

**Disastrous Encounters: Technology & the Environment
In Global Historical Context
79-212**

**Department of History
Carnegie Mellon University
Fall 2006, Tuesdays, 9:00 – 10:20 AM, BH 255A**

Instructor: Dr. Vagel Keller
Office: FMS 319; Ph: 268 - 4599
Email: vck@andrew.cmu.edu
WWW: <http://home.comcast.net/~VagelKeller>
Office Hours: 11:00 AM – 12:00 Noon Tuesdays and Thursdays, and by appointment

Overview and Goals:

Disastrous Encounters explores the complex interaction between human beings and their environment by examining so-called "natural disasters" as key historical moments in the evolution of cultural relationships in the world from the 17th through the 20th centuries. It focuses on the material causes of natural disasters resulting from developments and adaptations of technology across cultural boundaries, with emphasis on how people have shaped their environments and assessed and responded to the resulting risks of disaster. Of equal importance is the role of systems for the exchange of information in predicting, preparing for, and responding to natural disasters. Students will analyze how people have been affected differently according to their race, ethnicity, class, and sex and use this knowledge to think about continuing environmental change and the disasters faced by the global community now and in the future.

By the end of the class students will be able to:

- Explain the scientific principles behind “natural” disasters, including cyclonic weather, global climate change, volcanoes, earthquakes, tsunamis, river flooding, famines, and diseases.
- Analyze to what extent a given disaster is in fact “natural” at all, but rather was either caused by or exacerbated by human actions.
- Draw connections between different types of disasters, recognizing that major disasters often produce predictable secondary disaster effects.
- Write strong analytical essays.
- Read documents critically, especially in terms of the author’s agenda and the author’s likely biases.

This course is being taught simultaneously at CMU-Qatar by Prof. Benjamin Reilly.

Required Readings:

Students are expected to purchase or otherwise obtain the following books, which are required reading for the class:

Simon Winchester, *Krakatoa: the Day the World Exploded* (on reserve in Hunt Library)

Benjamin Reilly, *Tropical Surge*

Mike Davis, *Late Victorian Holocausts* (on reserve in Hunt Library)

Mirko Grmek, *History of AIDS* (on reserve in Hunt Library)

Zeilinga de Boer and Sanders, *Earthquakes in Human History* (on reserve in Hunt Library)

In addition, students will be required to read a number of excerpts from other books, all of which have been posted to the Hunt Library's course reserves and are available directly through "Cameo" on the library website, <http://www.library.cmu.edu>. In "Cameo" select "Course Reserves," type "Keller, Vagel" in the box, click "Instructor," and click on the appropriate reading, entering your CMU password if prompted to do so.

Classroom Environment:

Etiquette: Attending class and being prepared are courtesies that we will extend to each other. I will attend class, and I will come prepared to lecture and engage in discussions on the assigned readings. I expect each of you to attend and be prepared to engage the course materials as well.

Cell phone usage is prohibited during all classes; if you absolutely cannot bear to be out of touch for 1 hour and 20 minutes, set your cell phone to silent mode and leave the room to answer in-coming calls. Laptop computers may be used only for note taking and/or accessing online readings. Abuse of this policy may result in the student receiving no credit for participation and/or being asked to leave the classroom.

Class Work: Classes will meet at 9:00 – 10:20 AM every Tuesday and Thursday and will be divided into 3 main activities: introductory lectures, discussion of readings, and group projects. Students are responsible for taking their own notes on material presented or discussed in class, as this will constitute the majority content of the final exam. In addition, since class participation and group work constitute 20% of your grade, failure to show up will virtually guarantee a poor overall grade for the course.

During class discussions, students are expected to demonstrate their critical thinking skills by participating actively in an analytical discussion of the assigned materials- students must be prepared to answer questions posed to them, as well as ask informed questions and raise relevant issues about the text. In particular, students are encouraged to consider the content and style of the document: for example, what was goal of the author, what are his/her biases, and what was the intended audience? Most importantly, what does this document tell us about the culture that produced it? Be sure to take a look at the study questions for the readings while preparing for class discussion.

Grades:

Grades will be determined as follows, and explained below:

Class Participation/Group Work	20%
Short Assignments (six total)	20%
Book Review and Research Paper	20% each, 40% overall
Final Exam	20%
Extra Credit	SEE "Sweat Equity," below

Group Work/Class Participation: All students are expected to be constant contributors to the class, and the class will afford students with two avenues to do so. Nearly every week students will be asked to read one or more texts and should come to class prepared to discuss those texts. This discussion will be guided by, but not limited to, the discussion questions for that day's reading. It is not necessary to have brilliant points to discuss—even an informed question about the topic, or an observation based on the reading, constitutes good class discussion.

In addition, all students will be divided into teams and asked to prepare short oral assignments various topics. The topics and the teams are both TBD and will depend somewhat on final enrollment numbers in the class. Group work will be factored into the class participation portion of the grade, and I will take notes on the style and content of all group projects.

Short Assignments. Over the course of the semester, students must turn in a total of six (6) short essay assignments, each of which answers one of the “study questions” for that week's readings. The assignments must be submitted at the beginning of class for which that reading was assigned. Students may answer whichever question they wish, but may only submit one (1) question per week, and must submit three (3) assignments by midway through the semester (October 19th). Students must answer the questions in an essay format, with a clearly articulated one-paragraph introduction, several body paragraphs to support that introduction, and a brief conclusion. The short assignments will be graded on your ability to formulate a convincing argument, firmly based on evidence from the attached document, which clearly addresses the question asked. Please do not hesitate to contact me for help.

Book Review. Students will write a review essay, which is expected to be approximately 3 pages long, about Benjamin Reilly's book, *Tropical Surge*. The essay should discuss the author's goal or thesis for the book, provide a brief synopsis of the subject matter, and evaluate – using examples from the text – the degree to which the author succeeds in his purpose. Students should consult sample book reviews in one of the historical journals in Hunt Library for guidance on general format and content. The book review is due at the beginning of class October 17th.

Research Paper. Students must complete a research paper, which is expected to be approximately 5 pages long. The paper should explore the theme of natural disasters, and should preferably try to answer one of the following three questions:

- 1) To what degree did human decisions/actions cause or exacerbate to a particular “natural” disaster?
- 2) To what degree was a given natural disaster interrelated with other disasters occurring before, during, or after the given disaster?
- 3) In a given country (you pick), what natural disasters are most likely to threaten that country in the future, and what can be done to prepare against the danger?

Students must submit a brief paragraph explaining their topic and include a tentative list of sources for each paper by dates specified in the class schedule. In the research paper, students will be graded on clarity, style, and the use of appropriate evidence to defend a clearly articulated argument (the Essay Grading Rubric applies to this process, as well). *Purely narrative papers, which tell a story rather than analyzing an issue, will receive very poor grades.*

FORMAT: I ask that all essays and papers, regardless of length be printed in Times or Times New Roman size 12 and be double spaced, with one-inch margins at top, bottom, and sides. Footnotes, rather than endnotes, are preferred, and they should be in the same font as the main text but size 10. Please use a printer that is set up to print on one side of the paper only, and staple multiple page essays at the top, left corner.

PLAGIARISM: Plagiarism means to take the ideas, writing, or arguments of others and pass them off as your own. It is a serious academic offense. If you quote directly from a book, website, or other source, or if you want to use the ideas/opinions/conclusions of another author in your writings, you must cite the source using a footnote. All cases of plagiarism will be handled severely, and the most common applied penalty will be failure in the course.

Final Exam. The examination will be given during finals week at a place and time TBA, and will cover material from the lectures and readings for the entire course. Study questions will be provided two weeks before the examination date, and all examination questions will be drawn from the study questions. The examination will be closed book, no notes; you will not be allowed to consult books, readings, or notes during the examination. All you need to bring to the exams are writing implements; examination “bluebooks” will be provided. Make-up examinations will only be given in the case of illness or a serious family emergency, and notification must be given in writing.

The exam is allotted three hours and consists of two parts, short answers and essays. Short answer questions require a response of twenty-five (25) words or less and take two forms. The first type of short answer question involves explaining the significance of a proper name, a term, or a phrase pertaining to one of the subjects discussed in class. The second type of short answer question is called "term matching," in which students are presented with pairs of terms and asked to describe, in one or two paragraphs, the relationship between the terms. There is no set right or wrong answer, but to achieve high marks, students must come up with a convincing link between the two terms and defend it with a persuasive argument. Responses that only define or identify the terms or phrases without explaining their significance or how they are linked will receive no more

than half credit. In the essay part of the exam, students are asked to respond to their choice of one of a small number of questions (out of a longer list provided two weeks before the exam) and asked to answer those questions in an essay format. Grading will follow the grading rubric for essays used for short essays and research papers used during the course.

"SWEAT EQUITY." Since this course is being offered as part of CMU's wider Global Education initiative, and since an important part of that initiative is encouraging responsible global citizenship, students are strongly encouraged to volunteer their time to disaster-based charity organizations while taking the course. As compensation, students may opt out of certain class assignments in return for serving up to twenty-four (24) volunteer hours as "sweat equity," specifically:

- Students may opt out of up to 3 short assignments by performing 3 hours of volunteer work for each assignment.
- Students may opt out of either the research paper or the book review by performing 15 hours of volunteer work.

Note that all claims for "sweat equity" must be supported by documentation from the charity verifying the hours worked.

The following is a partial listing of contacts for potential volunteer opportunities:

Brother's Brother Foundation
1200 Galveston Avenue
Pittsburgh PA 15233
Phone: 412-321-3160
Fax: 412-321-3325
<http://www.brothersbrother.org/volunteer.htm>
mail@brothersbrother.org

American Red Cross
Southwestern Pennsylvania Chapter
225 Boulevard of the Allies
Pittsburgh PA 15222
Phone 888-217-9599
<http://swpa.redcross.org>

"SWEAT EQUITY" Continued. Students may continue to do volunteer work for charities past 24 hours for overall extra course credit if they wish: each 2 hours of charity work will earn that student an additional 1% point towards their overall class grade. Note that no more than 20 hours (10%) will be accepted for course credit, though students are encouraged to volunteer as many hours as they can. Again documentation of the volunteer hours must be provided to the instructor.

LATE WORK POLICY: Papers that are received after the due date are marked down 10% for the first day, 20% for the second day, and 30% for the third. After the third day the student will receive a 0 on the assignment. For the purposes of this policy, any work received on the day of class but after the start time of the class is assessed the 10% penalty.

SCHEDULE of MEETINGS and ASSIGNMENTS

OVERVIEW & INTRODUCTION

Tue, Aug 29 – No Readings

Introductions: Who am I, and who are you? What are the goals for this course, and how will we accomplish them? Why is this course structured as it is, what do I expect of you, and what should you expect of me?

Conceptualizing Disaster: What constitutes a natural disaster? What is "Nature," and how do human beings relate to "it"? What is "the environment"? Are we outside of nature, or part of it?

Thu, Aug 31 – No Readings

Guest Presentation on Brother's Brother Disaster Relief Organization

Tue Sep 5 – Exporting Western Progressivism

Readings:

Ponting, *A Green History of the World*, Chapter 8, "Ways of Thought"

Pursell, *The Machine in America*, Chapter 8, "Export, Exploitation, and Empire"

Discussion Questions:

1. According to Ponting, what are the major factors that have shaped the western world's relationship with the environment, and how?
2. Do you agree with Ponting that the western world has a fundamentally different attitude towards the environment than the rest of the world?
3. According to Pursell, how has the west's attitudes toward technology and the environment shaped its relationships with non-western cultures?

VOLCANIC EVENTS

Thu, Sep 7 – Volcano Science & Case Study

Readings:

Winchester, *Krakatoa*, pp. 106-114

De Boer and Sanders, *Volcanoes in Human History*, Chapter 6, "The Eruption of Tambora in 1815 and the "Year without a Summer"

Discussion Questions:

1. Based on Winchester, and using your own words, describe how the theory of plate tectonics explains the creation of volcanoes. Why do volcanoes occur along some faults between tectonic plates, but not others?
2. Based on De Boer and Sanders, how did the Tambora disaster contribute to other natural disasters across the globe?
3. To what degree did the Tambora eruption influence American history?

Tue, Sep 12 – Krakatoa, Causes and Effects

Readings: Winchester, *Krakatoa*, pp. 136-147 and 209-258

Discussion Questions:

1. According to Winchester, how did the Napoleonic wars transform Batavia?
2. Only a few years after the Krakatoa eruption, the Dutch East Indies would be rocked by a bloody insurrection. To what degree can you detect the roots of this discontent in the period before 1883?

Thu, Sep 14 – Krakatoa, Long-term Consequences

Readings: Winchester, *Krakatoa*, pp. 317-338

Discussion Questions:

1. According to Winchester, why did the Javanese rise in rebellion in 1888, despite relatively generous disaster relief by the Dutch?
2. What evidence does Winchester present concerning Arab involvement in the post-Krakatoa revolt?
3. To what degree do you think that Winchester's account of the post-volcano Javanese insurrection was colored by the events of September 11, 2001?

Tue, Sep 19 – Contemporary Volcanic Events (Group Projects)

Reading List TBP

EARTHQUAKES

Thu, Sep 21 -- Earthquake Science

Readings: De Boer and Sanders, *Earthquakes in Human History*, Chapters 1 & 2

Discussion Questions:

1. Based on information in the chapter, and using your own words, explain the natural mechanism that produces earthquakes.
2. According to de Boer and Sanders, why are seismologists “loath to make specific earthquake predictions?”
3. In the aftermath of the Asian Tsunami of 2004, some conspiracy theorists charged that the United States had triggered the tsunami with a secret experiment or weapon. Based on the information in this chapter, how realistic is this claim?

Tue, Sep 26 – Case Study, Lisbon & New Madrid

Readings:

Otto Friedrich, "The End of the World: The Lisbon Earthquake"

De Boer and Sanders, *Earthquakes in Human History*, Chapter 6

Discussion Questions:

1. Why was the Lisbon earthquake of 1755 so costly in terms of human life?
2. The 18th century was a period of profound conflict between traditional religious modes of the thought and the new secular spirit of the “Enlightenment”. Based on your readings and knowledge of the period, how do you think the 1755 Lisbon quake might have influenced this debate?

3. What lessons can be drawn from Carvalho's effective leadership after the Lisbon quake?
4. To what degree is it fair to call the 1811 New Madrid earthquake a "disaster"?
5. "The New Madrid earthquake exerted an influence over American history far greater than its casualty figures would suggest." To what degree do you agree with this statement?

Thu, Sep 28 – Case Study, San Francisco & Tokyo

Readings: De Boer and Sanders, *Earthquakes in Human History*, chapters 7 & 8

Discussion Questions:

1. To what degree was the Great Kanto earthquake of 1923 similar to the San Francisco quake of 1906?
2. Based on your readings, why do you think that the Great Kanto earthquake was so much more deadly than the San Francisco quake?
3. Based on your readings, have modern-day Americans and Japanese learned from the past and prepared for the disasters of the future?

Tue, Oct 3 – Contemporary Earthquake Events (Group Projects)

Reading List TBP

ENVIRONMENTAL CHANGE

Thu, Oct 5 – Global Warming

Readings:

Karl and Trenberth, "Modern Global Climate Change"
John Houghton, *Global Warming: the Complete Briefing* [extracts]

Discussion Questions:

1. Based on Karl and Trenberth, how might global warming aggravate future disasters?
2. Based on Karl and Trenberth, what is NOT known about global warming- in what respects is the future unclear?
3. According to Houghton, what areas of the world are likely to suffer the greatest impact of global warming?

Tue, Oct 10 – ENSO/NAO

Readings:

Brian Fagen, *Floods, Famines, and Emperors*, Chapter 3, "ENSO"
Brian Fagen, *Floods, Famines, and Emperors*, Chapter 4, "The North Atlantic Oscillation"

Discussion Questions:

1. Explain in your own words the scientific process that leads to the “El Nino” phenomenon.
2. How dangerous is the El Nino weather phenomenon to humans, compared with other disasters such as earthquakes and volcanoes?
3. What might happen if global warming disrupts the natural NAO cycle?

CYCLONIC WEATHER

Thu, Oct 12– Science of Cyclones/Asian Cyclones

Readings: Reilly, “Coils of the Kamikaze”

Discussion Questions:

1. Explain, in your own words, the scientific principles behind the origins of cyclonic storms.
2. Why, according to Reilly, is the “science of hurricane prediction is still so frustratingly inexact”?
3. How responsible are human choices for aggravating the danger posed by cyclonic storms?

Tue, Oct 17 – Hurricanes in South Florida (***Book Review due***)

Readings: Reilly, *Tropical Surge*, Chapter 9, pp. 292-295; Chapter 11; and Epilogue

Discussion Questions:

1. How did the Miami boom and the dramatic rise of South Florida’s population help swell the casualty figures during the Great Miami Hurricane of 1926?
2. Why did the 1935 Labor Day Hurricane kill so many more people than the 1926 storm, despite the fact that it hit a less populated area?
3. To what degree do you think that the deaths in the Labor Day hurricane of 1935 were the fault of the U.S. Government?

Thu, Oct 19 – Contemporary Cyclonic Events (Group Projects) (***3d short essay due by this date***)

Reading List TBP

FLOODS AND FLOOD CONTROL

Tue, Oct 24 – Yellow River Flooding

Readings:

Dodgen, *Controlling the Dragon*, Introduction and Chapters 1 & 4
Kendall, “China’s Sorrow”

Discussion Questions:

1. "Although the disastrous flooding of the Yellow River in the second half of the 19th century has long been seen by historians as a sign of the Ching dynasty's decline, the real cause of the floods lay with the river itself, and human agency played only a small part." How much of this statement do you think Dodgen would agree with? Explain your answer.

2. How might a disastrous flood like that at Kaifeng lead to secondary disasters? Be specific.

3. According to Kendall, what factors conspire to make the *Huang He* (Yellow River) so deadly to human life?

Thu, Oct 26 – Mississippi River Flooding

Readings: Brinkley, *The Great Deluge*, pp. 1-35

Discussion Questions:

1. To what degree did economic activity in lower Louisiana help contribute to the flooding of New Orleans?
2. To what degree did political decisions contribute to the coming disaster?
3. Based on this reading, do you think the Katrina flooding disaster was inevitable?

FAMINES

Tue, Oct 31 – The Irish Potato Famine (*Second research paper topic due*)

Readings:

Donnelly, *The Great Irish Potato Famine*, Introduction

Daly, “The Operations of Famine Relief, 1845-47”

O Grada, “The Great Famine and Today’s Famines”

Discussion Questions:

1. Based on Donnelly, was Ireland’s vulnerability to famine mainly the result of internal Irish economic trends, or economic forces imposed on Ireland from the outside?
2. As Daly makes clear, the British government preferred public works over direct food relief (soup kitchens) to deal with the Irish Potato Famine. How was this policy shaped by experiences with earlier famines and what was its result?
3. According to O Grada, what lessons can the Great Irish Famine teach us about modern-day famines?

Thu, Nov 2 – Late Victorian Holocausts, Pt. I

Readings: Davis, *Late Victorian Holocausts*, Chapters 1 & 2

Discussion Questions:

1. To what degree does Davis believe that the doctrines of Adam Smith and Malthus contributed to the huge loss of life in the 1876-79 Indian famine?
2. Why was the Indian famine of 1876-79 also accompanied by outbreaks of infectious disease?
3. Davis argues that the Indian famine is largely the result of the British Imperial government’s policies. To what degree do his Chinese and Brazilian case studies support his contention?

Tue, Nov 7 – Late Victorian Holocausts, Pt. II

Readings: Davis, *Late Victorian Holocausts*, Chapters 4 & 9

Discussion Questions:

1. What conclusion does Davis draw from his study of famine relief in Qing China and Moghul India, at the start of chapter 9?
2. Why does Davis argue that 19th century British imperial policy created the modern-day third world?
3. To what degree does Davis agree with the “Malthusian” model of cyclical famines resulting from overpopulation?

Thu, Nov 9 – Rwanda: An Abortive African Famine?

Readings:

Mamdani, *When Victims Become Killers*, Introduction

Diamond, *Collapse: How Societies Choose to Fail or Succeed*, Chapter 10, “Malthus in Africa: Rwanda’s Genocide”

Discussion Questions:

1. According to Mamdani, how was the Rwandan genocide fueled by the legacy of imperialism?
2. What evidence does Diamond present to support his case that “we need to search for other contributing factors [to the genocide] in addition to ethnic hatred”?
3. Overall, which argument, Mamdani’s or Diamond’s, do you find more compelling, and why?

Tue, Nov 14 – The Sahel: A Future African Famine

Readings: Fagan, *Floods, Famines, and Emperors*, Chapter 11, “Drought Follows the Plow”

Discussion Questions:

1. How did the Sahel’s traditional inhabitants alter their life styles to minimize the chance of famine?
2. To what degree did European imperialism lead to the desertification of the Sahel?
3. So, are Sahel famines truly “natural” disasters?

DISEASE

Thu, Nov 16 – The Science of Disease

Readings: Grmek, *History of AIDS*, Chapter 9 “The Historical Lesson of New Diseases”

Discussion Questions:

1. Why should we be skeptical when the existence of a “new” disease is announced?
2. Why do major historical milestones tend to be accompanied by “new” diseases? Give examples.
3. “Grmek shows in this chapter that technology can be both a means of curing disease, but new technology can cause diseases as well.” To what degree do you agree with this statement?

Tue, Nov 21 – Diseases of Agriculture

Readings:

Bollet, "The Pellagra Epidemics"

Bollet, "Beriberi"

Kiple et. al, "Rickets: Where the Sun Doesn't Shine"

Discussion Questions:

1. For one of the above (pick one), to what degree is it fair to label the disease a "disease of agriculture?"
2. What connections can you see or imagine between the diseases above and other "natural" disasters discussed in our class? In other words, could these diseases contribute to other disasters, or might other disasters make people more susceptible to these diseases?

Thu, Nov 23 (*No Class Meeting – Thanksgiving Break*)

Tue, Nov 28 – Diseases of Imperialism

Readings:

Kiple et al., "Yellow Fever: the Yellow Jack" and "'Evil' Air and Mosquitoes" Bollet, "The Small Pox"

Discussion Questions:

1. For one of the above (pick one), to what degree is it fair to label the disease a "disease of imperialism?"
2. Same as Question 2 for Nov 21: What connections can you see or imagine between the diseases above and other "natural" disasters discussed in our class?

Thu, Nov 30 – Diseases of Industrialization (*Second research paper due*)

Readings:

Bollet, "Cholera and the Worldwide Plagues of the Nineteenth Century"

Kiple et. al, "Tuberculosis: the 'Consumption' and Civilization;" "Typhus, Ships and Soldiers;" and "Typhoid and its Carriers"

Discussion Questions:

1. Do you see a common thread in the history of all of these diseases, and if so, what is it?
2. Same as Question 2 for Nov 28: What connections can you see or imagine between the diseases above and other "natural" disasters discussed in our class?

Tue, Dec 5 – Diseases of Globalization

Readings:

Bollet, "The SARS Epidemic" and "The Great Influenza Pandemic of 1918-1919"

Grmek, *History of AIDS*, Chapters 14 & 15

"Origin of AIDS Linked to Colonial Practices in Africa" (NPR, Weekend Edition Sunday, June 4, 2006)

Discussion Questions:

1. Based on all of the readings on diseases, do you think one or more of the diseases labeled diseases of agriculture, imperialism, and/or industrialization might transform themselves into global diseases in the years to come? Be specific.
2. What is Grmek's response to the question that is often asked about AIDS: "Why now and not before?"
3. What role, if any, does the legacy of colonialism in Africa play in the spread of AIDS on that continent?
4. Based on the NPR piece, how has the understanding of AIDS changed in the sixteen years since Grmek's book? Put another way, to what degree does it challenge Grmek's evidence or his theories?

Thu, Dec 7 – Looking Forward

Readings: Linden, *The Winds of Change*, Chapter 20

Discussion Questions:

1. Based on Linden, what areas of the world are particularly threatened by global climate change?
2. According to Linden, how might global warming exacerbate certain other types of disasters?
3. According to Linden, how has human population growth exacerbated the danger posed by natural disasters?
4. Do you feel that Linden's recommendations for the future are realistic?

Final Exam: Place, Date & Time TBD