

DISEASE AND SOCIAL DISRUPTION

mll
middle level learning

2

**Connect-the-Dots: Making Meaning
from Historical Evidence**
Chris Edwards

5

**Yellow Fever in Philadelphia, 1793
(Book Review)**
Sandra W. Moss

9

**World War I Posters:
Thinking Critically about
History and the Media**
Tom Carty

16

**On the Trail of an Epidemic: Yellow
Fever in New Orleans, 1845-1860**

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Connect-the-Dots: Making Meaning from Historical Evidence

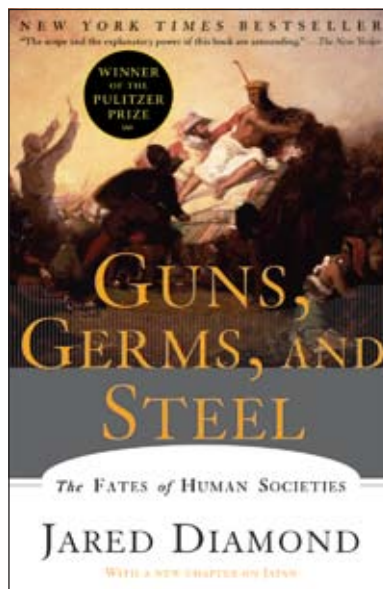
Chris Edwards

It is often lamented that exciting historical scholarship rarely trickles into the secondary classroom. I define my job as an eighth grade history teacher as being a bridge between historical scholars and my students. For example, I believe that part of my work is to read a Pulitzer-winning book like Jared Diamond's *Guns, Germs, and Steel: The Fates of Human Societies* and make its basic insights accessible to middle school students, to show how Diamond's thesis connects to aspects of history covered in the curriculum.¹ I call what I do "the connect-the-dots method," and the goal is to make the study of history exciting

Day 1: Presenting a Puzzle

Here is how I use the connect-the-dots method to break down some of the ideas in Diamond's book in the beginning of the school year. First, we watch a brief excerpt from Stephen Spielberg's *War of the Worlds*, in which alien pod-walkers rise up from the New Jersey streets and start zapping an awe-struck populace.² In short order, a comparatively few pod walkers are able to easily dominate a city with millions of human beings.

My students then read aloud Diamond's summary of Pizarro's conquest of the Incas in Cajamarca, Peru, in 1532. Diamond begins his book dramatically with this fascinating clash of cultures, in which 168 Spaniards on horseback, with guns and swords, were able to crush a field of thousands of Inca warriors. I then challenge my students to draw comparisons between the fictional movie and the historical reading. I ask a question to get the students wondering, "Why were such a small number of Spaniards able to conquer the Inca Empire?"³ There are many reasons for this conquest, but we start by examining a main one—disease.



Now it's time for some dots. In this teaching method, the "dot" is a discrete fact—for example, a scientific observation or a constraint on people that might be geographic, economic, or social. A "dot" might be a statistic about a key resource, like the amount of whale oil needed by U.S. industries in 1800. A "dot" might be a historical document, or even a belief, such as "kings have a divine right to rule."

On the Cover:

Nurse wearing a mask as protection against influenza. September 13, 1918.



In October of 1918, Congress approved a \$1 million budget for the U. S. Public Health Service to recruit 1,000 medical doctors and over 700 registered nurses. Nurses were scarce, as their proximity to and interaction with the disease increased the risk of death.

Source: National Archives, "The Deadly Virus: The Influenza Epidemic of 1918," www.archives.gov/exhibits/influenza-epidemic/ (*Western Newspaper Union*).

In the case of Pizarro's conquest of the Incas, I present five dots in this order:

- **Several species of large animals were domesticated in Europe, Asia, and Africa, providing humans with mechanical power and food.**

Diamond argues that the physical labor and steady food supply provided by domesticated animals allowed Western civilization to develop: human energy was freed up for pursuing such inventions as writing, mathematics, science, and the arts.

Diamond states that the foundations of Western civilization rest on surprisingly few species of big terrestrial herbivores: cattle, sheep, goats, pigs, and horses.⁵ (159) Sheep have a wild ancestor from West and Central Asia. Goats originated in West Asia. Cattle come from ancestors in Eurasia and Northern Africa. The pig descends from the wild boar, which also comes from Eurasia and North Africa. Thus, all originated in the "Old World."

- **Many human diseases evolved from diseases in domestic animals.**

There was a dark side to this human-animal relationship. Humans in Europe, Asia, and Africa entered an evolutionary contest with microscopic disease organisms that arose from these same domesticated animals.

Diamond illustrates time and again that many disease organisms that infect people first appeared as in domestic animals and then “jumped species,” adapting (through small changes in anatomy or molecular structure) to infect and thrive within the human body. The major killers of humanity throughout recorded history—smallpox, flu, tuberculosis, malaria, plague, measles, and cholera—are infectious diseases that evolved from diseases of animals, according to Diamond.⁴ (p. 196-7) In a table “Deadly Gifts from Our Animal Friends,” he lists measles, tuberculosis, and smallpox as arising from cattle; influenza evolving from strains in pigs and ducks; pertussis coming from pigs and dogs; and falciparum malaria originating in birds. (Interestingly, about 20 years, we witnessed a disease agent in monkeys, simian immunodeficiency virus or SIV, “jumping” to the human species in the form of human immunodeficiency virus or HIV.)

Diamond also points out that animal domestication in Europe meant that people had a more settled lifestyle than did their hunter-gatherer forbearers. In an early agricultural society with domesticated animals and stationary shelters, people were likely to come into contact with their own sewage as well as that of the animals they raised. Increased contact with sewage led to easy transmission of disease. Thus, chronic disease and periodic plagues became part of social history.

- **European populations developed some resistance to these diseases.**

Those who survived a plague often did so because some aspect of their immune system afforded them protection. Maybe a virus molecule could not enter their cells, or maybe their immune cells learned to control the disease within the body.

These survivors might pass on to their children a genetic heritage of resistance to that disease. Children in Europe could inherit a molecular memory (in their DNA) of specific characteristics of

the immune systems that allowed them, unwittingly, to survive a recurrence of a disease.

- **There were few domesticated animals on the American continent before 1492.**

Some Native Americans bred fowl, such as the turkey, and some hunted with dogs. But the benefits of owning large domesticated animals (such as free time to pursue technological innovation) as well as the risks (such as animal-borne illness) were generally unknown in pre-Columbian America.⁵

- **Part of the Columbian Exchange was the passing of disease between populations.**

Along with the exchange of new food crops from the Americas to Europe (ex. potato, peanut, tomato, corn, and strawberry) and from Europe to the Americas (ex. wheat, oat, coffee, and sugarcane), there was an exchange of disease organisms.⁶ The result was especially disastrous for Native Americans, since their populations did not have the centuries to develop immunity that results from living along side domesticated animals over generations. Some of the diseases carried from Europe that devastated Native Americans were measles, bubonic plague, tuberculosis, and smallpox.

Day 2: Assessment while Learning

To begin the second day of the lesson, we briefly review the previous day’s “dots,” and then I repeat the initial question, “Why were such a small number of Spaniards able to conquer the Inca empire?”³ I ask students to “connect the dots,” to speculate on various answers to this question, with the use of information presented in the lesson so far. Then I share with students some of the reasons favored by historians (and some of the controversy surrounding the topic). The Incas were torn by internal division, didn’t have access to iron weapons or horses, had recently been wracked by new diseases, and their king was fatally arrogant. He

sent his men to meet Spaniards without weapons, thinking that his reputation would grow if he could scare the enemy away without arms.

For a concluding activity and assessment to this lesson, I present an excerpt from a primary historical document and ask my students to tell me what it means. Can they now “connect the dots?”

I challenge my students to analyze what they have just learned, use it to comprehend a new piece of information, and then communicate their new understanding to me. This activity is both an assessment and a learning activity. It is the heart of the connect-the-dots method.

For this assignment, I hand out a portion of a letter from 1634, in which John Winthrop, governor of the Massachusetts Bay colony, wrote to a friend:⁸

But for the natives in these parts, God hath so pursued them, as for 300 miles space the greatest part of them are swept away by the smallpox which still continues among them. So as God hath thereby cleared our title to this place...

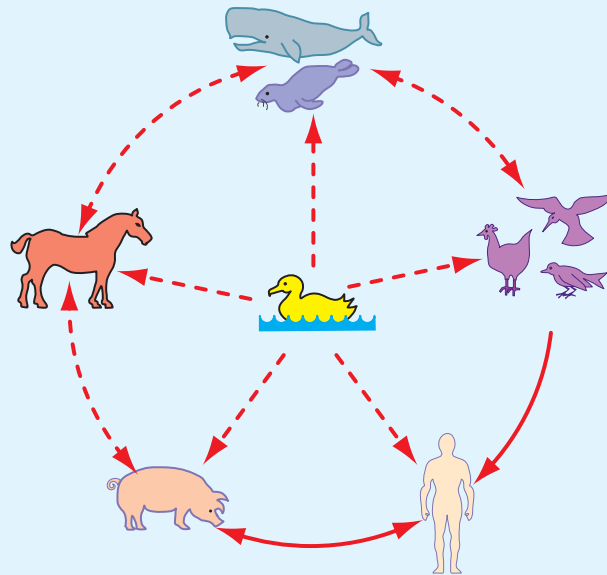
If the students have been able to connect the dots, then this brief quote should set off a chain reaction of “light bulbs” in their minds, illuminating a bigger picture that is a backdrop, a context for these words.

Although students are eager at this point to discuss their insights, I assign to them a writing task. I tell them to devote 20 minutes to writing a paragraph or more about the possible meanings of this historical quotation. I ask aloud a few leading questions, not for them to answer in sequence, but to stimulate their thinking and to help them organize their composition:

- What are some of the reasons that a colonial governor in 1634 might write a statement like this?
- What might Native Americans have been thinking and feeling in 1634, when smallpox was ravaging through their villages?

Carriers of the Influenza Type A Virus

Sources: Diagram from Paul Heinen, "Swine Influenza: A Zoonosis," *Veterinary Sciences Tomorrow*, 15 September 2003, www.vetsci.org/publish/articles/000041/index.html. See "The Influenza Pandemic of 1918," virus.stanford.edu/uda/.



Transmission cycle of the influenza type A virus between species. The influenza pandemic of 1918-1919 killed more people than the Great War, known today as World War I, at somewhere between 20 and 40 million people. It has been cited as the most devastating epidemic in recorded world history, killing more people in a single year than in four-years of the black death (bubonic plague and anthrax) from 1347 to 1351, C.E.

- What do we know today about smallpox that helps explain the situation as it was in 1634?
- If you were to write a response to Governor John Winthrop, what might you tell him?

Toward the end of the hour, I inform the class that many Europeans and white Americans also died from smallpox, though to a lesser degree than Native Americans. (Abraham Lincoln suffered a non-fatal infection during his presidency.) At the end of the period, I collect students' short essays and grade them.

Day 3: Reflection

On the third day of this lesson, I select specific students to read their essays aloud to the whole class. Then, as a class, we discuss our interpretations of the quote from Governor Winthrop. The topic is discussed in numerous sources, including Norman Cantor's *Plagues and Peoples*.⁷ Without knowledge of a germ theory of disease, and with little understanding of how the human body works, most Europeans believed that

plagues (whether in European towns or Native American villages) were God's punishment for wrongdoing. As America was being colonized, such a belief fit comfortably alongside the idea that it was God's will that European nations conquer the "untamed wilderness" of the "New World," overpowering any "primitive tribes" that stood in the way.

A Medical Victory

There's some good news that allows me to conclude the lesson with a hopeful thought. A cure for smallpox appeared on the horizon in 1796, when an English country doctor, Edward Jenner, inoculated a boy with cowpox, a strain of the virus that is not lethal to humans. At first, people were skeptical about the practice of vaccination, but the medical profession was eventually convinced by many successful trials.

It took almost two centuries, but in 1979 the World Health Organization declared smallpox to be a disease eradicated from the Earth. This victory was the result of coordinated public health efforts by governments, doctors, and educators the world over.

Unity of Knowledge

By working through this activity, my students see that history is not a narrow field, but rather an aspect of what Edward Wilson calls *consilience*, or the unity of knowledge.

The connect-the-dots method does not treat history as a subject that is separate from science, art, language arts, law, geography, civics, or economics. All of these disciplines can be studied in a way that ties them together into a larger picture.

Heraclitus wrote, "Those who love wisdom must be inquirers into many things indeed." He was right. Once we have a grasp of the facts of history (the dots), we yearn to connect them in some meaningful way (to draw the lines). Diamond wrote *Guns, Germs, and Steel* by looking through history from the perspective of a biologist. The future belongs to people who can bring information together from various disciplines in a way that makes sense, allowing them to make informed choices in the present. In my class, the students learn how to do traditional research, write papers, and assemble bibliographies—but as they do so, I also challenge them to bring information from different disciplines together into a coherent whole. They learn to connect the dots. 🧩

Notes

1. Jared Diamond, *Guns, Germs, and Steel* (New York: W.W. Norton, 1999), 159-160, 196-197.
2. Stephen Spielberg, director, *War of the Worlds* (DVD; Hollywood, CA: Dreamworks, 2005).
3. Diamond, 159.
4. Diamond, 196-7.
5. Diamond, 160.
6. Alfred W. Crosby, "The Columbian Exchange: Plants, Animals, and Disease between the Old and New Worlds" (National Humanities Center: University of Texas at Austin, 1999), www.nhc.rtp.nc.us/tserve/nattrans/ntecoinc/essays/columbianc.htm.
7. Norman F. Cantor, *Plagues and Peoples* (New York: Anchor Books, 1976); *In the Wake of the Plague: The Black Death and The World It Made* (New York: Perennial, 2001), 23.
8. Edward O. Wilson, *Consilience: The Unity of Knowledge* (New York: Random House, 1998).

CHRIS EDWARDS taught eighth grade social studies at Hamilton Southeastern Jr. High in Fishers, Indiana. He currently teaches history at Fishers High School.

Yellow Fever in Philadelphia, 1793

Jim Murphy, *An American Plague: The True and Terrifying Story of the Yellow Fever Epidemic of 1793* (Clarion Books, 2003, 165 pages)

Reviewed by Sandra W. Moss

Jim Murphy's experience as an author of nonfiction books for young readers serves him well in his recent history of Philadelphia's fearsome yellow fever epidemic of 1793. The great strength of his account is not its originality—the story has been told by generations of historians—but rather its organization and pace. Murphy relies heavily on primary sources including diaries, letters, and newspaper accounts to bring his story to life.

Readers may find an eerie sense of *déjà vu* in Murphy's account. Written two years before Hurricane Katrina, *An American Plague* evokes images of New Orleans in 2005. Natural disasters and disease epidemics have much in common. Ironically, the last yellow fever epidemic in the United States claimed close to 450 victims in New Orleans a century earlier in 1905.

Murphy launches straight into a graphic description of municipal hygiene in Philadelphia's hot, endless summer of 1793. His unblinking descriptions of open sewage, decomposing carcasses, and rotting produce are interlaced with light novelistic touches: "Despite the stench, the streets nearby were crowded with people that morning—ship owners and their captains talking seriously, shouting children darting between wagons or climbing on crates and barrels, well-dressed men and women out for a stroll, servants and slaves hurrying from one chore to the next." (p. 3). Many in the city, including its leading physician, blame the foul miasma of coffee rotting on a wharf for the epidemic. Recall that the germ theory of disease would not gain strong acceptance among scientists for a century.

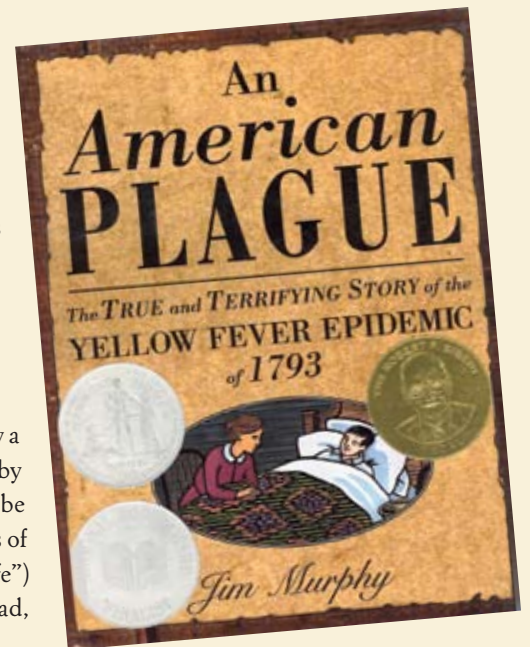
Murphy's choice of illustrations enhances the message of the text. In addition to the usual portraits and civic scenes, reproductions of carefully selected newspaper pages from the *Federal Gazette* carry the reader back to the "media" of the day. A contem-

porary map of the city is accompanied by a helpful map of key landmarks rendered by a modern artist. Readers can't help but be riveted by the reproduction of two pages of alphabetized names (and "stations in life") from Mathew Carey's listing of the dead, thought to total about five thousand.

Medical History

Murphy introduces us to the disease in much the same way as the doctors of the place would have experienced it—observing a case here and another there, uncertain about diagnosis, reluctant to declare an epidemic. We learn the identities of the first victims and witness their deaths in graphic detail. The Spanish call the yellow fever "vomito negro" (black vomit) for good reason, and Murphy does not flinch in describing the sights, sounds, and smells of death. We meet the doctors of the city, including the elite men at the College of Physicians as they squabble over diagnosis, treatment, and preventive measures. And we feel the momentum of the gathering storm.

Benjamin Rush, Edinburgh-trained physician and signer of the Declaration of Independence, is the dominant figure in Philadelphia medicine. Rush's theory of disease and his search through the available medical literature lead him to champion what comes to be known as "heroic therapy"—violent purges and aggressive blood-letting. Unlike many physicians, Rush stays in the stricken city throughout the epidemic, treat-



ing hundreds of his fellow citizens, no doubt hurrying some to their graves with his prescriptions. Rush himself survives the disease, but several of his apprentices and his sister do not. Other physicians recommend gentle, supportive therapy aimed at sustaining the strength of the victim. Each camp will accuse the other of irresponsible practices and, in effect, medical murder.

A Fragile Republic

Most histories of the yellow fever epidemic in Philadelphia mention in passing the virtual shutdown of the federal government in the nation's first capital city. Murphy pauses to show us the astonishingly fragile institutions of the early Federal period, reminding us that survival was by no means certain for the United States of America. As the fever grips Philadelphia, George Washington retreats to Mount Vernon at Martha's urging, fretting for eight weeks over the lack of news from the beleaguered city. He returns by private coach at the end of October 1793, accompanied by a grumbling Thomas Jefferson. Although Washington is privately hosted in a nearby

town, Secretary of State Jefferson and Senators James Madison and James Monroe make do with third-rate accommodations at the local tavern; Jefferson occupies an unfurnished room, while Madison and Monroe sleep on benches. Alexander Hamilton, Secretary of the Treasury survives the fever. Secretary of War Henry Knox is left to run the government in Philadelphia until he finds it expedient to head out of the city. The Pennsylvania state government flees en masse, as do most city officials.

Character Counts

Crises often give rise to extraordinary individuals. Such people, wrote the poet Stephen Spender, “wore at their hearts the fire’s center” and “left the vivid air signed with their honor.” One man emerges as Murphy’s hero: Philadelphia’s wealthy and “amiable” mayor, Matthew Clarkson. His heroism takes the form of showing up for work every day at city hall. Largely a figurehead in a city run by committees, Clarkson has little real power and plenty of reasons for leaving, including his fever-stricken wife and their nine children, of whom the youngest dies early in the epidemic. Facing the threat of chaos and despair, Clarkson effectively seizes power and gathers about himself an ad hoc committee of tradesmen, artisans, and wealthy citizens. This may be an example of a leader consolidating power, temporarily, for a good purpose

A sense of duty to God, their “city of brotherly love,” and to suffering neighbors inspires some citizens to extraordinary acts of “crisis management” and self-sacrifice. A tavern-keeper organizes shelter for scores of orphans and takes charge of burials. A barrel maker and a wealthy merchant turn an appalling pest house into an infectious disease hospital. Although not a member of the committee, a Lutheran minister, who sees the epidemic as the punishment of a vengeful God upon a sinful city, walks the stricken town every night to comfort his dying parishioners. Most importantly, Clarkson’s emergency committee does much to control the panic that seizes the twenty thousand Philadelphians, many of them poor, who would not or could not flee the city.

When the arrival of frost puts an end to the epidemic, the official government of the city

reconvenes. The council, comprised largely of men who fled the city, praises Clarkson and his men before deciding that the three thousand dollar deficit (expenditures minus contributions) must be made up from personal funds by Clarkson and the members of the emergency committee!

African American Experiences

Black voices are often unheard in the historical record of epidemics, but they come through loud and clear in Philadelphia in 1793. Throughout the epidemic, Absalom Jones and Richard Allen, elders of the Free African Society (there were three thousand free blacks and two hundred slaves in Philadelphia in the 1790s), lead their members in visiting the homes of stricken whites, providing social services, and nursing the abandoned. The reason they give was that “it was our duty to do all the good we could to our fellow mortals.” They immediately offer the services of the Free African Society to Mayor Clarkson, who gratefully accepts. Prices for all services were rising in the stricken city, and Clarkson will vigorously defend the Society members against public censure and charges of profiteering. Rush, who is overwhelmed by his duties, teaches Jones and Allen how to treat the sick according to his methods. As the epidemic wears on, it is black citizens who nurse the sick at the “pest-house” as well as in private homes.

The primary contemporary source for the 1793 epidemic is a slim volume published near the end of the epidemic by Mathew Carey, a member of Clarkson’s committee and a Philadelphia publisher. For the most part, Carey’s account is accurate, perceptive, and generous in its praise for those who acted courageously. Leaders of the black community deserve public gratitude for their work in nursing sick whites, wrote Carey, but some of the “vilest of the blacks” extorted high fees from white people desperate for assistance. Jones and Allen respond quickly to Carey’s accusations with a slim volume of their own. *A Narrative of the Proceedings of the Black People, During the Late Awful Calamity in Philadelphia, in the Year 1793: And a Refutation of Some Censures, Thrown upon Them in Some Late Publications* is one of the first documents published in the United States “in which leaders of the black

community confronted an accuser directly and attempted to articulate the depth of their anger.” Murphy summarizes the arguments of Jones and Allen and praises their book as “a remarkable essay, tightly argued and organized, passionate and unrelenting.” (p. 118) In addition to documenting the day-to-day activities of their group during the epidemic, Jones and Allen counter the prevailing medical belief that American-born blacks had natural immunity to yellow fever and thus were ideal nurses. They gathered statistics showing that, in Philadelphia, blacks died at the same rate as whites.¹

Walter Reed’s Commission

The final chapter of Murphy’s book briefly sketches the history of yellow fever during the nineteenth century. In a final “assault on the north,” yellow fever struck New York in 1858. New York mobs, fearful of the disease, attacked the Quarantine Hospital on Staten Island. Similar “not-in-my-backyard” responses would typify public reaction to facilities for the treatment and care of many infectious disease victims in years to come. As the century progressed, yellow fever retreated south, killing thousands in port cities such as Charleston, Jacksonville, and New Orleans in a series of deadly epidemics.

The work of Walter Reed’s Yellow Fever Commission in Havana in the wake of the Spanish American War is quickly summarized, with some attention to other researchers. The Reed story has been told and retold; controversy continues today about participation of the Commission members in self-experimentation, the meaning of “volunteer” as understood by participants in human experiments, and in the assignment of credit for the proof of the mosquito theory. Everyone agrees that in 1900, the Yellow Fever Commission proved through a series of experiments on human volunteers, that yellow fever is transmitted to a susceptible person by the *Aedes aegypti* mosquito; the mosquito is not capable of transmitting the infection until one or two weeks after feeding on the blood of an active early case of yellow fever. This time lag explains much of the confusion in Philadelphia about the contagiousness of the fever and the failure of sanitation and quarantine to halt its spread. The secret to controlling urban yellow fever



...the mosquito is not capable of transmitting the infection until one or two weeks after feeding on the blood of an active early case of yellow fever. This time lag explains much of the confusion in Philadelphia about the contagiousness of the fever and the **failure of sanitation and quarantine to halt its spread.**

is destroying the mosquitoes, their larvae, and their breeding places in standing water. Murphy observes that yellow fever still poses a threat, particularly in the “sylvan” form carried by monkeys in tropical jungles.

Lessons for Today

Murphy’s concluding chapter is a little disappointing. The main lesson of the yellow fever epidemic of 1793 is not really the prevailing ignorance of the mosquito vector or the threat that “another version of the disease will eventually emerge to challenge us again” (p. 139). Even had the mosquito theory been accepted at the time, there was no public health apparatus in place to effectively carry out an eradication program. More than a century later, Major William Crawford Gorgas, ranking U.S. military medical officer in Havana, Cuba, applied Reed’s mosquito theory to the eradication of yellow fever. In a military-style campaign, Gorgas rendered Havana free of yellow fever within months by attacking the implicated species of mosquito and its larvae. The subsequent success of the Panama Canal project (1904-1914) owed much to the mosquito eradication campaign by Gorgas, chief sanitary officer of the project.

The main lesson for modern readers, in my opinion, is the interdependence of disease and society; the relevant society here is the early American republic, strong in its intellectual foundations but still fragile in its structure. As is still the case today, epidemic disease in the 1790s was inextricably enmeshed with government, commerce, transportation, and social class, as well as medical theory and practice. Nineteenth century efforts to establish a national public health service were slowed by stubborn opinions based on states rights and individual liberty.

Learning about past epidemics and the ways in which ordinary people and those in

authority responded can help prepare us as citizens and as a society for the inevitable epidemics, natural disasters, and human disasters of the future. Today, citizens rightfully expect government—whether local, state, or federal—to react quickly and effectively to an epidemic or to the mere threat of an epidemic.

When a crisis occurs, there are individual acts of courage, along with inevitable finger pointing and recrimination. Press reports emerge over days, weeks, and months to inspire or appall a vast national audience. The city at the epicenter of the epidemic is left scarred and changed. As we have seen, natural and man-made disasters have much in common with epidemic outbreaks of disease. John Murphy’s *An American Plague: The True and Terrifying Story of the Yellow Fever Epidemic of 1793* can help middle school students shape an intellectual response to events such as 9/11, Katrina, the AIDS epidemic, and emerging disease threats such as SARS and bioterrorism. 📖

Notes

1. Most medical authorities have concluded that indigenous people in sub-Saharan Africa (including West Africa and west-central Africa-Angola) do NOT have innate (i.e., inherited or genetic) resistance to yellow fever. The immunity some people do possess today was acquired in one of two ways: either through vaccination (introduced in French African colonies in the 1930s) or by having a barely noticeable case of the disease as a little child or surviving a case as an adult. When yellow fever attacks the very young (new-comers to their society), it might either kill them or pass over lightly and by so doing give them partial immunity to the next attack. Source: Sheldon Watts, “Yellow Fever Immunities In West Africa And The Americas in the Age Of Slavery And Beyond: A Reappraisal,” *Journal of Social History*, Summer, 2001. findarticles.com/p/articles/mi_m2005/is_4_34/ai_76713036/pg_1.

SANDRA W. MOSS has an M.D. from Mount Sinai School of Medicine and an M.A. in history from the New Jersey Institute of Technology/Rutgers University. She lives in Metuchen, New Jersey.

ONLINE RESOURCES

The bibliography in Jim Murphy’s book is very good. Here are some additional, online resources:

The pamphlet by Absalom Jones and Richard Allen, *A Narrative of the Proceedings of the Black People ...* (1794) is reproduced in full at

www.ncbi.nlm.nih.gov/books/bookres.fcgi/history/pdf_jones.pdf

Excerpts from Mathew Carey, *A Short Account of the Yellow Fever* (1793) are at

www.uoregon.edu/~mjdennis/courses/history%20456_carey.htm

The University of Virginia Library has a remarkable collection of documents and images related to the work of Walter Reed and his colleagues in Cuba. For example, letters are shown in their original form side-by-side with searchable type.

yellowfever.lib.virginia.edu/reed/reed.html

W. Schamel and L. A. Potter, “Legacy of Health: Documentary Photographs of the Panama Canal Construction,” *Social Education* 64, no. 2 (March 2000): 110-120. A PDF is at the “Members Only Pages and Journal Archives,”

www.socialstudies.org.

The diary of Elizabeth Sandwith Drinker, a Philadelphia Quaker, was written between 1759 and 1807. To read excerpts, enter her name in the query box at

books.google.com/books.

The World Health Organization (WHO) and the Centers for Disease Control (CDC) maintain yellow fever websites,

www.who.int/csr/disease/yellowfev/en/ and www.cdc.gov/ncidod/dvbid/yellowfever/

PBS produced an excellent documentary *The Great Fever* (2006) for the American Experience series, focusing on yellow fever in the American South in the 19th century and the work of the Yellow Fever Commission in Cuba. Video and teacher’s guide can be purchased at

www.pbs.org/wgbh/amex/fever/

Epidemics in History and Social Studies Curricular Connections

The history of the Philadelphia epidemic of 1793 has many links to the curriculum of the middle grades and can be used to spark interest or add depth to any number of classroom lessons. — Sandra W. Moss, M.D.

1. Character Education

As students of history, we see how epidemics can bring out the worst in people, pitting native-born against immigrants, the wealthy against the poor, government against its own citizens, townsfolk against “outsiders,” one race or religion against another, the self-proclaimed morally upright against those seen as irresponsible and self-indulgent, the well against the sick.

On the other hand, epidemics can inspire extraordinary courage, not only among medical personnel and public officials, but also among ordinary citizens. Sometimes, simply remaining at one’s post, showing up for work, or performing a simple act of kindness is an act of courage.

2. History

It’s fascinating to learn that, while they were struggling to build a new nation after the Revolution, the Founding Fathers (and their families) struggled just to stay alive (see page 6). Students can stay alert for other historical examples in which armies, ethnic groups, cities, and whole nations have been severely affected by disease.

3. Geography

Learning about epidemics calls for reading maps, charts, and graphs. (See pages 15–16.) In 1854, Dr. John Snow of London marked fatalities on a street map during a local epidemic of cholera. The markings clustered around a water pump on Broad Street, supporting Snow’s 1849 hypothesis that cholera was spread by a contaminated water supply. Snow convinced skeptical local authorities to remove the handle of the pump. The epidemic, already waning in intensity, was soon over. Snow’s meticulous investigation of the association between cholera cases and the local water supply focused attention on municipal sanitation and clean water supply. Snow’s disease map is one of the best-known documents in the history of public health; he is considered by some to be the “father of epidemiology.”¹

4. Civics

Epidemics can spur government action. In 1812, Philadelphia became the first large U.S. city to provide safe water to all of its inhabitants.²

Epidemics can threaten the basic freedoms of a democratic society, as health officials act to limit travel and proscribe free movement, quarantine the sick and those who may become sick, limit or ban traditional nursing and burial practices, close businesses, and shut down institutions such as schools and places of worship.

What is the proper balance between individual freedom and protecting the public’s health? This is an important question to discuss, although there is no easy answer.

5. Personal Health

Each of us should keep up to date with recommended immunizations, practice good hygiene, live a healthy lifestyle, travel with due precaution, and, at times of crisis, remain alert to recommendations by public health agencies such as the Centers for Disease Control.³ The germ theory of disease and scientific studies show that the most important means of avoiding infectious disease is simply washing one’s hands (especially after using the bathroom, and before touching food).

6. Public Health

The prevention of yellow fever epidemics (and the eradication or control of other diseases such as polio and smallpox) has been achieved by careful scientific investigation followed by enlightened public policies. Laws that require childhood vaccination, food inspection, the provision of clean water, and the careful management of sewage are crucial for human health.

The most important defense against any new epidemic (whether the disease agent has been spread by terrorist or by natural forces) is well-functioning hospitals with excess emergency room capacity and plenty of well-trained professionals. Today, emergency rooms are stressed in many U.S. urban areas. This is a problem that our society needs to address.

7. Current Events

Recent outbreaks such as the severe acute respiratory syndrome (SARS) epidemic in Toronto in 2003 have taught us that we must care for the caretakers. We must recognize the risk assumed by medical personnel and their families. Natural disasters like Hurricane Katrina and man-made disasters like 9/11 raise similar issues of society’s special obligation to those who meet their professional obligation to aid others while putting themselves and their families at risk. The time to address such issues is before, rather than after, the next disaster or epidemic. 🌐

Notes

1. Sandra Hempel, *The Strange Case of the Broad Street Pump: John Snow and the Mystery of Cholera* (Berkeley, CA: University of California Press, 2007).
2. “Muddy Waters” lesson plan at www.explorepahistory.com; Fairmount Water Works, www.schuylkillriver.org/.
3. Center for Disease Control, www.cdc.org.

World War I Posters: Thinking Critically about History and the Media

Tom Carty

When I first used a work of art as an item for study by middle school students, I assumed that everyone could observe a picture and start “reading” its message. But I have learned that I have to consider each student’s skill level before asking him or her to answer questions about a picture. My students’ abilities to analyze pictures vary just as their reading skills do.

Art and Levels of Inquiry

I begin with factual questions that do not require too much interpretation. For example: What is the woman in the picture wearing? What does she seem to be doing? What are the main colors used in the picture? I will pose such opening questions to a student who may not normally participate in open discussion, giving him the opportunity to succeed. As other students build on his answer, he may feel that he is an important part of the class and develop the confidence to answer a more complicated question later.

When textbook material and art are directly related, then students get more out of both. A student who studies a painting of the Battle of Bunker Hill may note the entrenched position of the Colonial forces and their control of the high ground, and then conclude that they are at an advantage. She can then read an account of the battle to determine if her interpretation is correct. If there are discrepancies between what students have read and what is shown in a picture, that is an interesting point for discussion.

Once students have examined the connection between the parts of a painting and historical facts, I can guide them in thinking about larger historical and social questions

that might be raised by the image. Who was the audience for this work of art at the time it was created, and what were they experiencing when it was first displayed? (For example, was it an era of political stability or unrest?) Was the artist trying to convince the viewer to think or behave in a certain way? If so, how did the artist persuade viewers with colors, words, shapes, and symbols? These “big questions” do not often have simple answers, but the discussion forces students to apply what they have learned about an event, the era in which it occurred, and the social forces that were at play when the art was created.

The Students and Curriculum

I taught a unit of study about World War I using posters produced mainly by the U.S. government. I kept a record of how students responded to the lessons, which I taught at a middle school in Floral Park, New York, two years ago.¹ This school has an ethnically diverse student body. I taught the unit to five eighth grade social studies classes: two were SP honors classes and three were considered regular classes.² I relied on the textbook along with several primary and secondary sources to discuss the events leading up the war and how the United States became involved. Then I spent

several days focusing on the government’s use of propaganda to encourage support at home for the war. Each lesson centered on a poster that dealt with a topic that the students were already somewhat familiar with from their earlier reading. Four of these posters are reproduced on the pages following this article, each with a lengthy caption that includes

- Observations about the Image
- Facts about Historical Events and Conditions
- Interpretations and Analysis
- Questions for Further Inquiry

These items suggest how a teacher could guide classroom discussion while the poster is displayed or held up.

I. Calling for War: The *Lusitania*

The first lesson focused on the reactions of England and the United States to the sinking of the *Lusitania*. I began by projecting the poster (see p. 12) on the overhead. I gave students about five minutes to study the picture and jot down their reaction to it. Jim, who is hesitant to ask or answer questions in class, volunteered the first comment: “The woman is pointing a sword at herself.”

“Why would she do that?” I asked. “She wants to kill herself?” he responded.

In the ensuing discussion, other students helped clarify what action was being por-

trayed in the image: the woman is holding a sword in its scabbard, holding the handle toward the viewer.

I then called on Julie, a talkative girl who is generally more interested her social life than academics. "What else do you see?" I asked her.

"There is a boat in the background, and it looks like someone is reaching from the water," she responded. "Maybe it's that ship that sank!" someone in the back yelled out.³

I pressed for the name of the ship and got several pronunciations of the *Lusitania*.

"How did the United States and Great Britain react to the sinking of the *Lusitania*?" I asked. "How viewers might feel after seeing the poster."

"Angry," answered one. "They are supposed to want revenge," responded another.

The remainder of the lesson was spent clarifying the artist's point of view and the poster's aim of winning support for a looming war against Germany. I read aloud an excerpt from a recently-published book revealing that there were in fact munitions hidden on the ship.⁴ This led to a brief discussion about the poster's validity (Was it portraying the situation accurately?) and to questions about responsibility (Should the British have hidden munitions on a passenger ship?) I was encouraged that the overall class participation was high during this first lesson.

II. Enticement: Recruiting and the Draft

Each of the next three posters represented a different issue that the U.S. government faced as it tried to mobilize the population for war. I began with the issue of recruiting, and gave students the following questions to answer:

1. What does the figure in the poster want you to do?
2. Who is the figure?
3. What do you notice about the coloring of the poster?
4. Why is this significant?

I asked students to identify the central figure in the poster (see p. 13). Sam, usually an inattentive student, came to life.

"A hot girl!" he said.

I responded by asking him what was the artist's reason for this choice.

"It's saying ... you know ... she'll be yours if you join the Navy," he said laughing.

"What if you don't join the Navy?" I asked.

"Then you are not a man," another boy called out.

In three of the five classes, students asked why a poster like this was necessary if there was a draft. This seemed to indicate two things. First, that the poster was indeed a trigger for their prior knowledge. More importantly, their willingness to question the source indicated an ability to recognize a possible contradiction in material that they were studying.

Conversations in other classes brought out the same themes. A boy read aloud the phrase "Be a man and do it" and was delighted to point out the dual meaning.

"Sex sells!" said a girl.

Students recognized the patriotic message of the red, white, and blue color scheme. Students from SP as well as my average students made these observations. Not surprisingly, this was the most referenced poster in the essay portion of the exam (described below). We finished the lesson with a quick review of the Selective Service Act of 1917, its purpose, and the public reaction to it.

III. Loyalty on the Home Front

In the next lesson, I asked the students what these soldiers and sailors needed to fight the war and had them brainstorm for a minute or two. We filled the board with answers such as supplies, food, guns, bullets, clothes, trucks, and boats

I asked the students what was needed to get these things to Europe. Ships and fuel were among the answers. In the ensuing discussion, gave the class the following questions:

1. Who are the figures in the poster? (see p. 14)
2. How would you describe them?
3. Why are they standing next to each other?

4. Who is the intended audience for this poster?

In each case, close to three-quarters of the class volunteered answers, particularly to questions one and two. I was again pleased with the increase in class participation, and I made it a point to call on students who do not usually participate.

As I had anticipated, the third question elicited the most meaningful responses. Daniel, who is a constant contributor to class discussions, began by pointing out that they were actually standing back to back. I asked why this was important.

"It's kind of like they're watching out for each other," he replied. I asked what would happen if the miner stopped working. Several students pointed out that the soldier would be left unprotected. I then asked what that implied about the miner.

"How does the government want the miners to feel?"

One student answered, "Like their job is equal to that of the soldiers."

As I circulated about the room while students were considering the poster, I noticed that nearly every student remained on task. Students were following the discussion and answering the four questions which they had copied in their notebooks. Students who rarely wrote anything down voluntarily had attempted to answer the questions.

IV. Imagining the Enemy

Finally, I showed students the "Stop the Hun" poster (see p. 15) and asked what its purpose might be.

Mary raised her hand and asked two questions: "What is a Hun?" "Why is it written in red?"

I explained "Hun" (as I had to do in all five classes) as a disparaging term linking the modern German soldier and Huns, the Mongolian people who, under Attila's leadership, conquered much of Europe about 450 C.E. Rather than answer her second question, I asked the class about the symbolism of the color red.

I was encouraged by Mary's participation because she is not someone who participates that often and she struggles academically. Her questions showed that she recognized what she needed to clarify before she could

understand the meaning of the poster. With written text, students such as Mary are often so overwhelmed that they cannot identify where to begin. They simply look at the text, say that they do not get it, and give up. A picture offers them something that they can grasp. Perhaps, if these students practice this skill enough with visual stimuli, they will transfer it to written work as they mature.

This particular poster generated quite a bit of discussion. Students described the man as “scary,” “a killer,” and “bloodthirsty.” From the smoke in the back and the land around him, we concluded that he had left a path of destruction. I asked the students what would happen if this were a frame from a movie on a DVD and you pushed the “play” button. In each class, someone answered that the man would stand up.

One girl said that he would “come right for you.”

I asked her where the artist wanted you to think he was going.

Someone called out, “America.”

“How can he be stopped?” I asked.

Several students responded, “By buying bonds.”

Each class reached a similar conclusion. The emotional message of the poster, appealing to fear, was pretty clear.

Assessment

At the end of each unit, students were given a three-part exam with (1) multiple-choice questions that focused on material from the entire unit, (2) several short-answer, document-based questions (DBQs) about a particular theme, and (3) an essay assignment, asking students to synthesize their answers to the DBQs.

My general observations about the use of the posters were that student participation increased, class work improved, and students who usually struggle to understand the material were more attentive and able to interpret the posters on some level. Similarly, student interest in the subject matter increased relative to our work with written documents. Two lower-performing students began competing to see who could find similar posters on the Internet; they brought me printouts each day. Another student sat down to take the test and was pleased to find that he was already familiar

with one of the historical documents for the DBQs, as he had seen it earlier on the Internet. Admittedly, these anecdotes do not imply a greater understanding of material, but for a while social studies won out over chat in after-class discussion and web surfing.

Conclusion

My experience with this study has made me a firm believer in the positive effect of integrating arts and social studies to increase students’ historical comprehension. The activities generated an excitement in the classroom that is not present when one relies solely on the text. At the very least, the excitement got struggling students to participate in the discussions and to imagine being alive at a different time. The discussions required students to recall factual information and apply it to a shared problem. For those who were ready, interpreting a work of art called upon all the skills of critical thinking, and it can raise the “big questions” that are the heart of historical inquiry. 🎨

Notes

1. This article is adapted from my master’s thesis: Tom Carty, “Visualizing History: The Effect of Using Art in Teaching Middle School Social Studies.” Queens College, Flushing, NY, 2004.
2. About half the student population is ethnic East Indian and Pakistani. The rest of the students are a pretty even mix of African-American, Latino, and white, with a small percentage of Asian students. Many of the students are foreign born and speak English as a second language.
3. I do not usually tolerate students spontaneously calling out answers. However, I found that while using the posters, it was difficult to control. Some of the students who were participating do not normally do so; they either were not used to speaking in turn, or they wanted to make sure that they took advantage of their chance to contribute. Either way, I tended to let it go, as it did not disrupt the flow of the lesson, and I was more concerned with getting as many students involved as possible.
4. Thomas Fleming, *The Illusion of Victory: America in World War I* (Cambridge, MA: Basic Books, 2003).

TOM CARTY is an assistant principal at I.S. 162 in Bushwick, New York. He taught social studies at Junior High School 74 and Intermediate School 172 in Queens, New York, for seven years.

ART AND WAR

The United States’ entry into World War I generated the creation and publication of thousands of colorful posters, both at the national and the local level. There were recruitment posters from all branches of the armed forces and posters by service organizations such as the American Red Cross and the YWCA, urging monetary donations to support their work at home and abroad. Other posters helped the government raise millions of dollars through the sale of Liberty Bonds.

Posters by the U.S. Fuel Administration and the Food Administration called for additional civilian participation in the common war effort. Posters issued by the U.S. Labor Department, Norfolk Naval Shipyard, and the Emergency Fleet Corporation urged increased production and efficiency, so that equipment and war material could reach American soldiers on the front lines in Europe.

Many artists used their considerable talents in the creation of posters. A few, such as Howard Chandler Christy, had already achieved commercial fame; others were of local note.

—World War I Poster Collection,
North Carolina State Archives
www.ah.dcr.state.nc.us/Archives/

POSTER I:

Take Up the Sword of Justice

Facts about Historical Events

and Conditions

- Published in 1915 in London by the Parliamentary Recruiting Committee. Partridge Barnard was the artist.¹
- The poster is about the sinking of the passenger ship *Lusitania* by a German submarine on May 7 1915.
- There was a loss of 1,153 lives, including 128 U.S. citizens, who had set sail from New York, bound for Liverpool, England.
- The *Lusitania* itself was unarmed, but Germany claimed, and documents made public years after the war revealed, that munitions were part of the ship's hidden cargo.
- The 1864 Geneva Convention laid the foundations for contemporary humanitarian law. It called for protecting the victims of conflicts, respect for medical personnel, and the care by all nations of wounded soldiers of any side. The Conventions state that civilians are not to be subject to attack. This includes direct attacks on civilians and indiscriminate attacks against areas in which civilians are present.²

Interpretations and Analysis

- No one believes that a woman was walking on water as the ship sank. So what is going on in the picture? There is a strong “mythical” or “allegorical” feeling to the image. The woman with the sword is appealing to a deep human need for justice and meaning in the face of violent death. She is a symbol.
- The poster’s message seems to be that revenge for civilian deaths is a good reason to enter a war, to “take up the sword.”
- The words “tragic” and “vengeful” could be used to sum up the mood of the poster.

Questions for Further Inquiry

- Should the military hide weapons or fighters in a civilian setting (such as a ship or a city)?



Image courtesy of Library of Congress

- During a war, should the military fire upon a civilian target if weapons or fighters are suspected to be hiding there? Or known to be hiding there? What about a city with munitions factories in it?
- Over the last two centuries, the proportion of civilians (as opposed to soldiers) killed in wars has increased substantially.³ What do you think is the reason for this trend?
- Britain, France, and Belgium promised

to come to each other's aid if any one of them was attacked on sea or land. To what extent were *military alliances* a cause of World War I?

Notes

1. The source of these four prints is The Library of Congress. To obtain a high-resolution copy, query a poster title at www.loc.gov/rr/print/catalog.html. The State Library of North Carolina funded the electronic publication of many of these posters.
2. “Geneva Conventions: A Reference Guide,” www.genevaconventions.org.
3. Walter C. Clemens Jr. and David J. Singer, “The Human Cost of War,” *Scientific American* 282, no. 6 (June 2000): 56-7.

POSTER II: *I'd Join the Navy*

Facts about Historical Events and Conditions

- Published in 1917 by the U.S. government. Howard Chandler Christy was the artist.
- In the United States, President Wilson established the Committee on Public Information (CPI) to win popular support for the war and encourage men to join the military.
- In the United States, the head of the Committee on Public Information (CPI) was George Creel. "He was a flashy dresser, an aggressive talker, and very opinionated. Creel's job was to 'sell' the war to the citizens of the United States."¹
- The CPI hired artists, magazine illustrators, and cartoonists to paint patriotic posters and murals.
- In all combatant countries, governments enticed and compelled young men to join the armed forces.
- Propaganda is the spreading of ideas, information, or rumor for the purpose of helping a purpose, a cause, or a country. Most historians consider these posters to be clear examples of war-time propaganda.

Interpretations and Analysis

- The sexual overtones of the image and the words are obvious. The message seems to be "men who join the Navy are more attractive to women than those who don't."
- Advertisers have three main methods of catching the viewer's attention: sex, humor, and violence. Which of these methods are employed in this poster?

Questions for further Inquiry

- Should a government advertise the armed services with messages about sexual attraction?
- If a nation goes to war, should the government draft young men to fight in it?



Image courtesy of Library of Congress

- If so, should young women also be drafted, in our day and age?
 - To what extent was *militarism* a cause of World War I? ²
- Notes**
- 1 Gail B. Stewart, *World War I* (San Diego, CA: Lucent Books, 1991), 55.
 - 2 Stewart Ross, *Causes and Consequences of World War I* (Austin, TX: Raintree Steck-Vaughn, 1998), 44.

POSTER III: *Mine More Coal*

Facts about Historical Events and Conditions

- Published in 1918 by the U.S. government. Walter Whitehead was the artist.
- The “boys in the trenches” were the soldiers in Europe. World War I was the first major conflict in which the fronts between fighting armies were defined by stationary trenches dug in the ground and barbed wire.
- The war brought a huge change to the U.S. economy and to everyday civilian life. Factories that had turned out sewing machines or cars began making machine guns and airplanes. Materials such as steel, cloth, rubber, and leather were diverted to the war effort.
- The government even asked citizens to change their eating habits as the country began to ship much of its food to Europe for the Allied armies and civilians, whose own farmlands had become battlefields.

Interpretations and Analysis

- The two men convey strength and solidarity, but also watchfulness and fear.
- The two men protect each other’s vulnerability, “watching each other’s back.”
- The poster symbolizes the interdependence of civilian and military efforts to sustain the nation.
- The word “heroic” might be used to summarize the mood of the poster.

Questions for further Inquiry

- Why might the government want citizens to see their daily jobs as heroic?
- Should citizens be willing to work harder at their jobs and accept rationing of food and fuel (“making do with less”) when their nation goes to war?
- In 1914, European nations were competing with each other over control of global resources within a colonial system of



Image courtesy of Library of Congress

imperialism. To what extent was *imperialism* a cause of World War I?

- Today in the United States, what portion of the oil that we use comes from other countries? (Answer: 56 percent)
- Consumption by industrializing nations is expected to double over the next 25 years, from 15 to 32 million barrels of oil a day.¹ Do you think this

situation might be a source of present or future conflicts? 🌐

Notes

1. Natural Resources Defense Council, “Safe, Strong and Secure: Reducing America’s Oil Dependence,” 2004, www.nrdc.org/air/transportation/aoilpolicy2.asp.

POSTER IV:

Beat Back the Hun with Liberty Bonds

Facts about Historical Events and

Conditions

- Published around 1918 by the U.S. government. F. Strothmann was the artist.
- The U.S. government sold Liberty bonds as a way to finance the war. The United States emerged after the war as the world's leading economic power, but the main legacy of the war in Europe was economic instability.
- In all combatant countries, some 70 million men served in the military. Of these, about 9 million (13 percent) died.
- About 116,000 U.S. soldiers were killed (4 percent of those under arms).

Interpretations and Analysis

- “Demonizing the enemy” is a method of inciting people to violence against an opponent.
- “Hun” is a disparaging term linking the modern German soldier and Huns, the Mongolian people who, under Attila’s leadership, conquered much of Europe about 450 C.E.
- “The U.S. Committee on Public Information wanted Americans to think of the Germans as people capable of killing children and committing other atrocities. There is no evidence that German soldiers were any more cruel than French, British, or American soldiers.”¹
- Depicting the enemy as wicked and inhumane is a method of convincing the public that war is necessary, a method that has been used often in history.

Questions for further Inquiry

- How should a government raise money if it decides to go to war?
- Should a government borrow money to finance a war, taking out loans that taxpayers will have to repay in the future?

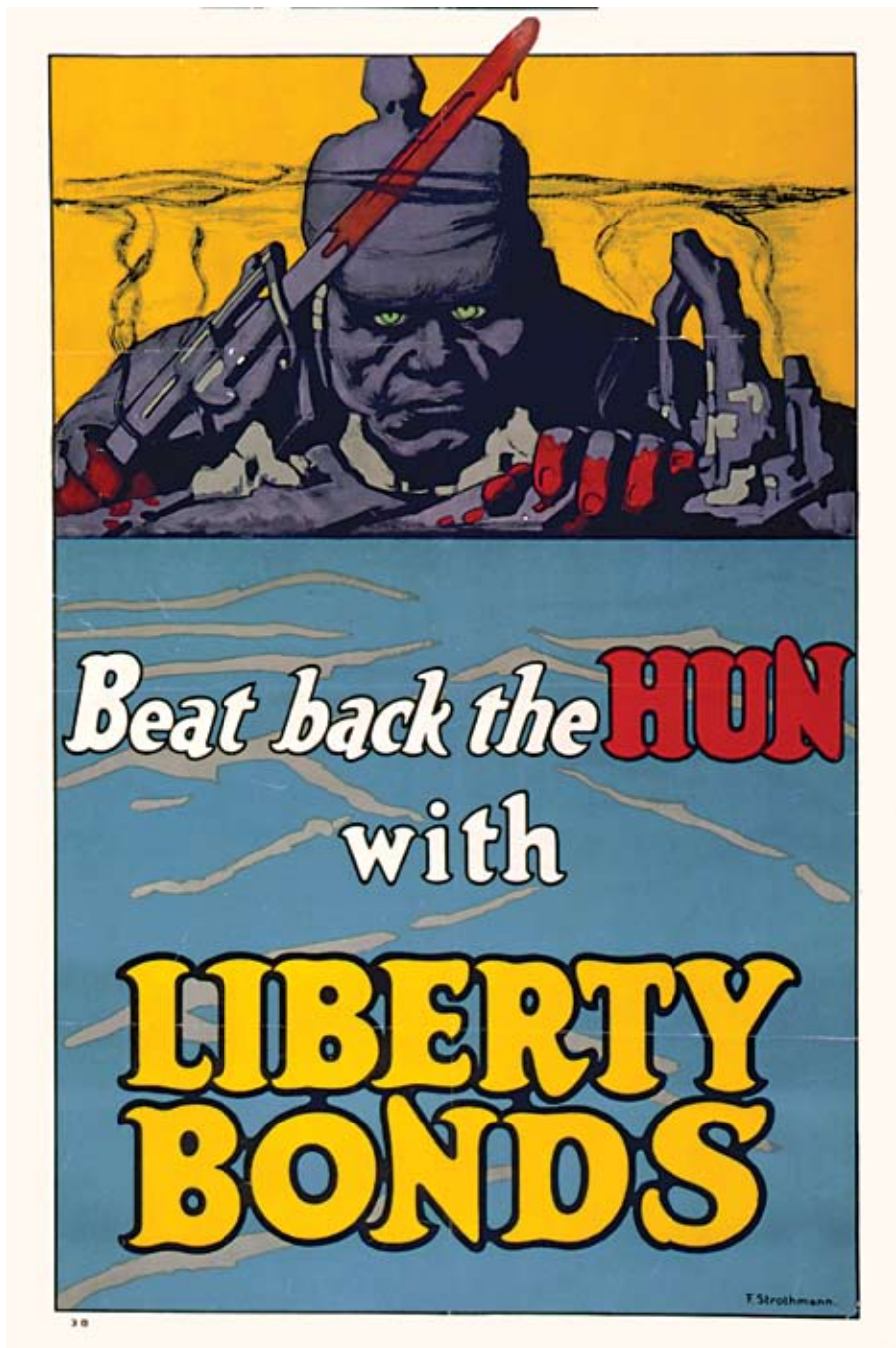


Image courtesy of Library of Congress

- Should a government demonize its opponents in propaganda in order to win citizen support and loyalty?
- Should a government promote a war with propaganda?
- What should be the role of independent media (newspaper, radio, and television companies that are not owned by the government) when a

government is promoting a war with propaganda?

- To what extent was *nationalism* a cause of World War I? 🌐

Notes

1. Gail B. Stewart, *World War I* (San Diego, CA: Lucent Books, 1991), 56.

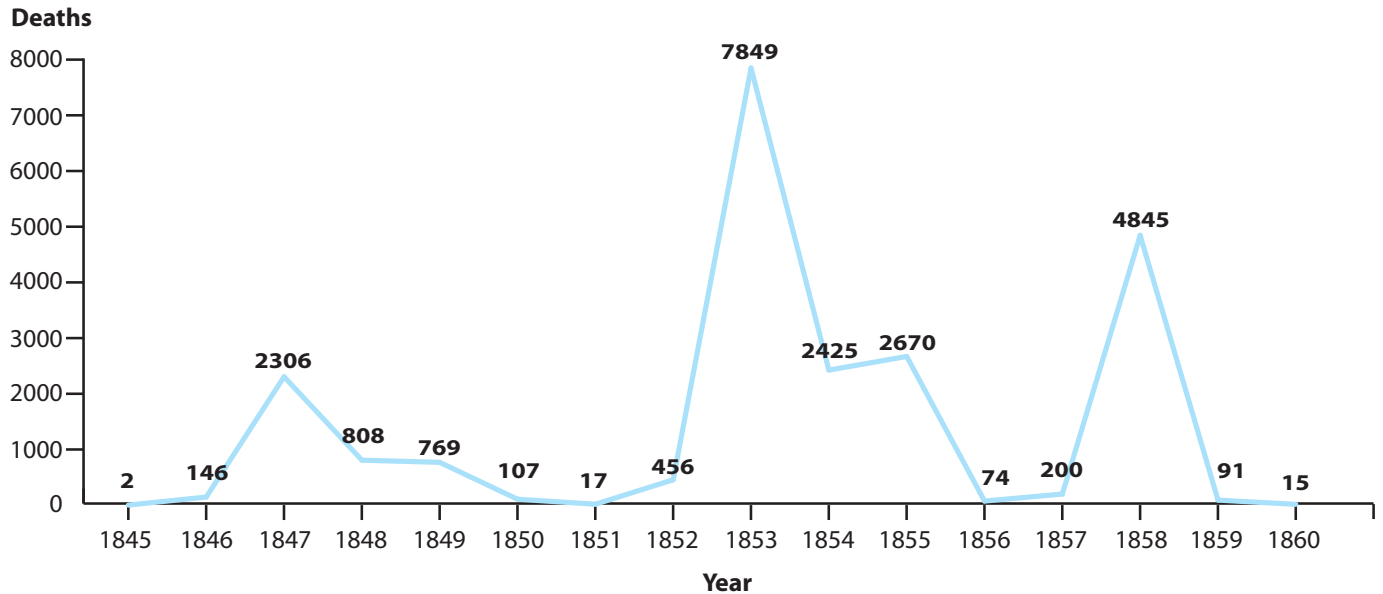


On the Trail of an Epidemic

Background: New Orleans had the highest death rate of any U.S. city during much of the antebellum period. The city was densely populated and had open gullies serving as sewers. It was notorious for its general filth.

Ships brought diseases from around the world into port, and newly arriving immigrants were challenged by diseases for which they had little immunity. Nutrition was often poor, and drinking water often impure. The city was hit by yellow fever epidemics so regularly that anyone who could afford to leave the city for the summer did so. Here are data from some of those deadly years:

Yellow Fever Deaths in New Orleans from 1845 to 1860



Graphing Activity

“Connect the dots.” Draw line segments from one data point to another, moving from left to right, from year to year. This creates a zigzag path across the graph. Now you can clearly see the rising and falling pattern of fatalities from the disease over time.

Discussion Questions

- 1 During which years were the deaths from yellow fever in the thousands?
- 2 Which year had the most deaths?
- 3 Why do you think there are steep drops after the three “peaks” on the graph?
- 4 Mosquitoes bred in the swamps that surrounded New Orleans and in rainwater, stored in open cisterns, which was used for washing by households and businesses. Why was this buggy situation a health problem for the city?

Answers

- 1 The years 1847, 1853, 1854, 1855, and 1858 had deaths in the thousands.
- 2 The worst year was 1853, with 7849 deaths.
- 3 There are several possible reasons. After a particularly bad epidemic, more people might escape from the city the following summer, or leave permanently. (If population losses in a city exceed population growth, the next year’s total population will be less, and there will be fewer potential victims for the disease.) People who survived and remained may have had immunity to the disease. The strain of yellow fever may have been weaker or stronger from one year to the next.
- 4 In 1901, doctors proved that mosquitoes spread yellow fever. The infectious agent is a virus carried by the mosquitoes.