information is available at http://mason.gmu.edu/~montecin/plagiarism.htm.

Note: The syllabus may change as the semester progresses at the instructor's discretion.

WEEK 1
Tuesday January 24

INTRODUCTION

WEEK 2
Tuesday January 31

THE ANTEBELLUM PERIOD: WEAPONS OF MASS PRODUCTION

Readings
Merritt Roe Smith, *Harper's Ferry Amory and the New Technology: The Challenge of Change* (Cornell University Press, 1977).

Thomas P. Hughes, "Technological Momentum," in *Does Technology Drive History,* 101-114. [PDF on Blackboard]

Optional Reading
Emil Lederer, "Technology," *Encyclopedia of the Social Sciences*, Volume Thirteen, 1934, pp.553-560. [PDF on Blackboard]

WEEK 3
Tuesday February 7

THE CIVIL WAR AT SEA: BUILDING SHIPS! DESTROYING MEN?

Readings
David A. Mindell, *War, Technology, and Experience Aboard the USS Monitor* (Johns Hopkins University Press, 2000).

Lance C. Buhl, "Mariners and Machines: Resistance to Technological Change in the American Navy, 1865-1869," *Journal of American History*, 61 (December, 1974): 703-727. [PDF on Blackboard]

Optional Readings Week 3-6
James M. McPherson, *Battle Cry of Freedom: The Civil War Era*, (New York: Oxford University Press, 1988).

WEEK 4
Tuesday February 14

THE CIVIL WAR AT SEA II: CONSTRUCTING MACHINES AND SYSTEMS ON LAND

Readings
William H. Roberts, *Civil War Ironclads: The U.S. Navy and Industrial Mobilization* (Johns Hopkins University Press, 2002)

Thomas P. Hughes, "Evolution of Large-Scale Technological Systems," in *The Social Construction of Technological Systems*, eds. Wiebe E. Bijker, Thomas P. Hughes, and Trevor Pinch (Cambridge, MA: MIT Press, 1987), 51-82. [PDF on Blackboard]

Timothy S. Wolters, "Electric Torpedoes in the Confederacy: Reconciling Conflicting Histories," *The Journal of Military History*, 72 (July 2008) 755-783. [PDF on Blackboard]

WEEK 5
Tuesday February 21

THE CIVIL WAR ON LAND: THE IRON HORSE AND NATURE

Readings
Robert G. Angevine, *The Railroad and the State: War Politics, and Technology in Nineteenth-Century America* (Stanford University Press, 2004)

Lisa Brady, "The Wilderness of War: Nature and Strategy in the American Civil War," in *Environmental History of the American South, A Reader*, ed., Paul Sutter and Christopher J. Manganiello (Athens: University of Georgia Press, 2009), 168-195. [PDF on Blackboard]

Optional Readings
William G. Thomas, *The Iron Way: Railroads, the Civil War, and the Making of Modern America* (Yale University Press, 2011)
Jack Temple Kirby, "The American Civil War: An Environmental View," the National Humanities Website *Nature Transformed: the Environment in American History*: http://www.nhc.rtp.nc.us/tserve/nattrans/ntuseland/essays/amcwar.htm

WEEK 6
Tuesday February 28

NAVAL ARCHITECTURE AND FLEET CONSTRUCTION IN AMERICA: 1865-1945

Readings
William M. McBride, *Technological Change and the United States Navy, 1865-1945* (Johns Hopkins University Press, 2000)

Timothy Wolters, "Recapitalizing the Fleet: A Material Analysis of Late-Nineteenth Century U.S. Naval Power," *Technology and Culture* (January 2011) Vol. 52, 103-126. [PDF on Blackboard]

WEEK 7
Tuesday March 6

THE INTERWAR PERIOD

Readings
Williamson Murray and Allan R. Millett, *Military Innovation in the Interwar Period* (Cambridge University Press, 1996).
Selected chapters to be announced

Larry Owens, "MIT and the Federal "Angel": Academic R & D and Federal-Private Cooperation before World War II," *Isis,* Vol. 81, No. 2 (June 1990). 189-213. [PDF on Blackboard]

WEEK 8
Tuesday March 13

NO CLASS /SPRING BREAK!!!!!! Remember to keep reading poolside.

WEEK 9
Tuesday March 20

WORLD WAR I: RESEARCH, BODIES, AND DISEASE

Readings

Read either Byerly or Linker. You must read the Kevles' chapters in *The Physicists.*

Carol R. Byerly, *Fever of War: The Influenza Epidemic in the U.S. Army during World War I* (New York University Press, 2005)

Beth Linker, *War's Waste: Rehabilitation in World War I America* (University of Chicago Press, 2011)

Daniel Kevles, *The Physicists: The History of a Scientific Community in Modern America* (Harvard University Press, 1995) 91-154. [PDF on Blackboard]

WEEK 10

Tuesday March 27

WORLD WAR I: THE CHEMISTS WAR

Reading

Edmund Russell, *War and Nature: Fighting Humans and Insects with Chemicals from World War I to Silent Spring* (Cambridge University Press, 2001).

Hugh Slotten, "Humane Chemistry or Scientific Barbarism? American Responses to World War I Poison Gas, 1915-1930," *Journal of American History*, 77 (September 1990): 476-498. [PDF on Blackboard]

George Raudzens, "War-Winning Weapons: The Measurement of Technological Determinism in Military History," *Journal of Military History*, 54 (October, 1990): 403-434 [PDF on Blackboard]

Optional Readings

Gerard J. Fitzgerald, "Chemical Warfare and Medical Response during the Great War," *American Journal of Public Health*, (April 2008): 611-625. [PDF on Blackboard]

Frederick R. Sidell, John S. Urbanetti, William J. Smith, and Charles G. Hurst, "Vesicants," *Medical Aspects of Chemical and Biological Warfare*, Washington D.C.: Office of the Surgeon General/Borden Institute, 1997, 197-228. http://www.globalsecurity.org/wmd/library/report/1997/cwbw/Ch7.pdf

WEEK 11

Tuesday April 3

WORLD WAR II AND HUMAN EXPERIMENTATION: RADIATION BIOLOGY AND BIOLOGICAL WARFARE

Readings

The Human Radiation Experiments: Final Report of the President's Advisory Commission (Oxford University Press 1996) 43-73, 113-134, 135-171. [PDF on Blackboard]

Paul Weindling, The Origins of Informed Consent: The International Scientific Commission on Medical War Crimes, and the Nuremberg Code," *Bulletin of the History of Medicine* (2001) 75 (1): 37–71. [PDF on Blackboard]

Joshua Lederberg, "Introduction," 3-9; George W. Christopher *et al*, "Biological Warfare: A Historical Perspective," 17-37; in *Biological Weapons: Limiting the Threat*, ed., Joshua Lederberg (Cambridge: The MIT Press, 1999). [PDF on Blackboard]

Optional Readings

Michael R. Marrus, "The Nuremberg Doctor's Trail in Historical Context," *Bulletin of the History of Medicine* (1999) 73 (1): 106–123. [PDF on Blackboard]

The Human Radiation Experiments: Final Report of the President's Advisory Commission (Oxford University Press 1996) [On Reserve at library]

WEEK 12

Tuesday April 10

WORLD WAR II: SHOOTING DUCKS IN A BARREL BEFORE CYBERNETICS

Readings

David A. Mindell, *Between Human and Machine: Feedback, Control, and Computing before Cybernetics* (Johns Hopkins University Press, 2002)

WEEK 13

Tuesday April 17

STATEGIC BOMBING

Readings

Tami Davis Biddle, *Rhetoric and Reality in Air Warfare: The Evolution of British and American Ideas about Strategic Bombing, 1914-1945* (Princeton University Press, 2002)

Optional Readings

David MacIsaac, "Voices from the Central Blue: The Air Power Theorists," in *Makers of Modern Strategy*, 624-647. [PDF on Blackboard]

WEEK 14

Tuesday April 24

THE MANHATTAN PROJECT: OPPIE GOES TO THE MAGIC MOUNTAIN

Readings

Stanley Goldberg, "Inventing a Climate of Opinion: Vannevar Bush and the Decision to Build the Bomb," *Isis*, 3 (September 1992): 429-452. [PDF on Blackboard]

Peter Galison, Chapter 4: "Laboratory War: Radar Philosophy and the Los Alamos Man," *Image and Logic: A Material Culture of Microphysics*, (Chicago: University of Chicago Press, 1997), 238-312. [PDF on Blackboard]

Paul Forman, Behind Quantum Electronics: National Security as basis for physical research in the United States, 1940-1960, *Historical Studies in the Physical Sciences* 18:1 (1987) 149-229. [PDF on Blackboard]

Optional Readings

Richard Rhodes, *The Making of the Atomic Bomb* (Simon and Schuster, 1986).

Henry DeWolf Smyth, "Administrative History Up to December 1941,"and "Administrative History 1942-1945," *Atomic Energy for Military Purposes: The Official Report on the Development of the Atomic Bomb under the Auspices of the United States Government, 1910-1945* (Princeton: Princeton University Press, 1945). [On reserve at library]

WEEK 15

Tuesday May 2

THE COLD WAR: REALLY, FINALLY, TRULY…TOTAL WAR!! THE BIRTH OF THE SUPER AND THE END OF THE WORLD

Readings

David Alan Rosenberg, "American Atomic Strategy and the Hydrogen Bomb Decision," *Journal of American History,* 66 (June 1979): 62-87. [PDF on Blackboard]

Peter Galison and Barton Bernstein, "In Any Light: Scientists and the Decision to build the Superbomb, 1952-1954*," Historical Studies in the Physical Sciences*, 19:2 (1989): 267-347. [PDF on Blackboard]

Michael Dennis, "Our First Line of Defense," Two University Laboratories in the Postwar American State," *Isis,* 1994, 85: 427-455 [PDF on Blackboard]

Optional Readings

Lawrence Freedman, "The First Two Generations of Nuclear Strategists," in *Makers of Modern Strategy,* 735-778. [PDF on Blackboard]

Richard Rhodes, *Dark Sun: The Making of the Hydrogen Bomb*, (Simon and Schuster 1995).

Final Papers due in my box on May 10 by noon.