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About the Cover

Remembering Daumier's Blue Period

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We continue to be struck by terrible emerging epidemics: AIDS, SARS, pandemic influenza, to name but a few (Morens et al. 2004). And we resist, as we have always resisted, accepting the possibility that such epidemics can or should change us. Historians say, for example, that deadly eighteenth century epidemics of "American Plague" (yellow fever) forever stamped the American character (Krieg 1992), yet, as an American, today I barely remember them and cannot believe my "character" is in any way related.

Artists see things differently. They understand that epidemics are among the most important agents of human societal evolution; when they cannot foresee where evolution is going they must at least bear witness to the forces of change. In 1839, a struggling Parisian artist, Honoré Daumier (1808–1879) illustrated a curious book of verse with pen-and-ink sketches. *Némésis médicale illustrée* ["illustrated medical vengeance", Ref. (Fabre 1840)] contains a "satire", "Souvenirs de cholera-morbus", which includes this issue's *EcoHealth Journal* cover image. The wood engraving, made from Daumier's drawing, tells Daumier's own story about a devastating epidemic now almost entirely forgotten in its specifics, yet indirectly remembered in the changed world it produced.

Almost nothing was known about cholera in 1830, when the disease began to creep inexorably from Asia toward Europe (Morens et al. 2008). For over a year newspapers reported its day-to-day progress between ports and

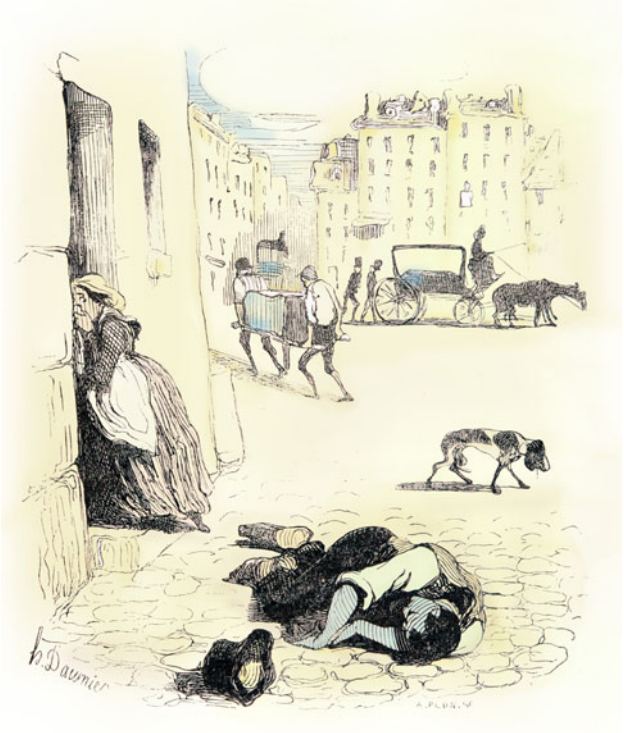

Figure 1. Memories of cholera morbus. Honoré Daumier, from *Némésis médicale illustrée* (illustrated medical nemesis) vol 1, by François Fabre, Paris, 1840.

along waterways and roadways, never traveling faster than a man could travel in a day, and always "overwintering" when the weather turned cold. Week after week, month after month, Europe watched with dread and bizarre fascination as the pandemic claimed one city after another. Relentlessly approaching, it reached Archangel in May

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1831, Constantinople in July, and Wien in August. In Berlin it killed philosopher Georg Wilhelm Friedrich Hegel; composer Fanny Mendelssohn-Hensel survived, barely, to write the brilliant *Cantate nach Aufhören der Cholera in Berlin*. Slowing down after the onset of winter, cholera next appeared in Scotland and England. By February 1832 France was surrounded.

In the early 1830s ''infection'' was an unknown concept. Most physicians and scientists still held vague notions about epidemic miasmas arising from marsh gases or decomposing organic matter. Microorganisms had been seen under microscope lenses, but they were not imagined to be associated with disease. Cholera's directional advance, like an invisible enemy consciously charging ahead with malevolent resolve, was incomprehensible and horrifying.

Paris took extraordinary steps to prevent cholera's arrival, creating within a few months a new cholera-specific civil and public health infrastructure. Cholera nevertheless stormed violently into the city on the night of 29 March 1832, eventually killing more than 18,000 victims. Contemporary accounts claim it first entered a masked ball, to strike revelers mocking the disease with ''cholera costumes'', ''cholera waltzes'', and ''cholera *galopades*''. Some remembered the menacing circulation of an extremely tall figure dressed as a skeleton. Suddenly, people became violently ill and collapsed; beneath their masks, torn off in their struggles to breathe, were faces of deadly blue color. Dying costumed harlequins were carried off and quickly buried in their colorful livery. (Described by poet Harry [Heinrich] Heine and others, death circulating at a masked ball has since become a stock cultural image that survives in countless films, stories, and other works, such as Edgar Allen Poe's *Masque of the Red Death*, the *Conte fantastique* for string quartet and harp by André Caplet, and in the image of the ''eternal footman'' in T. S. Eliot's ''*Prufrock*'').

Parisian deaths exploded as the city quickly descended into terror and madness. Death seemed to strike randomly and everywhere at once. People fell down and died in the streets, their faces turned a frightening blue-violet from sudden massive circulatory collapse. Unable to remove bodies quickly enough, the government gave up building new corpse wagons. Government rented carpet and furniture vans rolled onward day and night with stacked compressed cadavers inside, spilling putrid bodily fluids onto the pavement and dirt, emitting terrifying ''sighs'' on their way to join layers of corpses in mass graves, throwing up a stench that blanketed the city. With no idea where epidemic death was coming from, wild rumors about mass water poisoners arose. Vigilante groups accosted people at bridges and intersections; those with suspicious powders might be beaten or murdered, their bodies mutilated after death. Mobs barricaded streets. Prime Minister Casimir Périer visited the central hospital to restore calm and comfort victims. He became infected, dying in the arms of France's most renowned physician, François-Joseph-Victor Broussais, who performed an autopsy in Perier's hotel and reported the results in the morning papers.

Daumier's drawing of the tragedy (Fig. 1) captures much of its shock and horror. We see a street and an open square with figures placed in several successive planes, drawing us in like a well-plotted narrative. In the foreground an ordinary citizen has fallen. His bent position and his lost shoe and hat suggest a sudden cramping seizure. The dark face indicates cyanosis (the original wood engraving was published in black and white; coloration was added at a later time by unknown sources. This image had color retouching in 2011 by artist John Weddle). To the left of the fallen man a frightened woman ducks into a doorway, a handkerchief held over her nose and mouth to prevent inhalation of poisonous miasmas. Further back lurks a skinny salivating dog, perhaps eyeing a next meal. In mid-distance two ambulance porters carry off another victim. Behind them a hearse-drawn casket is followed by two top-hatted undertakers, a second hearse close behind. In the background are tall buildings; this is the old city before Haussmann transformed it into the Paris of today. The buildings appear identical to the tall apartments in an 1838 photograph looking down the Boulevard du Temple, where the deadly masked ball actually took place. Over the entire scene hangs a cloud, perhaps a miasma or rising stench from the mass graves. Daumier the humanist does not this time editorialize: he simply bears witness.

The 1832 cholera pandemic pulled us into a recognizably modern era of medicine and public health. It was the first emerging infectious disease studied prospectively and systematically, in ''real time'', and the first subjected to population-based epidemiologic analysis (Benoiston de Châteauneuf et al. 1834). Dividing deaths by census data, the newspapers and journals published attack rates, mortality rates, case fatality rates, and attributable risks, examining such variables as age, sex, occupation, and socioeconomic status (Benoiston de Châteauneuf et al. 1834). One of the first epidemic curves was plotted. Seventeen years before John Snow's classic studies, investigators linked cholera to contaminated fountain water and hypothesized ''tiny living organisms'' as the cause.

Numerous clinical studies were undertaken, including some of the first attempts to save lives with intravenous saline solutions and oxygen administration. Statistical documentation of higher death rates in the poor and disadvantaged led to sanitary improvements. Within 18 years—that is, more than 15 years before the "germ theory" was established, and almost 25 years before Koch's discovery of cholera vibrios—Parisian water lines had been multiplied ninefold and hydrants eightfold, its sewers massively overhauled and rebuilt as well.

Lessons learned from the devastation depicted by Daumier are hiding in plain sight today. If we trace backward from modern hygiene, sanitation, public health, and epidemiology, there is no more obvious root on our ideational dendrogram than the 1832 cholera pandemic. The public health responses it provoked began to control cholera long before we knew its bacterial cause, and long before we began to appreciate its complicated ecology and epizootiology (Colwell 2004). We now know that cholera vibrios live in ocean and estuarine ecosystems in association with copepods that feed on phytoplankton, undergoing significant genetic evolution in complex environmental reservoirs. We know that cholera vibrios are transported around the world by vessels and by travelers. The mysteries of 1832 were understood long ago. Yet within its global aquatic reservoir, continually evolving and dispersing, cholera remains a disease waiting to be invited almost anywhere, any time that basic sanitation and hygiene break down.

In 180 years cholera has moved on from Paris. Sanitary responses beginning in the developed world in 1832 forced it to become a disease of poverty, refugees, and natural disasters. It now stalks new victims; eventually it finds them and harvests their lives. Whenever and wherever it appears, cholera tells us we have failed to remember, or failed to act responsibly upon what we have learned. That thousands still die needlessly of cholera every year is a tragedy Daumier would not have accepted. Were he alive today, might we find him in Haiti, painting the marginalized and forgotten, those who die of cholera today? Would he still depict a fallen victim in a street? A genius at capturing the most complicated ironies of human existence, maybe Daumier could instead find some way to draw the ways in which we choose to keep cholera alive: complacency, lack of compassion for our fellow man, and failure to remember the hard-won lessons Daumier once bore witness to.

About the Artist

Honoré Daumier (1808–1879) was a French printmaker and artist, best known for his political caricatures and social satires. Daumier produced an incredible number of works during his career: 4,000 lithographs, 1,000 wood engravings, several hundred paintings, and various sculptures (Peter 2008). The political and literary subject matter that persists throughout his study was likely influenced by early childhood experiences. Daumier's family lived in Marseilles, where his father worked as a glazier. His father also wrote verse and tragedy. In 1816, after some writing success in Marseilles, he decided to move the family to Paris so that he could pursue a solely literary career. The writing career failed, the elder Daumier returned to his glazier craft, and Honoré was pulled from school. At the age of 12, the young Daumier began working as an errand boy for a court bailiff. This exposed Daumier not only to the politics of the court system, but also to the troubles of the poor. Then, in 1824, Daumier began studying lithography under his father's friend, Alexandre Lenoir. Daumier's lithography career took shape under the constitutional monarchy of King Louis-Philippe, who initially liberalized press laws. For more than 40 years, Daumier produced daily full-page lithographs and small illustrations for the left-leaning republican paper *Le Charivari*. His most popular prints were republished in special collections. While Daumier is perhaps most famous for his satires on politics and society, his illustrations also touched on topics as wide-ranging as theater, science, relationships, education, and the justice system (Peter 2008).

On the Cover

Memories of cholera morbus (1840) by Honoré Daumier. From *Némésis médicale illustrée* (Illustrated Medical Nemesis) vol. 1, by François Fabre, Paris, 1840. Original: wood engraving 7 × 8.3 inches. The cover art for this issue was sponsored by EcoHealth Alliance and reproduced with the generous permission of the National Library of Medicine. Early hand-coloring recreated by John Weddle

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